## Contents

### Figures ........................................ vii

### Tables ......................................... xi

### Preface ......................................... xiii

About this document ............................. xiii

Who should use this document .............. xiii

What is in this document ..................... xiii

The z/OS Basic Skills Information Center ... xiv

How to read the syntax diagrams .......... xiv

### How to send your comments to IBM ..... xix

If you have a technical problem .......... xix

### Summary of changes ........................... xxi

Product function made in z/OS V1R13.0 ISPF xxii

ISPF product changes ........................... xxii

ISPF Dialog Manager component changes ... xxii

ISPF PDF component changes .................. xxii

ISPF SCLM component changes .............. xxii

ISPF Client/Server component changes ... xxii

Migration considerations ..................... xxii

Changes to this document for z/OS V1R13.0 ISPF xxiii

### What's in the z/OS V1R13.0 ISPF library? xxv

### Chapter 1. Primary Option Menu (POM) 1

The Primary Option Menu panel ............... 1

ISPF primary options .......................... 1

Primary Option Menu action bar choices ..... 3

Status area on the Primary Option Menu . 5

Status pull-down ............................... 5

Defining the status area ...................... 13

### Chapter 2. Settings (option 0) .......... 23

ISPF Settings panel fields .................... 24

Select options .................................. 24

Terminal characteristics .................... 27

Print graphics parms .......................... 28

General ........................................ 30

ISPF Settings panel action bar .............. 30

Specifying log and list defaults and characteristics (the Log/List action bar choice) . 32

Working with function keys and keylists (the Function Keys action bar choice) ......... 37

The Function keys pull-down ................ 50

Changing default colors (the Colors action bar choice) ................................... 51

Specifying ISPF ENVIRON settings (the Environ action bar choice) ...................... 57

Specifying shared profile settings (the Environ action bar choice) .................. 58

### Chapter 3. View (option 1) ............ 77

View Entry Panel action bar .................. 78

View Entry Panel fields ....................... 78

Browsing a data set ............................ 80

Ending browse ................................ 81

Browse primary commands ................... 81

### Chapter 4. Edit (option 2) ............. 95

Editing a data set ............................. 95

Edit Entry Panel action bar ................. 96

Edit Entry Panel fields ....................... 96

Distributed editing ............................ 99

Double-byte character set support ......... 100

### Chapter 5. Utilities (option 3) .......... 101

Utility Selection Panel action bar ........ 101

Library utility (option 3.1) ................. 101

Library Utility panel action bar .......... 102

Library Utility panel fields ............... 102

Library utility options for data sets .... 102

Library utility options for members ...... 111

Data set utility (option 3.2) ............... 113

Data Set Utility panel action bar ......... 113

Data Set Utility panel fields .............. 114

Data set utility options ..................... 114

Move/Copy utility (option 3.3) ......... 133

Move/Copy Utility panel action bar ...... 133

Move/Copy Utility panel fields ........... 133

Move/Copy utility options ................. 134

Data set list utility (option 3.4) ........ 140

Data Set List Utility panel action bar ... 140

Data Set List Utility panel fields ........ 141

Data set list utility options .............. 147

Data set list utility line commands ...... 161

Data set list utility primary commands ... 169

Reset ISPF statistics utility (option 3.5) ....... 179

Reset ISPF statistics panel action bar ... 180

Reset ISPF statistics panel fields ....... 180

Reset ISPF statistics utility options .... 181

Hardcopy utility (option 3.6) .............. 183

Hardcopy utility panel action bar ....... 183

Hardcopy utility panel fields ............. 184

Generating and submitting JCL .......... 184

Additional batch printing information ... 186

Using the TSO/E information center facility ....... 186

Download data set to workstation utility (option 3.7) .................................. 188

Download ISPF C/S component .......... 188

Download/upload data set ................. 191

Outlist utility (option 3.8) ................. 192
Chapter 8. Command (option 6) . . . 365
ISPF command shell panel action bar . . . . 365
The saved command area . . . . 367
Entering TSO commands, CLISTs, and REXX EXECs . . . . 367
   Rules for entering TSO commands . . . 367
   Rules for entering CLISTs and REXX EXECs . . 368
Using the session manager . . . . 368

Chapter 9. Dialog test (option 7) . . . 371
The dialog test environment . . . . 371
   Dialog test primary option panel action bar . . 373
Using variables . . . . 374
Severe error handling . . . . 374
Commands . . . . 375
   Ending the current option without saving changes . . . 376
   Saving changes . . . . 377
   Finding a character string . . . . 377
   Displaying breakpoint qualification data . . . 377
   Restoring the format of the Breakpoints panel . . 377
   Dialog test line commands . . . . 377
   Setting a keylist for dialog test . . . . 378
Functions (option 7.1) . . . . 379
   Invoke dialog function/selection panel action bar . . . 380
   Invoke dialog panel fields . . . . 381
Panels (option 7.2) . . . . 383
   Display panel action bar . . . . 383
   Display panel fields . . . . 384
Variables (Option 7.3) . . . . 385
   Variables panel action bar . . . . 386
   Variables panel fields . . . . 387
   Variables commands . . . . 387
   Manipulating variables . . . . 388
   Variables usage notes . . . . 388
Tables (option 7.4) . . . . 390
   Tables panel action bar . . . . 390
   Tables panel fields . . . . 391
   Tables panel options . . . . 392
Log (option 7.5) . . . . 402
   ISPF transaction log not available . . . . 403
   Trace output in ispf log . . . . 403
Dialog services (option 7.6) . . . . 404
   Invoke dialog service panel action bar . . . 405
   Special display panel . . . . 406
Traces (option 7.7) . . . . 407
   1—function traces . . . . 408
   2—variable traces . . . . 410
Breakpoints (option 7.8) . . . . 411
   Specifying breakpoints . . . . 412
   Breakpoints panel action bar . . . . 412
   Breakpoints panel fields . . . . 413
   Qualification parameter values . . . . 413
   Finding a breakpoint . . . . 415
Tutorial (option 7.1) . . . . 418
Exit (option 7.X) . . . . 418

Chapter 10. IBM products (option 9) 419

Chapter 11. SCLM (option 10) . . . 421
SCLM Main Menu action bar . . . . 421
SCLM overview . . . . 422

Chapter 12. ISPF object/action workplace (option 11) . . . . 423
Selecting objects . . . . 423
   Workplace entry panel . . . . 423
Specifying actions . . . . 426
   Choices on the Workplace action bar . . . 426
   Actions that require prompt windows for more information . . . . 437
Commands . . . . 445
   Default CUA function key settings . . . . 446
   Changing workplace settings . . . . 447
   Workplace example scenario . . . . 451

Appendix A. SuperC reference . . . . 455
Utility differences . . . . 455
   Standard utilities . . . . 455
   Extended utilities . . . . 455
Program description . . . . 456
   SuperC features for the year 2000 transition . . . . 457
Applications . . . . 457
Process options . . . . 459
Process statements . . . . 469
   Change listing value . . . . 471
   Change text . . . . 471
   Comment lines . . . . 472
   Compare byte offsets . . . . 473
   Compare (search) columns . . . . 474
   Compare lines . . . . 475
   Compare sections . . . . 476
   Define column headings . . . . 478
   Do not process lines . . . . 479
   Exclude data . . . . 481
   Focus on data . . . . 481
   Line count . . . . 482
   List columns . . . . 482
   List previous-search-following value . . . . 483
Revision code reference . . . . 483
Search strings in the input file . . . . 484
   Select PDS members . . . . 486
   Statements file listing control . . . . 487
   Title alternative listing . . . . 487
   Work size . . . . 488
   Year aging . . . . 488
   Date definitions . . . . 489
   Global date . . . . 492
   Reasons for differing comparison results . . . . 492
Return codes . . . . 493
SuperC and search-for technical overview . . . . 494
   How SuperC and search-for filter input file lines . . . . 494
   How SuperC matches input files . . . . 495
   How SuperC partitions and processes large files . . . . 497
   Comparing and searching alias members . . . . 497
   Comparing load modules . . . . 498
   Comparing CSECTs . . . . 498
   How to directly invoke SuperC and search-for . . . . 498

Contents V
### Appendix B. Understanding the listings

- General listing format ........................................ 501
- How to view the listing output ................................ 501
- The comparison listing ............................................. 501
  - Page headings .................................................. 501
  - Listing output section ...................................... 502
  - Member summary section .................................. 504
  - Overall summary section ................................ 506
  - Examples of comparison listings ......................... 507
- The search listing .................................................. 513
  - Page heading .................................................... 513
  - Source lines section ........................................ 514
  - Summary section ............................................. 517
  - Examples of search listings ................................ 518

### Appendix C. Update files

- Revision file ....................................................... 524
- Revision file (2) .................................................. 525
- Update CMS sequenced 8 file ................................ 525
- Update control files ............................................ 526
  - Update control file (LINE Compare Type) ............ 527
  - Update control file (WORD compare type) ............ 528
  - Update control file (BYTE compare type) ............ 529
- Update long control ............................................. 530
- Update MVS sequenced 8 file ................................ 530
- Update prefixed delta lines .................................. 531
- Update sequenced 0 file ........................................ 532
- Update summary only files .................................... 533
  - Update summary only file (LINE compare type) .... 533
  - Update summary only file (WORD compare type) .... 534
  - Update summary only file (BYTE compare type) .... 535

### Appendix D. Accessibility

- Using assistive technologies .................................. 537
- Keyboard navigation of the user interface ................ 537
- z/OS information .................................................. 537
  - Dotted decimal syntax diagrams ....................... 537

### Notices

- Policy for unsupported hardware ............................ 542
- Programming Interface Information ......................... 543
- Trademarks ......................................................... 543

### Index

- ................................................................. 545
Figures

1. Sample syntax diagram .......................... xv
2. ISPF Primary Option Menu (ISR@PRIM) .... 1
3. Status pull-down on the ISPF Primary Option Menu (ISR@PRIM) ........ 6
4. ISPF Primary Option Menu status area – session view ..................... 7
5. System information pop-up ................................ 8
6. Environment pop-up (release information) ............................. 9
7. ISPF Primary Option Menu status area – function keys view ............ 10
8. ISPF Primary Option Menu status area – calendar view .................. 10
9. Julian date pop-up .................................... 11
10. Standard date pop-up ................................ 12
11. ISPF Primary Option Menu status area – user status view .................. 12
12. ISPF Primary Option Menu status area – user point-and-shoot view .... 13
13. ISPF status pop-up (ISPSAMMN) .................................. 14
14. Status pull-down in ISPF status pop-up ............................... 15
15. Options pull-down in ISPF status pop-up ................................ 16
16. Calendar month pop-up window .................................. 17
17. Calendar year pop-up window .................................. 17
18. Calendar start pop-up window .................................. 18
19. Calendar time format pop-up window .................................. 18
20. Calendar colors panel (ISPCALGC) .................................. 19
21. User view customization panel (ISPSAMUS) .................................. 20
22. User point-and-shoot panel (ISPSAMUP) .................................. 21
23. ISPF Settings panel (ISPISMMN) .................................. 23
24. Screen containing graphics to be printed using PRINTG .................. 29
25. Example of using aspect ratio parameter 0 .......................... 29
26. Example of using aspect ratio parameter 1 .......................... 30
27. Log Data Set Defaults panel (ISPIFML1) .................................. 32
28. List Data Set Defaults panel (ISPIFML2) .................................. 34
29. List Data Set Characteristics panel (ISPIFML3) .......................... 35
30. Log and List JCL panel (ISPIFMLJ) .................................. 37
31. Function keys pull-down on the ISPF settings panel action bar (ISPISMNN) .................................. 39
32. PF Key Definitions and Labels panel (ISPOPT3D) .................. 40
33. Using the PF Key Definitions and Labels panel (ISPOPT3E) ........ 41
34. Example screen with function key definition lines .................. 42
35. Keylist Utility panel (ISPKLUP) .................................. 43
36. Keylist Create panel (ISPKLUCR) .................................. 44
37. Keylist Change panel (ISPKLUCH) .................................. 46
38. Keylist utility view panel (ISPKLUB) .................................. 47
39. Keylist utility with delete keylist confirmation pop-up (ISPKLUB) .... 48
40. Tailor Function Key Definition Display panel (ISPOPT3A) .... 49
41. Global Color Change Utility panel (ISPOPT10) .................. 52
42. Global GUI color change utility panel (ISPOPTG1) .................. 53
43. Color change panel with drop-down list .......................... 54
44. CUA Attribute Change Utility panel (ISPOPT11) .................................. 55
45. CUA Attribute Change Utility panel positioned on the point-and-shoot panel element (ISPOPT1X) .................................. 56
46. ISPF ENVIRON Settings panel (ISPEVNAV) .................................. 57
47. Multi-Logon Profile Sharing Settings (ISPISSA) .......................... 58
48. Workstation pull-down on the ISPF settings panel action bar (ISPISMNN) .................................. 59
49. The Workstation Agent window .................................. 59
50. Initiate Workstation Connection panel (ISPSMGI) .................. 60
51. WSA connection panel .................................. 63
52. Client/Server Component Update panel (ISPDVTVD1) .................. 64
53. Client/Server Component Install Program panel (ISPSWSD0A) .... 65
54. GUI settings pop-up window (ISPISMGS) .................................. 66
55. ISPF Workstation Tool Integration panel .................................. 68
56. Modify Tool Configuration window .................................. 69
57. Extension Mapping Dialog window .................................. 70
58. Identifier pull-down on the ispf settings panel action bar (ISPISMNN) .................................. 71
59. Panel displayed with the message identifier set to on .................. 72
60. Panel displayed with the system name set to on .......................... 72
61. Panel displayed with the user ID set to on .................................. 73
62. Panel displayed with the panel identifier set to on .................. 74
63. Panel displayed with the screen identifier set to on .................. 74
64. View Entry panel (ISRBRO01) .................................. 77
65. Browse - data display (ISRBROBA) .................................. 80
66. Browse - column-identification line (ISRBROBA) .................. 82
67. Browse hexadecimal display - vertical (ISRBROBA) .................. 90
68. Browse hexadecimal display - data (ISRBROBA) ........ 91
69. Edit Entry panel (ISREDM01) .................................. 96
70. Utility Selection Panel (ISRUTIL) .................................. 101
71. Library Utility panel (ISRUDAI) .................................. 102
72. Member list commands pop-up window (ISRCMLEP) .................. 103
73. Data Set Information panel (ISRUAIMP) .................................. 105
74. Volume Information for a Multivolume Data Set (ISRUAMVI) .................. 106
75. Data Set Information for PDSE Managed Data Sets (ISRUAMVI) .................. 107
76. Data Set Information for Managed Data Sets (ISRUAMVI) .................. 108
77. Volume Information for a Managed Multivolume Data Set (ISRUAMVI) .................. 108
78. Short data set information (ISRUAIMP) .................................. 109
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>164.</td>
<td>Example: specifying a z/OS UNIX command to run on a selected file</td>
<td>276</td>
</tr>
<tr>
<td>165.</td>
<td>Example: running the selected file directly</td>
<td>276</td>
</tr>
<tr>
<td>166.</td>
<td>Example: specifying a REXX exec to run on a selected file</td>
<td>277</td>
</tr>
<tr>
<td>167.</td>
<td>z/OS UNIX Directory List Actions pop-up window</td>
<td>278</td>
</tr>
<tr>
<td>168.</td>
<td>Modify z/OS UNIX File Audit Options panel (ISRULAA)</td>
<td>279</td>
</tr>
<tr>
<td>193.</td>
<td>Modify z/OS UNIX File System Attributes panel (ISRULFS)</td>
<td>290</td>
</tr>
<tr>
<td>194.</td>
<td>Modify z/OS UNIX Information panel (ISRULIN)</td>
<td>293</td>
</tr>
<tr>
<td>195.</td>
<td>z/OS UNIX Symbolic Link Information panel (ISRULIS)</td>
<td>296</td>
</tr>
<tr>
<td>196.</td>
<td>Modify z/OS UNIX ACL list panel (ISRULMA)</td>
<td>297</td>
</tr>
<tr>
<td>197.</td>
<td>Modify z/OS UNIX File Format panel (ISRULMF)</td>
<td>298</td>
</tr>
<tr>
<td>198.</td>
<td>Modify z/OS UNIX File Owning Group panel (ISRULMG)</td>
<td>299</td>
</tr>
<tr>
<td>199.</td>
<td>Modify z/OS UNIX File Owning User panel (ISRULMO)</td>
<td>301</td>
</tr>
<tr>
<td>200.</td>
<td>Create New z/OS UNIX File panel (ISRULNW)</td>
<td>302</td>
</tr>
<tr>
<td>201.</td>
<td>Personal Data Set List Add pop-up panel</td>
<td>304</td>
</tr>
<tr>
<td>202.</td>
<td>Modify z/OS UNIX File User Audit Options panel (ISRULUA)</td>
<td>304</td>
</tr>
<tr>
<td>203.</td>
<td>Foreground Selection Panel (ISRFPA)</td>
<td>317</td>
</tr>
<tr>
<td>204.</td>
<td>Foreground Print Options panel (ISRFPPRT)</td>
<td>320</td>
</tr>
<tr>
<td>205.</td>
<td>Foreground Print Options panel with TSO/E information center facility (ISRFPPI)</td>
<td>327</td>
</tr>
<tr>
<td>206.</td>
<td>Foreground Assembler panel (ISRFP01)</td>
<td>328</td>
</tr>
<tr>
<td>207.</td>
<td>Foreground COBOL Compile panel (ISRFP02)</td>
<td>329</td>
</tr>
<tr>
<td>208.</td>
<td>Foreground VS FORTRAN Compile panel (ISRFP03)</td>
<td>330</td>
</tr>
<tr>
<td>209.</td>
<td>Foreground PL/I Optimizing Compile panel (ISRFP05)</td>
<td>331</td>
</tr>
<tr>
<td>210.</td>
<td>Foreground VS Pascal Compile panel (ISRFP06)</td>
<td>332</td>
</tr>
<tr>
<td>211.</td>
<td>Foreground Binder/Linkage Editor panel (ISRFP07B)</td>
<td>333</td>
</tr>
<tr>
<td>212.</td>
<td>SCRIPT/VS Processor panel (ISRFP09)</td>
<td>335</td>
</tr>
<tr>
<td>213.</td>
<td>Foreground Print Options for Style panel (ISRFP09P)</td>
<td>337</td>
</tr>
<tr>
<td>214.</td>
<td>Select SCRIPT/VS Formatting Style panel (ISRFP09T)</td>
<td>339</td>
</tr>
<tr>
<td>215.</td>
<td>SCRIPT/VS Options for Style: DRAFT panel (ISRFP09T)</td>
<td>340</td>
</tr>
<tr>
<td>216.</td>
<td>Foreground Print Options for Style panel with the TSO/E information center facility (ISRFP09)</td>
<td>341</td>
</tr>
<tr>
<td>217.</td>
<td>COBOL Debug panel (ISRFP10A)</td>
<td>342</td>
</tr>
<tr>
<td>218.</td>
<td>FORTRAN Debug panel (ISRFP11)</td>
<td>345</td>
</tr>
<tr>
<td>219.</td>
<td>Foreground Member Parts List panel (ISRFP12)</td>
<td>346</td>
</tr>
<tr>
<td>220.</td>
<td>Member parts list display (ISRFP12B)</td>
<td>348</td>
</tr>
<tr>
<td>221.</td>
<td>Foreground ISPTDLCE compile panel (ISPCP01) Screen 1</td>
<td>350</td>
</tr>
<tr>
<td>222.</td>
<td>ISPF Command Shell panel (ISRJPA)</td>
<td>351</td>
</tr>
<tr>
<td>223.</td>
<td>Batch Selection panel with JCL generated (ISRJPB)</td>
<td>354</td>
</tr>
<tr>
<td>224.</td>
<td>Batch Assembler panel (ISRJP01)</td>
<td>356</td>
</tr>
<tr>
<td>225.</td>
<td>Batch COBOL Compile panel (ISRJP02)</td>
<td>357</td>
</tr>
<tr>
<td>226.</td>
<td>Batch VS FORTRAN Compile panel (ISRJP03)</td>
<td>358</td>
</tr>
<tr>
<td>227.</td>
<td>Batch PL/I Compile panel (ISRJP05)</td>
<td>359</td>
</tr>
<tr>
<td>228.</td>
<td>Batch VS Pascal Compile panel (ISRJP06)</td>
<td>360</td>
</tr>
<tr>
<td>229.</td>
<td>Batch Binder Linkage/Editor panel (ISRJP07B)</td>
<td>361</td>
</tr>
<tr>
<td>230.</td>
<td>VS COBOL II Interactive Debug panel (ISRJPL)</td>
<td>362</td>
</tr>
<tr>
<td>231.</td>
<td>Batch Member Parts List panel (ISRJP12)</td>
<td>363</td>
</tr>
<tr>
<td>232.</td>
<td>ISPF Command Shell panel (ISRTSO)</td>
<td>365</td>
</tr>
<tr>
<td>233.</td>
<td>ISPF Command Shell panel with saved commands (ISRTSO)</td>
<td>367</td>
</tr>
<tr>
<td>234.</td>
<td>Dialogue test primary option panel (ISPYXD1)</td>
<td>372</td>
</tr>
<tr>
<td>235.</td>
<td>Keylist change panel (ISPKLUCH)</td>
<td>379</td>
</tr>
<tr>
<td>236.</td>
<td>Invoke Dialog Function/Selection panel (ISPYFP)</td>
<td>380</td>
</tr>
<tr>
<td>237.</td>
<td>Display panel (ISPYP1)</td>
<td>383</td>
</tr>
<tr>
<td>238.</td>
<td>Message display panel (ISPYP2)</td>
<td>385</td>
</tr>
<tr>
<td>239.</td>
<td>Variables panel (ISPYVPN)</td>
<td>386</td>
</tr>
<tr>
<td>240.</td>
<td>Tables panel (ISPYTP1)</td>
<td>390</td>
</tr>
<tr>
<td>241.</td>
<td>Display row panel (ISPYTPD)</td>
<td>393</td>
</tr>
<tr>
<td>242.</td>
<td>Confirm table row delete panel (ISPYTPCD)</td>
<td>394</td>
</tr>
<tr>
<td>243.</td>
<td>Modify row panel (ISPYTPM)</td>
<td>395</td>
</tr>
<tr>
<td>244.</td>
<td>Add row panel (ISPYTPZA)</td>
<td>397</td>
</tr>
<tr>
<td>245.</td>
<td>Structure of table panel (ISPYTPSR)</td>
<td>399</td>
</tr>
<tr>
<td>246.</td>
<td>Status of table panel with table not open (ISDTPS1)</td>
<td>400</td>
</tr>
<tr>
<td>247.</td>
<td>Status of table panel with table open (ISDTPS1)</td>
<td>401</td>
</tr>
<tr>
<td>248.</td>
<td>ISPF transaction log (ISPYLP1)</td>
<td>402</td>
</tr>
<tr>
<td>249.</td>
<td>Invoke dialog service panel (ISPYST1)</td>
<td>405</td>
</tr>
<tr>
<td>250.</td>
<td>Special display panel (ISPYSS1)</td>
<td>407</td>
</tr>
<tr>
<td>251.</td>
<td>Traces panel (ISFYRIT)</td>
<td>408</td>
</tr>
<tr>
<td>252.</td>
<td>Function traces panel (ISFYRFP)</td>
<td>409</td>
</tr>
<tr>
<td>253.</td>
<td>Variable traces panel (ISFYRVP)</td>
<td>410</td>
</tr>
<tr>
<td>254.</td>
<td>Breakpoints panel (ISFYBP1)</td>
<td>412</td>
</tr>
<tr>
<td>255.</td>
<td>Breakpoints panel with qualification parameter values (ISFYBP2)</td>
<td>414</td>
</tr>
<tr>
<td>256.</td>
<td>Breakpoint Primary Option panel (ISFYXM1)</td>
<td>416</td>
</tr>
<tr>
<td>257.</td>
<td>Dialog Test Tutorial - first panel (ISP70000)</td>
<td>418</td>
</tr>
<tr>
<td>258.</td>
<td>Additional IBM Program Development Products Panel (ISRIIS)</td>
<td>419</td>
</tr>
<tr>
<td>259.</td>
<td>SCLM Main Menu (FLMDMN)</td>
<td>421</td>
</tr>
<tr>
<td>260.</td>
<td>Workplace entry panel - library view (ISWORK1)</td>
<td>424</td>
</tr>
<tr>
<td>261.</td>
<td>Workplace entry panel - data set view (ISWORK)</td>
<td>425</td>
</tr>
<tr>
<td>262.</td>
<td>Reset statistics panel (ISURSET)</td>
<td>438</td>
</tr>
<tr>
<td>263.</td>
<td>TSO command panel (ISRUCE)</td>
<td>439</td>
</tr>
<tr>
<td>264.</td>
<td>WS command panel (ISRUCES)</td>
<td>440</td>
</tr>
<tr>
<td>265.</td>
<td>ISPF Command Shell panel (ISRTSO)</td>
<td>441</td>
</tr>
<tr>
<td>266.</td>
<td>Move panel (ISRUUMVC)</td>
<td>442</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1.</td>
<td>CUA mode effect on panel display</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>CUA mode effect on top-row-displayed indicator</td>
<td>26</td>
</tr>
<tr>
<td>3.</td>
<td>ISPKYLST key settings</td>
<td>38</td>
</tr>
<tr>
<td>4.</td>
<td>ISPHELP key settings</td>
<td>38</td>
</tr>
<tr>
<td>5.</td>
<td>Default key settings</td>
<td>45</td>
</tr>
<tr>
<td>6.</td>
<td>Displaying forms of the function keys</td>
<td>50</td>
</tr>
<tr>
<td>7.</td>
<td>Valid CUA attribute change values</td>
<td>55</td>
</tr>
<tr>
<td>8.</td>
<td>Valid point-and-shoot change values</td>
<td>57</td>
</tr>
<tr>
<td>9.</td>
<td>TSO command/CLIST/REXX exec variables</td>
<td>157</td>
</tr>
<tr>
<td>10.</td>
<td>TSO command/CLIST/REXX exec additional variables (output)</td>
<td>158</td>
</tr>
<tr>
<td>11.</td>
<td>TSO command/CLIST/REXX exec variables (input)</td>
<td>159</td>
</tr>
<tr>
<td>12.</td>
<td>Sort fields for source libraries</td>
<td>177</td>
</tr>
<tr>
<td>13.</td>
<td>SRCHFOR command search string examples</td>
<td>178</td>
</tr>
<tr>
<td>14.</td>
<td>Reset mod level and reset sequence numbers combinations</td>
<td>182</td>
</tr>
<tr>
<td>15.</td>
<td>SuperCE process options</td>
<td>224</td>
</tr>
<tr>
<td>16.</td>
<td>Search-For process options</td>
<td>241</td>
</tr>
<tr>
<td>17.</td>
<td>Octal permission values</td>
<td>274</td>
</tr>
<tr>
<td>18.</td>
<td>Expansion triggers and syntax</td>
<td>322</td>
</tr>
<tr>
<td>19.</td>
<td>ISRSCAN and ISRLEMX return codes</td>
<td>324</td>
</tr>
<tr>
<td>20.</td>
<td>Foreground member parts list record formats</td>
<td>348</td>
</tr>
<tr>
<td>21.</td>
<td>ISRSCAN and ISRLEMX return codes</td>
<td>355</td>
</tr>
<tr>
<td>22.</td>
<td>Workstation commands</td>
<td>445</td>
</tr>
<tr>
<td>23.</td>
<td>Workplace function key settings</td>
<td>446</td>
</tr>
<tr>
<td>24.</td>
<td>Summary of process options</td>
<td>459</td>
</tr>
<tr>
<td>25.</td>
<td>Summary of process statements</td>
<td>469</td>
</tr>
<tr>
<td>26.</td>
<td>SuperC return codes</td>
<td>493</td>
</tr>
<tr>
<td>27.</td>
<td>UPDCNTL update file format using LINE compare type</td>
<td>527</td>
</tr>
<tr>
<td>28.</td>
<td>UPDCNTL update file format using WORD compare type</td>
<td>528</td>
</tr>
<tr>
<td>29.</td>
<td>UPDCNTL update file format using BYTE compare type</td>
<td>529</td>
</tr>
<tr>
<td>30.</td>
<td>UPDSUMO format using LINE compare type</td>
<td>534</td>
</tr>
<tr>
<td>31.</td>
<td>UPDSUMO format using WORD compare type</td>
<td>534</td>
</tr>
<tr>
<td>32.</td>
<td>UPDSUMO format using BYTE compare type</td>
<td>535</td>
</tr>
</tbody>
</table>
Preface

This document provides reference and usage information for programmers who develop applications with ISPF. It also provides conceptual and functional descriptions of ISPF.

About this document

This document contains two parts.

The first part provides information about using ISPF options 0-11.

The second part contains the appendixes and provides:

• Descriptions of the SuperC and Search-For programs
• Descriptions and examples of the SuperC output listing formats.

Who should use this document

This document is for application programmers using ISPF. Users should be familiar with coding CLISTs, REXX EXECs, or programs in the MVS™ environment.

What is in this document

Chapter 1, “Primary Option Menu (POM),” describes the ISPF Primary Option menu, including the main menu options and the status area.

Chapter 2, “Settings (option 0),” describes the ISPF Settings panel and related pop-up windows.

Chapter 3, “View (option 1),” describes how Browse (Option 1) allows you to display source data and listings stored in ISPF libraries or other partitioned or sequential data sets.

Chapter 4, “Edit (option 2),” describes how Edit (Option 2) allows you to create, display, and change data stored in ISPF libraries or other partitioned or sequential data sets.

Chapter 5, “Utilities (option 3),” describes the different functions for library, data set, and catalog maintenance.

Chapter 6, “Foreground (option 4),” describes how Foreground (Option 4) allows ISPF to run the foreground processors.

Chapter 7, “Batch (option 5),” describes how Batch (Option 5) allows ISPF to run the batch processors.

Chapter 8, “Command (option 6),” describes Command (Option 6), and how ISPF allows you to enter TSO commands, CLISTs, and REXX EXECs on the Command line of any panel and in the Line Command field on data set list displays.
Chapter 9, “Dialog test (option 7),” describes how to use Dialog Test (Option 7) for testing both complete ISPF applications and ISPF dialog parts, including functions, panels, variables, messages, tables, and skeletons.

Chapter 10, “IBM products (option 9),” describes the other IBM® products that are supported as ISPF dialogs.

Chapter 11, “SCLM (option 10),” provides an overview of the SCLM product.

Chapter 12, “ISPF object/action workplace (option 11),” describes the Workplace option (Option 11).

Return codes provides information about the SuperC return codes, process options, update data set control options, and process statements.

Appendix B, “Understanding the listings,” describes and explains the kinds of listings you can produce using SuperC.

The z/OS Basic Skills Information Center

The z/OS® Basic Skills Information Center is a Web-based information resource intended to help users learn the basic concepts of z/OS, the operating system that runs most of the IBM mainframe computers in use today. The Information Center is designed to introduce a new generation of Information Technology professionals to basic concepts and help them prepare for a career as a z/OS professional, such as a z/OS system programmer.

Specifically, the z/OS Basic Skills Information Center is intended to achieve the following objectives:

• Provide basic education and information about z/OS without charge
• Shorten the time it takes for people to become productive on the mainframe
• Make it easier for new people to learn z/OS.

To access the z/OS Basic Skills Information Center, open your Web browser to the following Web site, which is available to all users (no login required): http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp

How to read the syntax diagrams

The syntactical structure of commands described in this document is shown by means of syntax diagrams.

Figure 1 on page xv shows a sample syntax diagram that includes the various notations used to indicate such things as whether:

• An item is a keyword or a variable.
• An item is required or optional.
• A choice is available.
• A default applies if you do not specify a value.
• You can repeat an item.
Here are some tips for reading and understanding syntax diagrams:

**Order of reading**
Read the syntax diagrams from left to right, from top to bottom, following the path of the line.

The \[\rightarrow\] symbol indicates the beginning of a statement.

The \[\rightarrow\] symbol indicates that a statement is continued on the next line.

The \[\rightarrow\] symbol indicates that a statement is continued from the previous line.

The \[\rightarrow\] symbol indicates the end of a statement.

**Keywords**
Keywords appear in uppercase letters.
Sometimes you only need to type the first few letters of a keyword. The required part of the keyword appears in uppercase letters.

In this example, you could type "KEY", "KEYW", "KEYWO", "KEYWOR" or "KEYWORD".

The abbreviated or whole keyword you enter must be spelled exactly as shown.

**Variables**

Variables appear in lowercase letters. They represent user-supplied names or values.

Required items

Required items appear on the horizontal line (the main path).

Optional items

Optional items appear below the main path.

Choice of items

If you can choose from two or more items, they appear vertically, in a stack.

If you must choose one of the items, one item of the stack appears on the main path.

If choosing one of the items is optional, the entire stack appears below the main path.

If a default value applies when you do not choose any of the items, the default value appears above the main path.
Repeatable items

An arrow returning to the left above the main line indicates an item that can be repeated.

```
>>> repeatable_item
```

If you need to specify a separator character (such as a comma) between repeatable items, the line with the arrow returning to the left shows the separator character you must specify.

```
>>> repeatable_item2
```

Fragments

Where it makes the syntax diagram easier to read, a section or fragment of the syntax is sometimes shown separately.

```
>>> fragment_name
```

```
...
```

**fragment_name:**

```
- DEFAULT_KEYWORD
- KEYWORD1
- KEYWORD2
```
How to send your comments to IBM

We appreciate your input on this publication. Feel free to comment on the clarity, accuracy, and completeness of the information or give us any other feedback that you might have.

Use one of the following methods to send us your comments:

1. Send an email to mhvrcfs@us.ibm.com
3. Mail the comments to the following address:
   IBM Corporation
   Attention: MHVRCFS Reader Comments
   Department H6MA, Building 707
   2455 South Road
   Poughkeepsie, NY 12601-5400
   U.S.A.
4. Fax the comments to us as follows:
   From the United States and Canada: 1+845+432-9405
   From all other countries: Your international access code +1+845+432-9405

Include the following information:
- Your name and address
- Your email address
- Your telephone or fax number
- The publication title and order number:
  z/OS V1R13.0 ISPF User's Guide Vol II
  SC34-4823-10
- The topic and page number related to your comment
- The text of your comment.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

IBM or any other organizations will only use the personal information that you supply to contact you about the issues that you submit.

If you have a technical problem

Do not use the feedback methods listed above. Instead, do one of the following:
- Contact your IBM service representative
- Call IBM technical support
- Visit the IBM support portal at [http://www.ibm.com/systems/z/support/](http://www.ibm.com/systems/z/support/)
Summary of changes

This summary lists changes and enhancements made in z/OS V1R13.0 ISPF. It has two parts:

Product function changes
Describes the functional changes made in z/OS V1R13.0 ISPF, listed by each ISPF component. This part appears in most of the ISPF documents.

Changes to this document
Lists the changes and enhancements made in z/OS V1R13.0 ISPF which affect this document, including cross-references to the new or changed sections.

Product function made in z/OS V1R13.0 ISPF

z/OS V1R13.0 ISPF contains the following changes and enhancements:

- ISPF product changes
- ISPF Dialog Manager component changes (including DTL changes)
- ISPF PDF component changes
- ISPF SCLM component changes
- ISPF Client/Server component changes

For details of migration actions relating to ISPF and other z/OS elements, see z/OS Migration.

ISPF product changes

- Changes to the ZENVIR variable. Characters 1 through 8 contain the product name and sequence number, in the format ISPF x.y, where x.y indicates the version number and release. Note that the x.y value is not the same as the operating system version. For example, a value of "ISPF 6.3" represents ISPF for z/OS Version 1 Release 13.0.
- The ZOS390RL variable contains the level of the z/OS release running on your system.
- The ZISPFOSS system variable contains the level of ISPF that is running as part of the operating system release on your system. This might or might not match ZOS390RL. For this release of ISPF, the variable contains ISPF for z/OS 01.13.00.

Note: No product changes were shipped for z/OS 1.12. ZENVIR and ZISPFOSS continue to have the same values as documented in the ISPF for z/OS 1.11 publications when z/OS 1.12 is the installed system.

ISPF Dialog Manager component changes

The DM component of ISPF includes the following new functions and enhancements:

- The new configuration keyword PDSE_RESERVE_PROCESSING is provided to request ISPF to not issue a RESERVE to serialize access to a PDSE data set.
- The APL translation tables in the sample library members ISPAPLTT and ISRAPLTT have been updated to include the APL characters X’70’, X’76’, X’77’.

Dialog Tag Language (DTL) changes:
There are no changes to Dialog Tag Language (DTL) for this release.

**ISPF PDF component changes**

The ISPF PDF component contains the following new functions and enhancements:

- The ISPF editor provides the ability for a site or user to define a set of line commands which will invoke associated ISPF editor macros when the line commands are executed.
- The ISPF editor has been enhanced to support the editing of z/OS UNIX files with a file format of RECORD.
- The following enhancements have been made to the ISPF edit HILITE command:
  - Support for new keywords in IBM Enterprise COBOL for z/OS Version 4 Release 2.
  - Removed highlighting for obsolete PL/I functions.
  - Support for keywords recently added to the Dialog Tag Language.
- The new AL line command allows a new data set to be allocated from the Data Set List Utility.
- The z/OS UNIX Directory List utility provides the new MA line command for managing ACL (access control list) entries.
- The DIRLIST service supports the new FROM parameter to allow the caller to have the directory list display initially positioned at the first file with a name matching the one specified with the FROM parameter.
- The enhanced member list provides the new I line command to display the extended statistics for a member.
- The Data Set Information display panels are enhanced to show the names of the job and step that created the data set.
- It is no longer necessary to ensure that edit recovery data sets are not allocated on an SMS-managed volume whose management class has the PARTIAL_RELEASE attribute.

**ISPF SCLM component changes**

There are no new functions or enhancements for the SCLM component of ISPF.

**ISPF Client/Server component changes**

There are no new functions or enhancements for the Client/Server component of ISPF.

**Migration considerations**

There are no migration considerations relating to this release.
Changes to this document for z/OS V1R13.0 ISPF

Note
This book contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

The "Readers’ Comments - We’d Like to Hear from You” section at the back of this publication has been replaced with a new section “How to send your comments to IBM” on page xix. The hardcopy mail-in form has been replaced with a page that provides information appropriate for submitting comments to IBM.

DSLIST Allocate
A DLIST command is now available to allocate a data set. Also, DLIST options that are not valid (for example, only NOT EXCLUDE commands are available against excluded data sets) are now disabled.

For changes to this document relating to this modification, see:
• Figure 105 on page 162
• "AL — Allocate” on page 169

Manage ACL
An MA (Modify ACL) line command has been added to the list of available commands on the 3.17 menu.

For changes to this document relating to this modification, see:
• "MA—modify ACL” on page 297

Support UNIX file format of RECORD
The file format RECORD has been added to ISPF UNIX file support.
What's in the z/OS V1R13.0 ISPF library?

You can order the ISPF books using the numbers provided below.

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/OS ISPF Dialog Developer's Guide and Reference</td>
<td>SC34-4821-09</td>
</tr>
<tr>
<td>z/OS ISPF Dialog Tag Language Guide and Reference</td>
<td>SC34-4824-09</td>
</tr>
<tr>
<td>z/OS ISPF Edit and Edit Macros</td>
<td>SC34-4820-10</td>
</tr>
<tr>
<td>z/OS ISPF Messages and Codes</td>
<td>SC34-4815-10</td>
</tr>
<tr>
<td>z/OS ISPF Planning and Customizing</td>
<td>GC34-4814-09</td>
</tr>
<tr>
<td>z/OS ISPF Reference Summary</td>
<td>SC34-4816-10</td>
</tr>
<tr>
<td>z/OS ISPF Software Configuration and Library Manager Guide and Reference</td>
<td>SC34-4817-11</td>
</tr>
<tr>
<td>z/OS ISPF Services Guide</td>
<td>SC34-4819-10</td>
</tr>
<tr>
<td>z/OS ISPF User's Guide Vol I</td>
<td>SC34-4822-10</td>
</tr>
<tr>
<td>z/OS ISPF User's Guide Vol II</td>
<td>SC34-4823-10</td>
</tr>
</tbody>
</table>
Chapter 1. Primary Option Menu (POM)

See:
- “The Primary Option Menu panel”
- “Status area on the Primary Option Menu” on page 5

The Primary Option Menu panel

The Primary Option Menu panel, shown in Figure 2, is the first panel that displays when you start ISPF.

![ISPF Primary Option Menu](image)

Option Description

0 Settings displays and changes selected ISPF parameters, such as terminal characteristics and function keys. See Chapter 2, “Settings (option 0),” on page 23 for more information.

1 View displays data (you cannot change it) using the View or Browse function. Use View or Browse to look at large data sets, such as compiler listings. You can scroll the data up, down, left, or right. If you are using...
The Primary Option Menu panel

Browse, a FIND command, entered on the command line, allows you to search the data and find a character string. If you are using View, you can use all the commands and macros available to you in the Edit function. See Chapter 3, “View (option 1)” for more information.

You can use Edit to create or change source data, such as program code and documentation, using the ISPF full-screen editor. You can scroll the data up, down, left, or right. You can change the data by using Edit line commands, which are entered directly on a line number, and primary commands, which are entered on the command line. See Chapter 3, “View (option 1)” and refer to z/OS ISPF Edit and Edit Macros for more information.

Utilities perform library and data set maintenance tasks, such as moving or copying library or data set members, displaying or printing data set names and volume table of contents (VTOC) information, comparing data sets, and searching for strings of data. See Chapter 5, “Utilities (option 3)” for more information.

Foreground calls IBM language processing programs in the foreground. See Chapter 6, “Foreground (option 4)” for more information.

Batch calls IBM language processing programs as batch jobs. ISPF generates Job Control Language (JCL) based on information you enter and submits the job for processing. See Chapter 7, “Batch (option 5)” for more information.

Command calls TSO commands, CLISTs, or REXX EXECs under ISPF. See Chapter 8, “Command (option 6)” for more information.

Dialog Test tests individual ISPF dialog components, such as panels, messages, and dialog functions (programs, commands, menus). See Chapter 9, “Dialog test (option 7)” for more information.

You can use the IBM Products option to select other installed IBM program development products on your system. Products supported are:
- Tivoli® Information Management (INFOMAN)
- COBOL Structuring Facility (COBOL/SF)
- Screen Definition Facility II (SDF II and SDF II-P)

See Chapter 10, “IBM products (option 9)” for more information.

SCLM controls, maintains, and tracks all of the software components of an application. See Chapter 11, “SCLM (option 10)” and refer to z/OS ISPF Software Configuration and Library Manager Guide and Reference for more information.

Workplace gives you access to the ISPF Workplace, which combines many of the ISPF functions onto one object-action panel. See Chapter 12, “ISPF object/action workplace (option 11)” for more information.

z/OS System gives you access to the z/OS System Programmer Primary Option Menu. It contains options for z/OS elements that are used by system programmers and administrators. It includes options for:
- GDDM® Print Queue Manager
- HCD I/O configuration
- APPC Administration
- WLM Work Load Manager
- FFST™ dump formatting
- Infoprint Server
Chapter 1. Primary Option Menu (POM)  3

The Primary Option Menu panel

- RMF™
- SMP/E
- TCP/IP NPF

13  

z/OS User gives you access to the z/OS Applications panel. It contains options for z/OS elements that are used by most ISPF users. It includes options for:
- BookManager® Build
- BookManager Read
- BookManager Index Creation
- DFSMSrmm/ISMF
- DFSMSdfp/ISMF
- DFSORT
- BDT File-to-File
- IPCS
- z/OS UNIX Browse
- z/OS UNIX Edit
- z/OS UNIX Shell
- Security Server
- TSO/E Information Center Facility
- SDSF

X  

EXIT leaves ISPF using the log and list defaults. You can change these defaults from the Log/List pull-down on the ISPF Settings panel action bar.

Primary Option Menu action bar choices

The Primary Option Menu action bar offers a quick way of accessing many of the panels within ISPF.

Menu  

This choice is available from most panels within ISPF and displays many of the options listed on the Primary Option Menu panel. These choices are available from the Menu pull-down:

- **Settings**  
  Displays the ISPF Settings panel.
- **View**  
  Displays the View Entry panel.
- **Edit**  
  Displays the Edit Entry panel.
- **ISPF Command Shell**  
  Displays the ISPF Command Shell panel.
- **Dialog Test**  
  Displays the Dialog Test Primary Option panel.
- **Other IBM Products**  
  Displays the Additional IBM Program Development Products panel.
- **SCLM**  
  Displays the SCLM Main Menu.
- **ISPF Workplace**  
  Displays the Workplace entry panel.
- **Status Area**  
  Displays the ISPF Status panel.
- **Exit**  
  Exits ISPF.
Utilities

This choice is available from many panels within ISPF and displays the options listed on the Utility Selection panel. These choices are available from the Utilities pull-down:

- **Library**: Displays the Library Utility panel.
- **Data Set**: Displays the Data Set Utility panel.
- **Move/Copy**: Displays the Move/Copy Utility panel.
- **Data Set List**: Displays the Data Set List Options panel.
- **Reset Statistics**: Displays the Reset ISPF Statistics panel.
- **Hardcopy**: Displays the Hardcopy Utility panel.
- **Download**: Displays the panel that enables you to download workstation clients and other files from the host.
- **Outlist**: Displays the Outlist Utility panel.
- **Commands**: Displays the Command Table Utility panel.
- **Reserved**: Reserved for future use by ISPF; an unavailable choice.
- **Format**: Displays the Format Specification panel.
- **SuperC**: Displays the SuperC Utility panel.
- **SuperCE**: Displays the SuperCE Utility panel.
- **Search-for**: Displays the Search-For Utility panel.
- **Search-forE**: Displays the Search-ForE Utility panel.
- **Table Utility**: Displays the ISPF Table Utility panel.

Compilers

The Compilers pull-down offers these choices:

1. **Foreground Compilers** Displays the Foreground Selection Panel.
2. **Background Compilers** Displays the Batch Selection Panel.
3. **ISPPREP Panel Utility** Displays the Preprocessed Panel Utility panel.
4. **DTL Compiler** Displays the ISPF Dialog Tag Language Conversion Utility panel.

Options

The Options pull-down offers these choices:

1. **General Settings** Displays the ISPF Settings panel.
2. **CUA Attributes** Displays the CUA Attribute Change Utility panel.
3. **Keylists** Displays the Keylist Utility panel.
4. **Point-and-Shoot** Displays the CUA Attribute Change Utility panel, positioned on the Point-and-Shoot panel element.
5. **Colors** Displays the Global Color Change Utility panel.
6. **Dialog Test appl ID** Displays the Dialog Test Application ID pop-up to allow you to change the application ID for Dialog test so that you
can look at variables in the application profile for an application that runs under a different application ID than the one under which ISPF was started (by default, ISR).

**Status**

The Status pull-down offers these choices:

1. **Session**
2. **Function keys**
3. **Calendar**
4. **User status**
5. **User point and shoot**
6. **None**

See [“Status area on the Primary Option Menu”](#) for more information about using these choices to tailor the status area.

**Help**

The Help pull-down provides general information about ISPF topics and the changes in the current release, as well as information about each of the options and areas on the Primary Option Menu.

### Status area on the Primary Option Menu

The status area on the ISPF Primary Option Menu is a 21-column dynamic area that is composed of a 12-character description field, one attribute byte, and an 8-character field to display the value of the selected variable. The status area is limited to eleven description fields and their values. It can be manipulated from two places:

- The Status choice on the ISPF Primary Option Menu action bar. Use this pull-down to specify what you want to display in the status area. See [“Status pull-down”](#) for additional information and examples.

- The ISPF Status panel, which displays when you select Status Area from the Menu pull-down available on most action bars throughout ISPF. Use this facility to define the contents of the status area. See [“Defining the status area”](#) on page 13 for additional information and examples.

**Note:** The ISPF Status panel also contains an action bar choice called “Status”. This does not affect which Status option displays on the Primary Option Menu panel. It determines which Status option displays within the ISPF Status panel.

The first five logical screens, created by a SPLIT or related command, each have their own status view. For each screen after that, the view defaults to the setting of the first screen.

### Status pull-down

When you select one of the choices in the Status pull-down on the ISPF Primary Option Menu action bar (shown in Figure 3 on page 6), you specify what you want to display in the status area on the Primary Option Menu panel.
### Status area on the Primary Option Menu

<table>
<thead>
<tr>
<th>Menu</th>
<th>Utilities</th>
<th>Compilers</th>
<th>Options</th>
<th>Status</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Settings</td>
<td>Terminal and user p</td>
<td>ISPF Prim</td>
<td>*. Session</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>1 View</td>
<td>Display source data</td>
<td>2. Function keys</td>
<td>3. Calendar</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>2 Edit</td>
<td>Create or change so</td>
<td>4. User status</td>
<td>5. User point and shoot</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>3 Utilities</td>
<td>Perform utility fun</td>
<td>6. None</td>
<td>16:04</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>4 Foreground</td>
<td>Interactive language</td>
<td>5 Batch</td>
<td>3278</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>5 Batch</td>
<td>Submit job for language processing</td>
<td>6 Command</td>
<td>1</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>6 Command</td>
<td>Enter TSO or Workstation commands</td>
<td>9 IBM Products</td>
<td>3278</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>7 Dialog Test</td>
<td>Perform dialog testing</td>
<td>7 Dialog Test</td>
<td>3278</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>8 SCLM</td>
<td>IBM program development products</td>
<td>10 SCLM</td>
<td>System ID : ISDI</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>9 SCLM</td>
<td>SW Configuration Library Manager</td>
<td>11 Workplace</td>
<td>MVS acct. : IBMGSA</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>10 Workplace</td>
<td>ISPF Object/Action Workplace</td>
<td>12 z/OS System</td>
<td>Release . : ISPF 5.9</td>
<td>USERID</td>
<td></td>
</tr>
<tr>
<td>11 Workplace</td>
<td>z/OS system programmer applications</td>
<td>13 z/OS User</td>
<td>z/OS user applications</td>
<td>USERID</td>
<td></td>
</tr>
</tbody>
</table>

Enter X to Terminate using Log/List defaults

Option ===>
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

Figure 3. Status pull-down on the ISPF Primary Option Menu (ISR@PRIM)

**Note:** The current setting is shown as an unavailable choice; that is, displays in blue (the default) with an asterisk as the first digit of the selection number. If you are running in GUI mode the choice is **grayed**.

### Session

The Session view, shown in Figure 4 on page 7 displays this information in the status area:
- User ID
- Time
- Terminal
- Screen
- Language
- Application ID
- TSO logon
- TSO prefix
- System ID
- MVS account
- Release.
**Status area on the Primary Option Menu**

<table>
<thead>
<tr>
<th>Menu</th>
<th>Utilities</th>
<th>Compilers</th>
<th>Options</th>
<th>Status</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0</strong> Settings</td>
<td>Terminal and user parameters</td>
<td></td>
<td></td>
<td>User ID.: USERID</td>
<td></td>
</tr>
<tr>
<td><strong>1</strong> View</td>
<td>Display source data or listings</td>
<td></td>
<td></td>
<td>Time.: 16:23</td>
<td></td>
</tr>
<tr>
<td><strong>2</strong> Edit</td>
<td>Create or change source data</td>
<td></td>
<td></td>
<td>Terminal.: 3278</td>
<td></td>
</tr>
<tr>
<td><strong>3</strong> Utilities</td>
<td>Perform utility functions</td>
<td></td>
<td></td>
<td>Screen.: 1</td>
<td></td>
</tr>
<tr>
<td><strong>4</strong> Foreground</td>
<td>Interactive language processing</td>
<td></td>
<td></td>
<td>Language.: ENGLISH</td>
<td></td>
</tr>
<tr>
<td><strong>5</strong> Batch</td>
<td>Submit job for language processing</td>
<td></td>
<td></td>
<td>Appl ID.: ISR</td>
<td></td>
</tr>
<tr>
<td><strong>6</strong> Command</td>
<td>Enter TSO or Workstation commands</td>
<td></td>
<td></td>
<td>TSO logon: ISPF</td>
<td></td>
</tr>
<tr>
<td><strong>7</strong> Dialog Test</td>
<td>Perform dialog testing</td>
<td></td>
<td></td>
<td>TSO prefix: USERID</td>
<td></td>
</tr>
<tr>
<td><strong>9</strong> IBM Products</td>
<td>IBM program development products</td>
<td></td>
<td></td>
<td>System ID.: ISD1</td>
<td></td>
</tr>
<tr>
<td><strong>10</strong> SCLM</td>
<td>SW Configuration Library Manager</td>
<td></td>
<td></td>
<td>MVS acct.: IBMGSA</td>
<td></td>
</tr>
<tr>
<td><strong>11</strong> Workplace</td>
<td>ISPF Object/Action Workplace</td>
<td></td>
<td></td>
<td>Release.: ISPF 5.9</td>
<td></td>
</tr>
<tr>
<td><strong>12</strong> z/OS System</td>
<td>z/OS system programmer applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13</strong> z/OS User</td>
<td>z/OS user applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Enter X to Terminate using Log/List defaults

**Option ===>
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

---

**System ID** is a point-and-shoot field. **MVS Acct** and **Release** are point-and-shoot fields if over 8 characters long. Select these fields to display pop-up windows that contain additional information about the MVS account number and the ISPF environment.

**MVS Acct**
The account number identifying this MVS user.

**System ID**
Shows the **SYSPLEX** and **SYSNODE**.

**SYSPLEX**
The MVS sysplex name as found in the COUPLExx or LOADxx member of SYS1.PARMLIB.

**SYSNODE**
The network node name of your installation's JES.
Status area on the Primary Option Menu

Menu Utilities Compilers Options Status Help
- System Information — Option Menu

SYSPLEX = SYSPLEXD
0 SYNODE = PTHAPD$
1 F1=Help F2=Split F3=Exit
2 F9=Swap F12=Cancel
3
4 Foreground Interactive language processing
5 Batch Submit job for language processing
6 Command Enter TSO or Workstation commands
7 Dialog Test Perform dialog testing
8 IBM Products IBM program development products
9 SCLM SW Configuration Library Manager
10 Workplace ISP Objects/Instruction Workplace
11 z/OS System z/OS system programmer applications
12 z/OS User z/OS user applications

Enter X to Terminate using Log/List defaults

Option ===>
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

Figure 5. System information pop-up

Release

Displays these variables:

- **ZOS390RL**— The z/OS Release running on your system.
- **ZISPFOS**— The level of ISPF code that is running as part of z/OS on your system. This might or might not match ZOS390RL.
- **ZENVIR**— The ISPF Environment description. See the table of system variables in the z/OS ISPF Dialog Developer’s Guide and Reference for a complete explanation.
Status area on the Primary Option Menu

<table>
<thead>
<tr>
<th>Menu</th>
<th>Utilities</th>
<th>Compilers</th>
<th>Options</th>
<th>Status</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ZOS390RL = z/OS 01.04.00
The z/OS release running on your system.

ZISPFOS = ISPF FOR z/OS 01.05.00
The level of ISPF code that is running as part of z/OS on your system. This might or might not match ZOS390RL.

ZENVIR = ISPF 5.5 MVS TSO
The ISPF Environment description used by IBM personnel for internal purposes. The x.y numbers DO NOT directly correlate to an ISPF release number in all cases. Refer to the Dialog Developer’s Guide for a complete explanation.

F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel
Option ===> F1=Help  F2=Split  F3=Exit  F7=Backward  F8=Forward  F9=Swap  F10=Actions  F12=Cancel

Figure 6. Environment pop-up (release information)

Function keys
The Function Keys view, shown in Figure 7 on page 10, displays this information in the status area:
• Number of keys
• Keys displayed per line
• Primary range (lower or upper)
• Display set (primary or alternate)
• List name (name of the currently active keylist)
• List applid (application ID for the currently active keylist)
• List type (private or shared)
• Keylists (on or off).

Note: See "Working with function keys and keylists (the Function Keys action bar choice)" on page 37 for information about changing these settings.
Status area on the Primary Option Menu

![ISPF Primary Option Menu](image)

**Calendar**

The Calendar view, shown in Figure 8, displays the calendar for the current month in the status area.

![ISPF Primary Option Menu status area – calendar view](image)
Status area on the Primary Option Menu

All of the fields on the calendar are point-and-shoot fields that function as follows:

If you select ISPF displays
<the previous month.
calendar the current month.
>the next month.

Month, e.g. July
the Calendar Month pop-up. Allows you to specify the month. See "Customizing the calendar" on page 16 for details.

Year, e.g. 2003
the Calendar Year pop-up. Allows you to specify the year. See "Customizing the calendar" on page 16 for details.

Day
the Calendar Start Day pop-up. Allows you to specify Saturday,
Sunday, or Monday as the start day for the calendar. See "Customizing the calendar" on page 16 for details.

Date
the Julian Date pop-up. Provides the Julian date for the date selected.

Figure 9. Julian date pop-up

Time
the Calendar Time Format pop-up. Allows you to specify a 12-hour or 24-hour time format for the calendar. See "Customizing the calendar" on page 16 for details.

Day of year
the Standard Date pop-up. Provides the standard date for the day specified in the popup (defaults to the date selected in the calendar).
Status area on the Primary Option Menu

User status
The User Status view, shown in Figure 11, displays the status information that you have defined in the Status Area panel.

User point and shoot
The User Point-and-Shoot view, shown in Figure 12 on page 13, displays the point-and-shoot function you have defined in the Status Area panel.
Note: If you are running in GUI mode, this function will be displayed as a push button.

### Defining the status area

When you select Status Area from the Menu pull-down, ISPF displays the ISPF Status pop-up window (shown in Figure 13 on page 14), with an independent view of the status area. This panel is used to define the contents of the status area choices. You can change the choice displayed in this window by using the Status pull-down on the action bar.

Note: Changing the status area viewed in this panel will not affect the choice selected on the ISPF Primary Option Menu panel.
Status area on the Primary Option Menu

The Status pull-down, shown in Figure 14 on page 15 offers these choices:

1. Session
2. Function keys
3. Calendar
4. User status
5. User point and shoot
6. None
Options

The Options pull-down, shown in Figure 15 on page 16, offers these choices:

1. **Calendar start day**
   Displays the Calendar Start Day pop-up, where you can specify Saturday, Sunday, or Monday as the start day for the calendar.

2. **Calendar colors**
   Displays the Calendar Colors pop-up, where you can change the colors on the calendar.

3. **User status customization**
   Displays the User View Customization pop-up, where you can define what you want displayed in the status area.

4. **User point and shoot customization**
   Displays the User Point and Shoot Customization pop-up, where you can define point-and-shoot fields to be displayed in the status area.
Customizing the calendar

You can customize the calendar to show a different month, year or starting day. You can set the time display to a 12 or 24 hour clock. You can also customize the colors used to display the calendar.

Notes:
1. Changes to the month or year display will last for the current session only. Changes to the starting day and time format will be saved between sessions.
2. You can use the point-and-shoot fields on the calendar displayed on the Primary Option Menu panel or in the Status Area pop-up. Changes made in either location will affect the display in both locations.

Changing the month display: You can change the month that displays in the calendar in a number of ways:
- Click the < or > symbols to display the previous or next month.
- Click the Calendar point-and-shoot field to display the current month.
- Set the month display to a particular month by selecting the month name point-and-shoot field and entering a number in the Calendar Month pop-up window:
Changing the year display: You can change the year that displays in the calendar by selecting the year point-and-shoot field and entering the required year (between 1801 and 2099) in the Calendar Year pop-up window.

Changing the starting day: You can change the calendar display so that the weeks begin on a Saturday, Sunday, or Monday.

1. To display the Calendar Start Day pop-up window, use either of these methods:
   - Select any day name point-and-shoot field (e.g. Mo or Tu).
**Status area on the Primary Option Menu**

- From the Menu action bar, select Status Area. Then, from the Options action bar, choose 1. Calendar Start day.

![Calendar start pop-up window](image1)

**Changing the time format:** You can change the time format to a 12-hour or 24-hour clock. To do this, select the Time point-and-shoot field and enter option 1 or 2 in the Calendar Time Format pop-up window.

![Calendar time format pop-up window](image2)
Status area on the Primary Option Menu

Changing the calendar colors: To change the colors on the calendar:
1. From the ISPF Status action bar, select Options and then 2. Calendar colors. The Calendar Colors pop-up, [Figure 20] is displayed.
2. Type a valid color number in the field next to each calendar element to be changed and press Enter. The color will change immediately in the Sample area.
   To restore a default color, clear the element field and press Enter.
3. Press EXIT (F3) or END to exit and save the changes. Press CANCEL (F12) to exit without saving the changes.

Customizing the user status area
To define the contents of this area:
1. From the ISPF Status action bar, select Options and then 3. User status customization. The User View Customization panel, [Figure 21 on page 20] is displayed.
2. Enter a heading in the Description field and the name of a System variable or site-defined variable in the Variable name field. See the z/OS ISPF Dialog Developer’s Guide and Reference for a list of System Variable names.

3. Press EXIT (F3) or END to exit and save the changes. Press CANCEL (F12) to exit without saving the changes.

For example, entering:

```
Description: Variable name:
User ID: ZUSER
Date: ZDATE
Time: ZTIME
```

would result in the display shown in Figure 11 on page 12.

**Customizing the user point-and-shoot status area**

You can define up to nine point-and-shoot fields, which you can set to any SELECT service parameter. To do this:

1. From the ISPF Status action bar, select Options and then 4. User point and shoot customization. The User Point-and-Shoot panel, Figure 22 on page 21 is displayed.
2. Enter the text to appear in the status area, in the field on the left of the panel.
3. Enter the Service parameters to be invoked in the lines on the right of the panel. See z/OS ISPF Services Guide for information about these parameters.
4. Press EXIT (F3) or END to exit and save the changes. Press CANCEL (F12) to exit without saving the changes.
Status area on the Primary Option Menu
Chapter 2. Settings (option 0)

The Settings option allows you to display and change a variety of ISPF parameters at any time during the ISPF session. Changes remain in effect until you change the parameter again, and ISPF saves them from session to session. This topic explains how to use the fields on the ISPF Settings panel and the action bar choices.

If you select option 0 on the ISPF Primary Option Menu, the panel shown in Figure 23 is displayed.

![ISPF Settings Panel](image)

This facility can also be started from any command line with the SETTINGS command, or from the Settings choice on the Menu pull-down on any action bar where it is available. Typically, the Settings facility should be included as an option on an application’s primary option menu or as a choice on a pull-down on an application’s primary option menu.

Some of the things you can specify are:
- Terminal characteristics
- Default options for processing the ISPF list and log data sets

© Copyright IBM Corp. 1980, 2011
**ISPF Settings panel fields**

Figure 23 on page 23 shows the initial default ISPF Settings. The display or the field-level help indicates the allowable alternatives for these defaults. The values shown in Figure 23 are for an ISPF session in the English language. The corresponding panel displayed for a non-English session is similar, but the accepted terminal types can be different.

**Select options**

Each option is described in this topic. Use a slash to select an option. Blank out the slash to deselect the option.

**Command line at bottom**

Specifies that the command line is to appear at the bottom of each logical screen. If you have specified that the panel should be displayed in CUA mode, the command line placement defaults to the bottom.

**Notes:**

1. The default is to have the command line placement at the bottom. However, if your current application profile table specifies ASIS, the default does not override it.
2. If you deselect this field, the command line appears as specified in the panel definition statements. Unless indicated in the panel definition, it appears at the top of the panel.

When you select the Command line at bottom option, these changes take place:

- The command line moves to the last line of the logical screen or the line above the function keys depending on the CUA mode setting (see Table 1 on page 25).
- Each line that follows the command line shifts up one line.
- The long message overlays the line above the new command line location.

If the command line for a table display panel has been moved to the bottom and if no alternate placement has been specified for the long message line, the line directly above the repositioned command line is reserved (left blank) for the display of long messages. Otherwise, if you enter erroneous data on that line, a long message could overlay that data.

- In general, the display location of the function key definitions depends on several variables.
  - If the panel display mode CUA option is not selected, and the KEYLIST option is set to OFF, the function key definitions display on the lines immediately above the long message line.
Settings (option 0)

- If the panel display mode CUA option is on, and the KEYLIST option is set to OFF, the function key definitions display below the long message line.
- If the KEYLIST option is set to ON, and the panel definition does not contain a )PANEL statement, the positioning of the function keys depends on the CUA mode setting.
- If the KEYLIST option is set to ON, and the panel definition contains a )PANEL statement, the positioning of the function keys is below the long message line.

If the Panel display CUA mode option is not selected, an exception to this situation occurs when an alternate placement for the long message line has been specified using the LMSG keyword on the )BODY header statement. Under these circumstances, the function key definitions display immediately above the command line.

If a conflict occurs between the placement of the function key definition lines and those that are to display long messages, short messages, and commands, the function keys will not overlay the command line, the line containing the long or short message field, or any line above one of these fields. Because of this condition, function key definition lines cannot appear at all on some screens.

When using the GDDM interface to display panels, the position of a graphics field does not change if the command line moves to the bottom of the screen.

In split-screen mode, if the top screen specifies the Command line at bottom option, the command line is moved to the line directly above the split line, and the long message line overlays the line above the command line. Because the placement setting is stored in the application profile pool, the setting for each logical screen is the same unless a user is running different applications in each screen.

Panel display CUA mode

Specifies that panels be displayed in CUA mode. This selection affects how the long message line, command line, and function keys are displayed, as described in Table 1.

Table 1 summarizes how the command, long message, and function key area appear on the panel depending on whether you select the Panel display in CUA mode option. Note that the table uses the system default to position the long message field. An alternate long message field is not defined using the LMSG keyword on the )BODY header statement.

Table 1. CUA mode effect on panel display

<table>
<thead>
<tr>
<th>Panel Characteristic</th>
<th>CUA mode selected</th>
<th>CUA mode not selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command line at bottom deselected</td>
<td>Long message line Command line Fn=name</td>
<td>Title/short message Command line Long message line Fn=name PF n=name</td>
</tr>
<tr>
<td>Command line at bottom selected</td>
<td>Long message line Command line Fn=name</td>
<td>Title/short message Command line Long message line Fn=name PF n=name</td>
</tr>
</tbody>
</table>

Table 2 on page 26 summarizes the effect of CUA mode on the top-row-displayed indicator.
Table 2. CUA mode effect on top-row-displayed indicator

<table>
<thead>
<tr>
<th>CUA Mode</th>
<th>Rows</th>
<th>Top-Row-Displayed Message</th>
<th>Message ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>ALL</td>
<td>Row x to z of y</td>
<td>ISPZZ102</td>
</tr>
<tr>
<td>YES</td>
<td>SCAN</td>
<td>Row x From y</td>
<td>ISPZZ103</td>
</tr>
<tr>
<td>NO</td>
<td>ALL</td>
<td>Row x of y</td>
<td>ISPZZ100</td>
</tr>
<tr>
<td>NO</td>
<td>SCAN</td>
<td>Row x of y</td>
<td>ISPZZ100</td>
</tr>
</tbody>
</table>

Long message in pop-up
Specifies that long messages will be displayed in a pop-up window, regardless of the .WINDOW setting in the message source.

Tab to action bar choices
Specifies that you want to use the Tab key to move the cursor among the action bar choices.

Note: You cannot use the Tab key for this purpose if you are running in GUI mode.

Tab to point-and-shoot fields
Specifies that you want to use the Tab key to move the cursor through the point-and-shoot fields on a panel.

Note: You cannot use the Tab key for this purpose if you are running in GUI mode.

Restore TEST/TRACE options
When you select Dialog Test facility (option 7), certain TEST and TRACE options are established that can be different than those specified during ISPF start up. If you select Restore TEST/TRACE options, the TEST or TRACE values are restored to the ISPF call values when you exit dialog test. If you deselect the field, the TEST or TRACE values are not restored when you exit dialog test.

For more information about dialog test, see Chapter 9, “Dialog test (option 7).”

Session Manager mode
Enter a slash to indicate that the Session Manager should handle any line mode output from the processing program.

Jump from leader dots
Enter a slash to enable the ISPF jump function from field prompts that have leader dots (. . or ...). Field prompts that have the ===> will always have the jump function enabled.

If the application developer defines the NOJUMP(ON) attribute keyword on a specific input field, this disables the “Jump from leader dots” and takes precedence over the selected Settings “Jump from leader dots” or the configuration table setting of “YES” for “Jump from leader dots”.

Edit PRINTDS Command
Enter a slash to intercept the local print request to allow you to modify the statement before the PRINTDS command begins. For more information on editing the PRINTDS command, see the Libraries and Data Sets topic in z/OS ISPF User’s Guide Vol I.

Always show split line
Specifies that the split line in split screen mode, as seen on a 3270 display,
Settings (option 0)

should always be shown. The default for this option is that the option is selected. By deselecting this option, the split line does not display when the screen is split at the top or the bottom of the screen.

Enable EURO Sign
Enter a slash to enable the EURO sign (currency symbol). Your terminal or emulator must support the EURO sign for this option to work.

Scroll member list
Enter a slash to specify that ISPF should scroll to the first member selected in the member list after processing. If the Option field is deselected, automatic member list scrolling is disabled and the cursor is placed in front of the last member selected.

Allow empty member list
Specifies whether an empty member list will be displayed for a PDS that contains no members.

Allow empty member list (nomatch)
If the ‘Allow empty member list’ option is set, this field specifies whether an empty list that results from a nonmatching pattern will be displayed.

Empty member list for edit only
Specifies whether empty member list options apply to non-edit functions such as View and Browse.

Terminal characteristics
The Terminal Characteristics portion of the ISPF Settings panel allows you to specify values for the screen format and terminal type. Each of these characteristics is described here.

Screen format
Specification of screen format applies only to 327x and 3290 terminals (or a terminal emulator set to a mode that emulates a 327x or 3290 terminal). ISPF ignores screen format for other types of terminal.

Data Format is based on data width.
Std Format is always the primary screen size.
Max Format is always the alternate screen size.
Part Format uses hardware partitions (3279 only)

Notes:
1. Primary and alternate screen dimensions are determined by the VTAM logmode and the capabilities of the terminal or terminal emulator. These values can be displayed by the ISPF ENVIRON settings panel and issuing the QUERY request.
2. ISPF supports a minimum screen size of 24 rows and 80 columns. The maximum screen width is 160 columns.
3. If you are in an Edit session or you are using the Edit service, ISPF does not allow you to change the screen format.

Terminal type
Specify a valid terminal type. If you are using a terminal emulator, select the type of terminal that is being emulated (usually a 3278 or 3278x).

You can select one of the standard terminal types from the list on the ISPF Settings panel (see Figure 23 on page 23). If the selected terminal type seems to be incompatible with the current ISPF language setting, a ‘Terminal Type Warning’ Message will be displayed, but the terminal type will be accepted nevertheless.
If you want to use a custom terminal translation table that has been created for your site, select OTHER to specify the name of the translation table. If the load of the new translation tables fails, ISPF reverts to the previous terminal type setting.

You can also select a terminal type by using the ISPTTDEF program, as described in z/OS ISPF Dialog Developer’s Guide and Reference.

Specification of a terminal type allows ISPF to recognize valid (displayable) characters. Keep in mind that the terminal type value that you specify to ISPF might not be the actual terminal type. For example, if your terminal is a 3279, you specify 3278 because a 3279 terminal has the same character set as a 3278. The keyboard character sets for the specified terminal and the actual terminal are always compatible.

The terminal type designations in the text of this document are often the value to be specified to ISPF rather than the actual terminal type.

This panel can also include one or more installation-dependent options for terminal type, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3277KN</td>
<td>3277 Katakana terminals</td>
</tr>
<tr>
<td>3278CF</td>
<td>3278 Canadian French terminals</td>
</tr>
<tr>
<td>3278KN</td>
<td>3278 Katakana terminals</td>
</tr>
</tbody>
</table>

A 5550-3270 Kanji emulation Version 3 terminal has the same character set as a 3278 Katakana terminal, so you should specify 3278KN as the terminal type. Also, because the 5550 running with the Japanese 3270PC/G Version 3 or 3270 PC Version 5 has the same character set as a 3278 Katakana terminal, in either case you should specify 3278KN as the terminal type.

The 5550 is run with the Japanese 3270PC V5 or 3270PC/G V3 emulation program. The terminal type, set by the ISPF Settings panel, is set to 3278KN.

**Print graphics parms**

The Print GraphicsParms portion of the ISPF Settings panel allows you to specify to GDDM the family printer type, device name, and aspect ratio. These parameters are described here:

**Family printer type**

This parameter has a default value of 2, which cannot be changed.

**Device name**

VTAM node name of the physical printer to which graphic display output is to be routed. This name is supplied by your system programmer.

**Aspect ratio**

How the graphics aspect ratio (relationship to displayed screen image) is to appear on the printed output. Aspect ratio can be either of these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Preserves the aspect ratio of the graphic area as displayed [Figure 24 on page 29]. In other words, the ratio of the graphic area width to its height is the same on the printed document [Figure 25 on page 29] as in the displayed view. Zero is the default value. Figure 25 shows how the graphic in Figure 24 would appear if the PRINTG command were issued with an aspect ratio of 0.</td>
</tr>
<tr>
<td>1</td>
<td>Preserves the positional relationship between the graphic and the alphanumeric characters outside the graphics area. In other words, the printed graphic [Figure 26 on page 30] aligns horizontally with</td>
</tr>
</tbody>
</table>
characters outside the graphics area the same as it (the printed graphic) aligns in the displayed image.

**Figure 24.** Screen containing graphics to be printed using PRINTG

**Figure 25.** Example of using aspect ratio parameter 0

**Figure 26** shows how the graphic in **Figure 24** would appear if the PRINTG command were issued with an aspect ratio of 1.
**General**

The General portion of the ISPF Settings panel allows you to specify values for the input field pad and command delimiter.

**Input field pad**

Specifies a pad character that controls the initial padding of blank (unfilled) panel input fields, including the selection panels, but not the data portion, of an Edit display. Within Edit, you control null or blank padding with Edit commands.

The pad character specified can be a B (blank), N (nulls), or any special (non-alphanumeric) character.

**Note:** When you are running in GUI mode, blank pad characters will be displayed as nulls in order to avoid the need to delete blank characters when replace mode is not available.

**Command delimiter**

You can stack commands on the command line by separating them with a delimiter. The default delimiter, the semicolon, can be changed using this option. Alphanumeric characters, the period (.), and the equal sign (=) are not valid command delimiters. Stacking allows you to enter, for example:

```plaintext
===> FIND DEPT;HEX ON
```

which finds the characters DEPT and then displays the file at that point in hexadecimal mode.

The system variable for the delimiter is ZDEL. For more information about ZDEL, refer to the z/OS ISPF Dialog Developer’s Guide and Reference.

---

**ISPF Settings panel action bar**

The ISPF Settings panel action bar choices function as follows:

**Log/List**

The Log/List pull-down offers these choices:

1. Log Data set defaults. See “Log data set defaults” on page 32.
Settings (option 0)

2 List Data set defaults. See “List data set defaults” on page 33.
3 List Data set characteristics. See “List data set characteristics” on page 35.
4 JCL. See “JCL” on page 36.

Function keys
The Function keys pull-down offers you these choices (see “Working with function keys and keylists (the Function Keys action bar choice)” on page 37 for more information):
1 Non-Keylist PF Key settings. Displays the PF Key Definitions and Labels panel.
2 Keylist settings Displays the Keylist Utility for ISP pop-up.
3 Tailor function key display. Displays the Tailor Function Key Definition Display panel.
4 Show all function keys. Changes the function key display. This will be an unavailable choice if you are currently showing all function keys.
5 Show partial function keys. Changes the function key display. This will be an unavailable choice if you are currently showing a partial list of function keys.
6 Remove function key display. Removes function keys from your screen. This will be an unavailable choice if you are currently not showing function keys.
7 Use private and shared. Equivalent to using the KEYLIST PRIVATE command.
8 Use only shared. Equivalent to using the KEYLIST SHARED command.
9 Disable keylists. Disables keylists. This choice is not available if you are currently running with keylists disabled.
10 Enable keylists. Enables keylists. This choice is not available if you are currently running with keylists enabled.

Colors
The Colors pull-down offers you these choices (see “Changing default colors (the Colors action bar choice)” on page 51 for more information):
1 Global colors Displays the Global Color Change Utility panel.
2 CUA Attributes Displays the CUA Attribute Change Utility panel.
3 Point-and-Shoot Displays the CUA Attribute Change Utility panel, positioned on the Point-and-Shoot panel element.

Environ
The Environ pull-down offers you these choices (see “Specifying ISPF ENVIRON settings (the Environ action bar choice)” on page 57 for more information):
1 Environ settings Displays the ISPF ENVIRON Command Settings panel.

Workstation
The Workstation pull-down offers you these choices (see “Specifying workstation parameters (the Workstation action bar choice)” on page 58 for more information):
1 Workstation connection Displays the Initiate GUI Session panel.
Settings (option 0)

2 GUI panel settings  Displays the GUI Settings panel.
3 Workstation Tool Integration Displays the tool integration panel.
4 Download ISPF C/S Component Displays the download panel.
5 Disconnect from the Workstation Disconnects from the workstation.

Identifier
The Identifier pull-down offers you these choices (see “Displaying message, system, user, panel, and screen IDs” on page 71 for more information):
1 Message identifier Displays the Message Identifier pop-up.
2 Panel identifier Displays the Panel Identifier pop-up.
3 Screen Name Displays the Screen Name pop-up.

Help
The Help pull-down provides general information about the options available in the Settings panel and action bar.

Specifying log and list defaults and characteristics (the Log/List action bar choice)
The Log/List pull-down on the ISPF Settings panel action bar allows you to specify the log and list data set defaults that are used when you terminate ISPF by issuing the RETURN or END command or by entering an X on the ISPF Primary Option Menu.

The defaults can also be used when you issue the LOG or LIST command. You may specify the characteristics of the records to be contained in the list data set when it is defined.

Log data set defaults
When you select “Log Data set defaults” from the Log/List pull-down on the ISPF Settings panel action bar, the panel shown in Figure 27 is displayed.

![Log Data Set Defaults panel (ISPISML1)](image_url)
Local printer ID or writer name
Enter the name that your installation has assigned to an IBM 328x type of
printer or the name of the external writer program. The default is blank. If
you enter a name in this field, be sure to leave the Batch SYSOUT class
field empty.

Lines per page
ISPF uses this value to determine when to cause a page eject if the eject
control is not provided by the dialog; for example, when the dialog issues
a LIST service request without the CC keyword specified.

Lines per page can range from 1 to 999. The initial default is 60. Normal
values for lines per page are:
60 When printing 6 lines per inch
80 When printing 8 lines per inch.

Primary/Secondary pages
Primary/secondary allocation parameters are specified in terms of the
anticipated number of pages of printout. These values are automatically
converted by ISPF to the appropriate number of blocks before allocating
space for the log data set. The initial default setting is 100 for both Primary
pages and Secondary pages.
Specify a primary allocation of zero to prevent allocation and generation of
the log.
If you modify the primary/secondary allocation parameters after the data
set has been allocated, the new values take effect the next time you start
ISPF. The log data set is allocated the first time you perform some action
that results in a log message, such as saving edited data or submitting a
batch job.

Log Message ID
If you select the Log Message ID option, the message ID is automatically
added to the long message text written in the LOG data set.

If you request default processing options for the log data set, these rules apply:
• If you specify Print data set and delete (1), you must also specify a Batch
SYSOUT class and job statement information. If you specify Print data set and
delete for both log and list, you can specify different Batch SYSOUT classes, but
only one job is submitted for printing both data sets.
• If you specify routing to a local printer, you must specify a Local printer ID or
writer name, and Batch SYSOUT must be blank. You can also enter a Local
SYSOUT class if one is defined.

If you do not follow these rules or do not specify default processing options,
primary option X or the RETURN command causes the final termination panel to
be displayed.

List data set defaults
When you select “List Data set defaults” from the Log/List pull-down on the ISPF
Settings panel action bar, the pop-up shown in Figure 28 on page 34 is displayed.
Local printer ID

Enter the name that your installation has assigned to an IBM 328x type of printer or the name of the external writer program. The default is blank. If you enter a name in this field, be sure to leave the Batch SYSOUT class field empty.

Lines per page

ISPF uses this value to determine when to cause a page eject if the eject control is not provided by the dialog; for example, when the dialog issues a LIST service request without the CC keyword specified.

Lines per page can range from 1 to 999. The initial default is 60. Normal values for lines per page are:
- 60 When printing 6 lines per inch
- 80 When printing 8 lines per inch.

Primary/Secondary pages

Primary/secondary allocation parameters are specified in terms of the anticipated number of pages of printout. These values are automatically converted by ISPF to the appropriate number of blocks before allocating space for the list data set. The initial default settings are 100 for Primary pages and 200 for Secondary pages.

If you modify the primary/secondary allocation parameters after the data set has been allocated, the new values take effect the next time you enter ISPF. The list data set is allocated the first time you request a print function or a dialog issues a LIST service request.

If you request default processing options for the list data set, these rules apply:
- If you specify Print data set and delete (1), you must also specify a Batch SYSOUT class and job statement information. If you specify Print data set and delete for both log and list, you can specify different Batch SYSOUT classes, but only one job is submitted for printing both data sets.
If you specify routing to a local printer, you must specify a Local printer ID or writer name, and Batch SYSOUT must be blank.

If you do not follow these rules or do not specify default processing options, primary option X or the RETURN command causes the final termination panel to be displayed.

After reviewing or changing the parameters on this panel, enter the END command to return to the previous menu.

**List data set characteristics**

When you select “List Data set characteristics” from the Log/List pull-down on the ISPF Settings panel action bar, the panel shown in Figure 29 is displayed to allow you to specify the characteristics of the records to be contained in the list data set when it is defined. You can specify the record format, the logical record length, and the line length to be printed. When the characteristics are reset, their new values take effect at once unless the list data set has already been allocated. In that case, the new values are used for the next list data set allocation. These values are saved in your user profile, which ISPF automatically builds and maintains across sessions.

Specifications for logical record length and line length values can affect truncation of lines written to the list data set by a LIST service request. See the description of the LIST service in *z/OS ISPF Services Guide* for more information.

The fields on this panel are described here:

**Record Format**

The record format specifies the format and characteristics of the records in the list data set. The allowable record formats are:

- **FBA** Fixed-length records that contain ANSI-defined printer control characters
- **VBA** Variable-length records with ANSI-defined printer control characters

The fields on this panel are described here:

![Log/List Function keys Colors Environ Workstation Identifier Help panel](image)

**Figure 29. List Data Set Characteristics panel (ISPISML3)**

The fields on this panel are described here:

**Record Format**

The record format specifies the format and characteristics of the records in the list data set. The allowable record formats are:

- **FBA** Fixed-length records that contain ANSI-defined printer control characters
- **VBA** Variable-length records with ANSI-defined printer control characters
VBA  Variable-length records that contain ANSI-defined printer control characters.
   The default setting is FBA.

Logical Record Length
The logical record length specifies the length, in bytes, of fixed-length records or the maximum length allowed for variable-length records. The default value is 121. This value represents one ANSI-defined control character and 120 bytes of data to be printed.

Line Length
The line length specifies the length of the logical line to be printed. If the specified line length is greater than the logical record length of the list data set, data is truncated. The range of allowable lengths is from 80 bytes to 160 bytes. The default value is 120.

The information supplied by the parameters allows for the printing of panels whose line lengths would not otherwise be supported by the available printing facilities.

For example:

- If a panel to be printed is 160 bytes wide but printing capabilities allow only 132 bytes, you should specify:
  RECFM FBA or VBA
  Line Length 130
  LRECL 132 (allows for two ANSI-defined control characters).
  The first page of output would contain the first 130 bytes of the panel.
  The second page would contain the last 30 bytes. This technique is referred to as the cut and paste method of printing.

- If a panel to be printed is 132 bytes wide and the printer supports this line length, you should specify:
  RECFM FBA or VBA
  Line Length 132
  LRECL 133 (allows for one ANSI-defined control character).
  The entire panel would be printed on one page of output.

- If a panel to be printed is 80 bytes wide, ISPF uses the default values for the LIST parameters. The entire panel would be printed on one page of output.

JCL
When you select JCL from the Log/List pull-down on the ISPF Settings panel action bar, the pop-up shown in Figure 30 on page 37 is displayed. You can specify up to four default job statements to be used when printing a log or list data set.
Working with function keys and keylists (the Function Keys action bar choice)

The Function keys pull-down on the ISPF Settings panel action bar (see Figure 31 on page 39) allows you to define function keys and to create, edit, delete, and view keylists.

Nearly all panels in ISPF have associated keylists, although specific keylists typically serve numerous panels. There are several keylists used in the ISPF product panels. These keylists all start with the characters ISR. In addition, ISPF contains some keylists that start with the characters ISP. They are not used in any ISPF product panels, but can be used by an application if needed. Keylists are used when an application panel contains a )PANEL statement.

To accommodate both users who require CUA-compliant keylists and those who prefer to use the traditional ISPF function key assignments, F1-F12 are assigned CUA-compliant values, and F13-F24 are assigned traditional ISPF values. Therefore, the user who runs in default mode (ZPRIKEYS set to UPP; also see “Tailor function key definition display” on page 48) can retain the traditional key settings.

Note: Function keys in Edit are documented in z/OS ISPF Edit and Edit Macros. They are not CUA-compliant.

The KEYS and KEYLIST commands have been modified to benefit the user as well. When KEYS is issued from a panel that is not using a keylist, the PF Key Definitions and Labels panel is displayed, which allows you to change the ZPF variable settings, as in previous versions of ISPF. However, if the keys command is issued from a panel with an active keylist, the associated Keylist Utility panel Change panel is displayed.

The user can also control the use of keylists associated with panels using the KEYLIST command. Specifying KEYLIST OFF causes ISPF to ignore the keylist in all logical screens running under the application ID from which the KEYLIST OFF command was issued, and to use the ZPF variables for controlling function keys. The KEYLIST ON command (the default) causes ISPF to recognize the preeminence
of keylists again. KEYLIST ON and OFF are equivalent to the Enable and Disable keylist choices on the Function keys pull-downs discussed in "Keylist settings" on page 42.

**ISPF default keylist**

ISPKYLST is the ISPF default keylist. If you do not specify a keylist to be associated with a panel using the KEYLIST attribute on the PANEL tag (DTL) or using the )PANEL statement, ISPF uses the keys defined for ISPKYLST to display in the function area of the panel when it is displayed. The key settings and forms for ISPKYLST are as shown in Table 3.

<table>
<thead>
<tr>
<th>Key</th>
<th>Command</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>HELP</td>
<td>Short</td>
</tr>
<tr>
<td>F2</td>
<td>SPLIT</td>
<td>Long</td>
</tr>
<tr>
<td>F3</td>
<td>EXIT</td>
<td>Short</td>
</tr>
<tr>
<td>F9</td>
<td>SWAP</td>
<td>Long</td>
</tr>
<tr>
<td>F12</td>
<td>CANCEL</td>
<td>Short</td>
</tr>
<tr>
<td>F13</td>
<td>HELP</td>
<td>Short</td>
</tr>
<tr>
<td>F14</td>
<td>SPLIT</td>
<td>Long</td>
</tr>
<tr>
<td>F15</td>
<td>EXIT</td>
<td>Short</td>
</tr>
<tr>
<td>F21</td>
<td>SWAP</td>
<td>Long</td>
</tr>
<tr>
<td>F24</td>
<td>CANCEL</td>
<td>Short</td>
</tr>
</tbody>
</table>

**ISPF default keylist for help panels**

You can specify a keylist to be associated with a help panel by using the keylist attribute on the HELP tag (DTL) or by using a )PANEL statement in your panel definition. If you do not specify a keylist, ISPF uses the keys defined for ISPHELP to display in the function area of the help panel when it is displayed. The key settings and forms for ISPHELP are shown in Table 4.

<table>
<thead>
<tr>
<th>Key</th>
<th>Command</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>HELP</td>
<td>Short</td>
</tr>
<tr>
<td>F2</td>
<td>SPLIT</td>
<td>Long</td>
</tr>
<tr>
<td>F3</td>
<td>EXIT</td>
<td>Short</td>
</tr>
<tr>
<td>F5</td>
<td>EXHELP</td>
<td>Short</td>
</tr>
<tr>
<td>F6</td>
<td>KEYSHELP</td>
<td>Short</td>
</tr>
<tr>
<td>F7</td>
<td>UP</td>
<td>Long</td>
</tr>
<tr>
<td>F8</td>
<td>DOWN</td>
<td>Long</td>
</tr>
<tr>
<td>F9</td>
<td>SWAP</td>
<td>Long</td>
</tr>
<tr>
<td>F10</td>
<td>LEFT</td>
<td>Long</td>
</tr>
<tr>
<td>F11</td>
<td>RIGHT</td>
<td>Long</td>
</tr>
<tr>
<td>F12</td>
<td>CANCEL</td>
<td>Short</td>
</tr>
</tbody>
</table>

Figure 31 on page 39 shows the Function keys pull-down on the ISPF Settings panel action bar. Each pull-down choice is described following the panel.
Non-keylist PF key settings

When you select Non-Keylist PF key settings from the Function keys pull-down on the ISPF Settings panel action bar, the PF Key Definitions and Labels panel shown in Figure 32 on page 40 is displayed. If you enter the KEYS command on the command line of any panel, the system displays one of two panels:

- If you are not using keylists (that is, keylists are disabled) or if there is no keylist associated with the panel from which you enter the KEYS command, the PF Key Definitions and Labels panel shown in Figure 32 on page 40 is displayed.
- If you are using keylists (that is, keylists are enabled) and there is a keylist associated with the panel from which you enter the KEYS command, the Keylist Change panel shown in Figure 37 on page 46 is displayed.

If you define your application panels using panel definition statements, use the PF Key Definitions and Labels - Primary Keys panel shown in Figure 32 to assign function keys and associated labels to ISPF commands.

Note: See “Keylist settings” on page 42 to find out how to assign function keys that are associated with a keylist.
Note: The panel in Figure 32 is displayed for terminals with 12 function keys. For terminals with 24 function keys, the first panel displayed shows the primary keys (F1-F12). When you press the Enter key, ISPF displays a panel showing the alternate keys (F13-F24). To alternate between the two panels, press the Enter key.

You can assign function keys to system commands, such as HELP or END, to commands that are meaningful within a particular function or environment, such as the Edit FIND and CHANGE commands, and to line commands, such as the Edit or dialog test I or D commands.

Before changing function key assignments, verify the terminal type selected on the ISPF Settings panel and the number of function keys (12 or 24). For a list of valid terminal types refer to Figure 23 on page 23.

You can define or change a function key function simply by equating the key to a command. For example:

PF9  ... CHANGE ALL ABC XYZ
PF12 ... PRINT

In the example, F9 has been equated to an Edit command, and F12 has been equated to the system-defined PRINT command.

If you enter a blank for any function key definition, the key is restored to its ISPF default.

A function key definition beginning with a colon ( :) is treated as a special case. The colon is stripped off, and the command to which the key is equated is inserted in the first input field on the line at which the cursor is currently positioned.
A function key definition beginning with a greater-than sign (>) is another special case. It causes the command to be passed to the dialog, regardless of whether the command appears in the command tables. When an ISPF function is executing, do not press the RESET key and then attempt to enter information or use a function key, because the results are unpredictable.

The label fields shown in [Figure 32 on page 40] allow you to specify user-defined labels for the displayed representations of function key definitions. This provides for displaying meaningful words of eight characters or fewer, rather than the first eight, possibly meaningless, characters of a lengthy function key definition.

If a label is not assigned, the definitions displayed for that function key consist of the first eight characters of the function key definition.

If the label value is BLANK, the function key number and the equal sign display, but the value portion of that function key definition displays as actual blanks. This label might be used if, for example, a function key is not defined or if it is meaningless to the user, but the dialog developer wants each function key number to appear sequentially in the function key definition lines.

No function key information, not even the number, appears if the label value for that key is NOSHOW.

[Figure 33] shows how the function key panel can be used to assign definitions and labels. In this example, F4 has been equated to a TSO data management command, while F12 has been equated to a command that requests job submission. Labels for several function keys are defined as well.

Figure 33. Using the PF Key Definitions and Labels panel (ISPOPT3E)

Figure 34 shows the function key settings that are displayed on a panel when defined using the key definitions and labels in Figure 33.
Keylist settings

To create or change a keylist associated with your panels, or to refer to or delete a keylist help panel from your keylist, select the “Keylist settings” choice from the Function keys pull-down on the ISPF Settings panel action bar, or enter the KEYLIST command. The first panel displayed is similar to Figure 35 on page 43. If you Enter the KEYS command from a panel that uses a keylist, the keylist change panel for the keylist active on the original panel is displayed.
In Figure 35, ISPHELP, ISPHLP2, ISPNAB, ISPSAB, ISPSNAB, ISPTEST, ISRHELP, ISRNAB, and ISRNSAB have already been created for application ISR. ISPSAB, the currently active keylist, and ISPSNAB are keylists for the keylist utility panels. ISPKYLST is the ISPF default keylist for any DTL application panel or any panel defined with a )PANEL section that does not have a keylist defined. ISPHELP is the ISPF keylist for help panels created using DTL or using a )PANEL section. The application ID is shown on the title line of the panel (ISR in Figure 35) and defaults to the application ID of the keys table in which the keylist was found when the KEYLIST command was entered. You can specify the keylist application ID on the )PANEL statement, or, if using DTL, it can be specified when you call the ISPF conversion utility using the KEYLAPPL option on the ISPDTLC command. If the panel does not specify an application ID, ISPF searches the currently executing application's keys table for a keylist that has the same name as the name specified on the PANEL tag. If the keylist is not found, and the current application ID is not ISP, ISPF searches the ISP application.

The column marked Type indicates whether a keylist is shared or is a private copy. For information about the KEYLIST SHARED and KEYLIST PRIVATE system commands, see the topic about Using Commands, Function Keys, and Light Pen or Cursor Selection in the z/OS ISPF User’s Guide Vol I. Shared keylists are created by the ISPF DTL Conversion Utility. They cannot be deleted by the keylist utility. If a shared keylist is modified by the keylist utility, it is saved as a private keylist copy in a table named xxxxxPROF, where xxxx is the application ID. The keylist utility now shows the keylist as a private copy. If you have issued the KEYLIST SHARED command, you can still modify a keylist, but you cannot see the changes reflected in the function keys until the KEYLIST PRIVATE command is issued.

**Note:** The keylist utility is meant for users to modify function keys for their own use. To define function keys for all users of an application or for site-wide use, the definitions in the Dialog Tag Language should be modified and a new xxxxKEYS table should be generated.
Settings (option 0)

The Keylist Utility panel action bar choices function as follows:

**File**  Allows you to create a new keylist, to edit, view, or delete existing keylists, or to exit the keylist utility.

**View**  Enables you to display another set of keylists. These options are described in "View pull-down" on page 48.

**File pull-down:**  To create, edit, view, or delete a keylist, use either of these methods:

- Use a slash in the Select column to select a keylist from those displayed, then select the appropriate choice from the File pull-down.
- Select a keylist from those displayed using one of these actions: N(New), E(Edit), V(View), or D(Delete). If you use N(New), you are prompted for the name of the keylist you are about to create.

The choices on the File pull-down function as follows:

**New**  To create a keylist, enter the keylist name when prompted. You are prompted after selecting New from the File pull-down, or after typing N next to any displayed keylist and pressing Enter. The screen shown in Figure 36 is displayed.

---

The Keylist Create panel action bar choices function as follows:

**File**  The File pull-down offers these choices:

1. **Cancel.** Cancels the creation of this keylist and returns to the Keylist Utility panel.

2. **Save and Exit.** Saves the keylist and returns to the Keylist Utility panel.
Defaults

The Defaults pull-down offers you the choice of the five default function key settings described in Table 5.

Table 5. Default key settings

<table>
<thead>
<tr>
<th>Condition</th>
<th>Function key settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>No defaults</td>
<td>No values are filled in.</td>
</tr>
<tr>
<td>Non-scrollable, no action bar</td>
<td>F1 HELP</td>
</tr>
<tr>
<td></td>
<td>F2 SPLIT</td>
</tr>
<tr>
<td></td>
<td>F3 EXIT</td>
</tr>
<tr>
<td></td>
<td>F9 SWAP</td>
</tr>
<tr>
<td></td>
<td>F12 CANCEL</td>
</tr>
<tr>
<td>Scrollable, no action bar</td>
<td>F1 HELP</td>
</tr>
<tr>
<td></td>
<td>F2 SPLIT</td>
</tr>
<tr>
<td></td>
<td>F3 EXIT</td>
</tr>
<tr>
<td></td>
<td>F7 BACKWARD</td>
</tr>
<tr>
<td></td>
<td>F8 FORWARD</td>
</tr>
<tr>
<td></td>
<td>F9 SWAP</td>
</tr>
<tr>
<td></td>
<td>F12 CANCEL</td>
</tr>
<tr>
<td>Non-scrollable, with action bar</td>
<td>F1 HELP</td>
</tr>
<tr>
<td></td>
<td>F2 SPLIT</td>
</tr>
<tr>
<td></td>
<td>F3 EXIT</td>
</tr>
<tr>
<td></td>
<td>F9 SWAP</td>
</tr>
<tr>
<td></td>
<td>F10 ACTIONS</td>
</tr>
<tr>
<td></td>
<td>F12 CANCEL</td>
</tr>
<tr>
<td>Scrollable, with action bar</td>
<td>F1 HELP</td>
</tr>
<tr>
<td></td>
<td>F2 SPLIT</td>
</tr>
<tr>
<td></td>
<td>F3 EXIT</td>
</tr>
<tr>
<td></td>
<td>F7 BACKWARD</td>
</tr>
<tr>
<td></td>
<td>F8 FORWARD</td>
</tr>
<tr>
<td></td>
<td>F9 SWAP</td>
</tr>
<tr>
<td></td>
<td>F10 ACTIONS</td>
</tr>
<tr>
<td></td>
<td>F12 CANCEL</td>
</tr>
</tbody>
</table>

If you are creating a keylist on a terminal defined to have 24 keys, the 13-24 keys are set the same as the 1-12 keys. For example, F13 is automatically set the same as F1. HELP, EXIT, ACTIONS, and CANCEL all have display format SHORT. SPLIT, UP, DOWN, and SWAP have display format LONG.

Edit

To edit the key definitions, display formats, and labels for a keylist, enter the keylist name when prompted. Select a keylist with a slash and select Edit from the File pull-down, or type E next to a keylist name and press Enter. The screen shown in Figure 37 on page 46 is displayed, showing the existing values.
The Keylist Change panel action bar choice functions as follows:

**File**

The File pull-down offers these choices:

1. **Cancel**. Cancels the changes to this keylist and returns to the Keylist Utility panel.
2. **Save and Exit**. Saves the changes to this keylist and returns to the Keylist Utility panel or the panel from which you issued the KEYS command.

These fields appear on the Keylist Utility Change panel:

**Row x to x of xx**

Indicates that you must scroll the panel to access the remaining label definitions.

**Keylist Help Panel Name**

To refer to a help panel from this keylist, enter the help panel name in this field in this format:

- Must be 1-8 characters
- First, or only, character must be A-Z or a-z
- Remaining characters, if any, must be A-Z, a-z, 0-9

To remove a help panel name from a keylist, replace the help panel name with blanks.

**Definition**

If a display format or a label is specified, a definition must also be specified. Any definition is valid.

**Format**

The only valid display formats are:

- **LONG**. The default. Indicates that the key label should be displayed in the function key area when the FKA command is toggled to the first cycle after OFF.
- **SHORT**. Indicates that the key label should be displayed in
Settings (option 0)

the function key area when the FKA command is toggled to the first or second cycle after OFF. A key will display more often in the function key area if it is given the SHORT display format.

**NO** Indicates that the key label should never be displayed in the function key area, regardless of the FKA command toggle cycle.

**Label** Any label is valid. If the Label field is left blank, it will default to the definition. This will happen only if the field is blank. If the Label field is not blank and the definition is changed, the Label field will not change automatically.

**View** To view a keylist, but not modify it, enter the keylist name when prompted. Select the keylist with a slash, then select View from the File pull-down, or type V next to the keylist name displayed and press Enter. The screen shown in Figure 38 is displayed.

If you select View, the help panel name, key definitions, display formats, and labels are displayed but cannot be changed.

**Delete** To delete a private copy of a keylist, enter the keylist name when prompted. Select the keylist with a slash, then select Delete from the File pull-down, or type D next to the keylist name displayed and press Enter. The Delete Keylist Confirmation pop-up shown in Figure 39 on page 48 is displayed.

**Note:** Shared keylists can only be deleted using the Dialog Tag Language.
Use caution when deleting a keylist from an application that is currently running. If you delete a keylist that is required by a panel in the application, an error message appears and the panel does not display.

**Exit** Select Exit from the File pull-down to exit the keylist utility.

**View pull-down:** To display another set of keys on the Keylist Utility panel, select View on the action bar.

The View pull-down choices function as follows:

**By current panel keylist**
Displays the list of keys related to the current panel.

**By current dialog keylist**
Displays the list of keys related to the dialog that is currently running.

**Specify a keylist application ID**
Displays the list of keys for another application.

**Tailor function key definition display**
The Tailor Function Key Definition Display panel (shown in Figure 40 on page 49) allows you to change the format of the function key definition lines that are displayed at the bottom of the screen. To display this panel, perform one of these actions:

- Select the “Tailor function key display” choice from the Function keys pull-down.
- Issue the PFSHOW TAILOR command from any command line.
Settings (option 0)

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F9=Swap</td>
<td>F12=Cancel</td>
</tr>
</tbody>
</table>

Figure 40. Tailor Function Key Definition Display panel (ISPOPFA)

From the Tailor Function Key Definition Display panel you can set these function key parameters:

**Number of keys**

The number of function keys you specify controls the particular set of function key definitions currently in use.

ISPF automatically determines the terminal type, screen size, and number of function keys:

- If the screen size is greater than 24 lines, but the terminal type specified implies a maximum of 24 screen lines, ISPF sets the terminal type to 3278.
- If you press a function key higher than 12, but the value specified for the number of function keys on your terminal is 12, ISPF sets the terminal type to 3278 and the number of function keys to 24.

ISPF cannot determine the terminal type or number of function keys in these cases:

- If you switched between a 3277 and 3278 Model 2, both of which are 24-line terminals
- If you switched from a terminal with 24 function keys to a terminal with 12 function keys.

In these cases, you must inform ISPF of the terminal type and number of function keys you are using. Otherwise, ISPF uses an incorrect character set and invalid function key definitions.

ISPF automatically sets, or changes, the number of function keys in these cases:

- If you specify 3277, ISPF initializes the number of keys to 12.
- If you specify 3278, ISPF initializes the number of keys to whatever was stored from the user's last ISPF session. If no number is stored from a prior session, the number of keys is initialized to 12.
If you press a function key higher than 12, ISPF sets the number of keys to 24. ISPF cannot set the number of keys to 24 for the 3278T terminal.

**Keys per line**
You can specify the number of keys per line to be displayed on the function key definition lines. Six or Maximum possible can be specified, indicating either six keys or the maximum possible keys. Six ensures consistency across all panels. Maximum possible can save space on crowded panels. The Maximum possible option is forced when you select the Panel display CUA mode option on the ISPF Settings panel.

**Primary range**
You can specify that the primary key range be:
- Lower Primary keys are F1-F12.
- Upper Primary Keys are F13-F24.

The default value is lower.

**Display set**
For terminals with 24 function keys, you can choose to display only the primary set of function keys (F1-F12, the default range), the alternate set of function keys (F13-24), or all 24 keys. Your display choices depend on which range you specify for the Primary range option. For terminals with 12 function keys, this setting is ignored.

The Function keys pull-down
The Function keys pull-down provides choices that enable you to display the function keys in various forms.

**Choices for changing PF key definitions**
You can change the PF Keys that you have defined by using one of the first three choices on the Function Keys pull-down. Choosing “Non-keylist PF Key settings” calls the PF Key Definitions and Labels panel, where you can assign PF keys to ISPF commands, and label them. This choice is like using the KEYS command.

Choosing “Keylist settings” from the pull-down is like using the KEYLIST command, and the “Tailor Function Key Display” choice calls up the Tailor Function Key Definition Display panel.

**Choices for showing PF keys on the display screen**
By selecting “Show all function keys”, “Show partial function keys”, or “Remove function key display”, you can specify that ISPF use the long form of function key display, the short form of function key display, or no function keys, respectively.

Each of these pull-down choices has an equivalent PFSHOW and FKA command associated with it. The commands operate as toggles; the pull-down choices become unavailable if they are the current setting.

Table 6 on page 50 explains the relationship between the pull-down choices and their related command combinations.

<table>
<thead>
<tr>
<th>Pull-down Choice</th>
<th>Command Equivalent</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show all function keys</td>
<td>PFSHOW</td>
<td>Long setting; all available function keys displayed. This is the default setting.</td>
</tr>
<tr>
<td></td>
<td>PFSHOW ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FKA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FKA ON</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Displaying forms of the function keys (continued)

<table>
<thead>
<tr>
<th>Pull-down Choice</th>
<th>Command Equivalent</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show partial function keys</td>
<td>PFSHOW (second time issued)</td>
<td>Short setting; a partial listing of the function keys displayed.</td>
</tr>
<tr>
<td></td>
<td>FKA (second time issued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FKA SHORT*</td>
<td></td>
</tr>
<tr>
<td>Remove function key display</td>
<td>PFSHOW (third time issued)</td>
<td>No function keys displayed. If PFSHOW or FKA is issued for a fourth time, the display returns to the long, or ON, setting.</td>
</tr>
<tr>
<td></td>
<td>PFSHOW OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FKA (third time issued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FKA OFF</td>
<td></td>
</tr>
</tbody>
</table>

Note: * The FKA SHORT command can be issued at any time to invoke the short setting.

Choices for determining who can use your PF keylist

The Function keys pull-down has two choices that are equivalent to the KEYLIST PRIVATE and KEYLIST SHARED commands:

Use private and shared
Causes ISPF to use the keylist defined as private (equivalent to the KEYLIST PRIVATE command). Private is the default. It is unavailable if it is the current setting.

Use only shared
Causes ISPF to use the keylist defined as shared (equivalent to KEYLIST SHARED). It is unavailable if it is the current setting.

Choices for enabling keylists

The Function keys pull-down has two choices that are equivalent to the KEYLIST ON and KEYLIST OFF commands:

Enable keylists
Causes ISPF to use the keylist defined with the panel (equivalent to the KEYLIST ON command). Enable keylists is the default. It is unavailable if it is the current setting.

Disable keylists
Causes ISPF to ignore the keylist defined with the panel (equivalent to KEYLIST OFF). It is unavailable if it is the current setting.

Changing default colors (the Colors action bar choice)

The Colors pull-down on the ISPF Settings action bar provides access to the Global Color Change Utility, the ISPF CUA Attribute Change Utility, and the Point-and-shoot Color Change panel. In GUI mode, the choice starts the Global GUI Color Change Utility.

Global colors
For ISPF-supported seven-color terminals, ISPF provides the Global Color Change Utility (on the host) and the Global GUI Color Change Utility (on the workstation) to allow you to globally change the current colors ISPF uses for display.

To invoke the utility appropriate for your environment, perform one of these actions:
- Select the Global colors... choice from the Colors pull-down.
- Issue the ISPF system command COLOR from any ISPF command line.
ISPF displays the Global Color Change Utility panel shown in Figure 41 if you are running in host mode; it displays the Global GUI Color Change Utility panel shown in Figure 42 on page 53 if you are running in GUI mode.

**Global color change utility:** From the panel shown in Figure 41 you can change the ISPF-defined default colors.

<table>
<thead>
<tr>
<th>ISPF Settings</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Color Change Utility</td>
<td>More: +</td>
</tr>
<tr>
<td>Globally change one or more of the ISPF default colors and press ENTER to immediately see the effect. Clearing a color field and pressing ENTER restores the default color or selecting the Defaults point-and-shoot field restores all default colors.</td>
<td></td>
</tr>
<tr>
<td>Enter the EXIT command to save changes or enter the CANCEL command to exit without saving.</td>
<td></td>
</tr>
</tbody>
</table>
| ISPF Default Color | Command ===>
| Blue | Defaults |
| Red | |
| Pink | |
| Green | |
| Turquoise | |
| Yellow | |
| White | |
| Command === F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap F12=Cancel 9=Swap | |

*Figure 41. Global Color Change Utility panel (ISPOPT10)*

Enter a new value in the color field beside the ISPF-defined default color to be changed. The valid color choices are RED, PINK, GREEN, YELLOW, BLUE, TURQ, and WHITE.

Color changes are reflected on the panel display immediately after you press Enter. For example, if you type BLUE in the field next to RED and press Enter, any panel element attributes defined as red change to blue.

You can restore an ISPF-defined color to its default value by setting its field to blank and pressing Enter. To restore all the ISPF-defined colors to their default values, select the Defaults point-and-shoot field at the end of the command line.

The EXIT command ends the Global Color Change Utility function and saves global color changes in the ISPSPROF system profile table. The CANCEL command ends the Global Color Change Utility function and restores the global color definitions as they were before the utility was invoked.

Changes to the globally defined colors affect all logical screens whether they are displayed directly by ISPF or whether ISPF has requested that GDDM perform the display. Line mode output, fields, and graphics that the dialog has placed on the screen using direct calls to GDDM are not affected by global color changes.
Global GUI color change utility: If you have set up the GUI interface, you can change its colors. From the Global GUI Color Change Utility panel shown in Figure 42, you can map each of the seven host colors to one of 16 workstation colors:

<table>
<thead>
<tr>
<th>Host Colors</th>
<th>Workstation Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Black</td>
</tr>
<tr>
<td>Pink</td>
<td>Dark blue</td>
</tr>
<tr>
<td>Green</td>
<td>Dark green</td>
</tr>
<tr>
<td>Yellow</td>
<td>Dark cyan</td>
</tr>
<tr>
<td>Blue</td>
<td>Dark red</td>
</tr>
<tr>
<td>Turq (turquoise)</td>
<td>Dark cyan</td>
</tr>
<tr>
<td>White</td>
<td>Brown</td>
</tr>
<tr>
<td></td>
<td>Light gray</td>
</tr>
<tr>
<td></td>
<td>Dark gray</td>
</tr>
<tr>
<td></td>
<td>Light blue</td>
</tr>
<tr>
<td></td>
<td>Light green</td>
</tr>
<tr>
<td></td>
<td>Light cyan</td>
</tr>
<tr>
<td></td>
<td>Light red</td>
</tr>
<tr>
<td></td>
<td>Light magenta</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td>Light magenta</td>
</tr>
<tr>
<td></td>
<td>White</td>
</tr>
</tbody>
</table>

Choose colors that contrast with the panel background so that the text can be read easily.

This panel provides three options for mapping host colors:

1. **Host colors for all panel fields.** Any colors that you remap affect all panel fields.

2. **Host colors for non-CUA attributes only.** Any colors that you remap affect only panel fields with non-CUA attributes.

3. **Workstation default colors for all panel fields.** Remapping colors will have no effect.
Settings (option 0)

The display will reflect any color changes made immediately when you press Enter.

Note: If a field uses a non-CUA attribute without a color specified, ISPF does not specify a color for the field and the field defaults to the 3270 default color on the host. That same field defaults to the workstation default color when it is displayed on the workstation, even if "Host colors for all panel fields" is selected.

Remapping host colors: From the Global GUI Color Change Utility panel, select a drop-down list button corresponding to one of the seven host colors, and ISPF displays the drop-down list on the panel, as shown in Figure 43.

From the drop-down list, select one of the 16 workstation colors to map to the host color you selected. For example, if you select the workstation color light magenta to map to the host color red, any panel element attributes defined as red change to light magenta on the next display.

The EXIT command terminates the Global GUI Color Change Utility and saves any global color changes in the ISPSPROF system profile table. The CANCEL command terminates the Global GUI Color Change Utility and restores the global color definitions to the values that were in effect before the utility was invoked.

Changes to the globally defined colors affect all logical screens. Background panels and split screen panels are not immediately affected; the color change does not occur until the panels are redisplayed.

CUA attributes
ISPF provides the CUA Attribute Change Utility to allow you to change the default values of panel colors, intensities, and highlights for panel element attributes. See the z/OS ISPF Dialog Developer’s Guide and Reference for a description of TYPE values for CUA panel element attributes.
To invoke the ISPF CUA Attribute Change Utility, perform one of these actions:
• Select the CUA attributes... choice from the Colors pull-down.
• Issue the ISPF system command CUAATTR from any ISPF command line.

The CUA Attribute Change Utility panel shown in Figure 44 is displayed. This is a scrollable panel that contains the current values for CUA panel element attribute colors, intensities, and highlights.

You can change the default values by typing over the existing values in the table with new values. Table 7 on page 55 shows valid change values:

You can restore an attribute to its default value by setting its field to blank and pressing Enter. To restore all the attributes to their default values, select the Defaults point-and-shoot field at the end of the command line.

Table 7. Valid CUA attribute change values

<table>
<thead>
<tr>
<th>Color Choices</th>
<th>Intensity Choices</th>
<th>Highlight Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>HIGH</td>
<td>NONE</td>
</tr>
<tr>
<td>PINK</td>
<td>LOW</td>
<td>BLINK</td>
</tr>
<tr>
<td>GREEN</td>
<td></td>
<td>REVERSE</td>
</tr>
<tr>
<td>YELLOW</td>
<td></td>
<td>USCORE</td>
</tr>
<tr>
<td>BLUE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TURQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the CUA Attribute Change Utility table, if a field is left blank and Enter is pressed, the field defaults to the ISPF provided CUA-defined default value. Changes made to AB Selected Choice, AB Unselected Choice, Action Message Text, Function Keys, Informational Message Text, and Warning Message Text take effect immediately. Changes to other panel elements are reflected in the next panel display. The values of the panel colors, intensities, and highlights are saved across
ISPF invocations in your ISPF system profile table, ISPSPROF. The changes to the panel element values affect all logical screens.

The CUA Attribute Change Utility affects only ISPF's CUA-defined attribute keywords. For example, the CUA Attribute Change Utility does not override this panel element attribute:

```plaintext
% TYPE(OUTPUT) COLOR(RED)
```

Color changes made using the ISPF Global Color Change Utility override changes made using the ISPF CUA Attribute Change Utility. For example, you can use the Global Color Change Utility and change red to blue. You might then use the CUA Attribute Change Utility and change normal text to red. Normal text will display as blue.

The ISPF-supported CUA-defined default values for the panel element attributes are listed in the `z/OS ISPF Dialog Developer’s Guide and Reference`.

**Point-and-shoot**

The Point-and-Shoot panel element on the CUA Attribute Change Utility panel (shown in Figure 45) allows you to adjust the color, intensity and highlighting of point-and-shoot fields.

See the ISPF User Interface topic in the `z/OS ISPF User’s Guide Vol I` for information on the point-and-shoot feature.

To display this panel, positioned on the Point-and-Shoot panel element, perform one of these actions:

- Select the Point-and-Shoot... choice from the Colors pull-down.
- Issue the ISPF system command PSCOLOR from any ISPF command line.

![Figure 45. CUA Attribute Change Utility panel positioned on the point-and-shoot panel element (ISPOPT1X)](image-url)
To change any of the three attributes, type over the existing values. The changes are reflected on the next panel displayed after you exit this panel. Table 8 shows valid change values:

**Table 8. Valid point-and-shoot change values**

<table>
<thead>
<tr>
<th>Color Choices</th>
<th>Intensity Choices</th>
<th>Highlight Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>HIGH</td>
<td>NONE</td>
</tr>
<tr>
<td>PINK</td>
<td>LOW</td>
<td>BLINK</td>
</tr>
<tr>
<td>GREEN</td>
<td></td>
<td>REVERSE</td>
</tr>
<tr>
<td>YELLOW</td>
<td></td>
<td>USCORE</td>
</tr>
<tr>
<td>BLUE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TURQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specifying ISPF ENVIRON settings (the Environ action bar choice)**

Figure 46 shows the ISPF ENVIRON Command Settings panel from which you can choose parameter options for the ENVIRON command. To display this panel, perform one of these actions:

- Select the Environ choice on the ISPF Settings panel action bar, then select option 1, "Environ settings...".
- Issue the ISPF system command ENVIRON from any ISPF command line.

![ISPF ENVIRON Settings panel (ISPENVA)](image)
Settings (option 0)

The panel text provides an overview of the command and its parameters. For a complete description of the ENVIRON command and its parameters, see z/OS ISPF Dialog Developer’s Guide and Reference.

Specifying shared profile settings (the Environ action bar choice)

Figure 47 shows the Multi-Logon Profile Sharing Settings panel from which you can choose parameter options for the SHRPROF command. To display this panel, perform one of these actions:

- Select the Environ choice on the ISPF Settings panel action bar, then select option 2, "Shared Profile settings...".
- Issue the ISPF system command SHRPROF from any ISPF command line.

Figure 47. Multi-Logon Profile Sharing Settings (ISPISSA)

The panel text provides an overview of the command and its parameters. For a complete description of the SHRPROF command and its parameters, see z/OS ISPF Dialog Developer’s Guide and Reference.

Specifying workstation parameters (the Workstation action bar choice)

Figure 48 on page 59 shows the Workstation pull-down menu on the ISPF Settings panel action bar.
Settings (option 0)

From this pull-down you can start a workstation session, specify GUI panel settings, configure the Workstation Tool Integration dialog, download the ISPF C/S component, and disconnect from the workstation.

Before you can perform these tasks, you must have completed these tasks:

- Successful installation and initialization of TCP/IP or APPC.
  'Appendix B: Configuring Communications for the ISPF Client/Server', in the z/OS ISPF User’s Guide Vol I contains procedures to help you to test whether you have satisfied this requirement.

- Successful installation of the ISPF Workstation Agent component.

- Initialization of the ISPF WSA component.

To initialize the WSA:

- If you have created a shortcut on your desktop that automatically launches the WSA, double-click the icon.

If you do not have a shortcut icon:

1. Go to a command line in your operating system (Windows or Unix).
2. Change to the directory that contains your WSA executable file.
3. Enter WSA.

The Workstation Agent window is displayed on your workstation.

This window represents the executing ISPF C/S workstation program. For more information about this window, see 'Appendix A: Installing the Client/Server component', in the z/OS ISPF User’s Guide Vol I.You can minimize this window but you cannot close it while ISPF is running in GUI mode.

**Note:** If you do not close the WSA window after you end an ISPF C/S session, you will not have to repeat this step to start another ISPF C/S
session; that is, as long as the ISPF C/S component has been started, you can start a workstation session.

Note: You can specify the GUI panel settings without having established a workstation connection and without running in GUI mode. However, your changes will not be seen until you next run GUI mode.

Workstation connection
When you select “Workstation connection” from the Workstation pull-down, one of two events can occur. Either the Initiate Workstation Session panel is displayed, or ISPF tells you that a newer version of the Workstation Agent code is available (if your system programmer has not disabled this feature).

Initiate the workstation connection: If you select “Workstation connection” and your Workstation Agent code matches the latest level available, the Initiate Workstation Connection panel appears, as shown in Figure 50:

```
Figure 50. Initiate Workstation Connection panel (ISPISMGI)
```

Note: If your WSA is not running, this panel will appear but you will not be able to establish a connection.

The Initiate Workstation Session panel allows you to specify that you want to start a GUI session. Starting a GUI session from this panel if you are in split screen mode or 3290 partition mode is not supported. If you select Workstation connection, you must specify the information in these fields, as appropriate:
Save values in system profile?
The default for this setting is YES. Any changes to this field are saved in
the user’s system profile.

Workstation connection
Allows you to specify one of these types of connections for your
workstation session:

With GUI display
A GUI interface is provided for this session.

Without GUI display
A standard ISPF type of interface is provided for this session.

GUI Network Protocol
The type of network you use to connect the workstation to the
host: TCP/IP or APPC.

You can also select the third option “Use ISPDTPRF file”, to specify that
ISPF get your network address from the file allocated to DD ISPDTPRF.
The file can be sequential or a member of a PDS, and it can be fixed
blocked (FB) or variable blocked (VB). Each line of the file should be
formatted as follows: userid WORKSTAT protocol_id:network_address,
where:

userid user’s TSO userid
protocol_id network protocol identifier, either ip for TCP/IP or lu for
APPC.
network_address workstation address

For example, KEENE WORKSTAT ip:9.45.202.69.

GUI Title
The title you want displayed in the window frame of your GUI session.
This value will be used if dialog variable ZWINTTL or ZAPPTTL is not
found.

TCP/IP Address
The workstation’s IP address. Required if you specified TCP/IP in the GUI
Network Protocol field. The TCP/IP Address prompt is point-and-shoot
text. If selected, a pop-up window is displayed containing the last five
addresses saved in the system profile.

A TCP/IP address can be in dotted decimal format or in domain name
format. Dotted decimal format is a sequence of decimal numbers separated
by periods, for example, 9.87.654.321.

A TCP/IP address in domain name format consists of one or more domain
qualifiers separated by periods. The minimum specification for addresses
within the same domain is a TCP/IP host name, for example, jsmith. The
fully-qualified domain name for jsmith is formed by appending the
appropriate subdomain name and root domain name to jsmith, such as
jsmith.raleigh.ibm.com. To use domain naming, a domain name server
must be active and providing domain name resolution for domain names
within your TCP/IP network. The domain name server address is
determined by the value of the NSINTERADDR statement in the TCP/IP
configuration data set. ISPF must be able to locate the TCP/IP
configuration data set as described in the section on configuring TCP/IP
connections in the z/OS ISPF User’s Guide Vol I.
**Settings (option 0)**

If an asterisk (*) is specified, the TCP/IP address is obtained automatically from the value of the system variable ZIPADDR.

**APPC Address**
The workstation's APPC network name. Required if you specified APPC in the GUI Network Protocol field. The APPC Address prompt is point-and-shoot text. If selected, a pop-up window is displayed containing the last five addresses saved in the system profile.

An APPC address can be in fully-qualified LU name format or in symbolic destination name format. A fully-qualified LU name format consists of a network identifier and an LU name, separated by a period. For example, **USIBMNR.NRI98X00** is a fully-qualified LU name.

An APPC address in symbolic destination name format consists of a 1- to 8-character name such as **JSMITH**. The symbolic destination name must be defined as a DESTNAME and the corresponding fully-qualified LU name must be defined as the associated PARTNER_LU in the APPC/MVS side information.

**Host Codepage**
The host code page value used in translating data from the host to the workstation. This value must be specified with a Host Character Set value if it is to be used. If only one, or neither, of these values is specified, the values from the terminal query are used. If your terminal or emulator does not support code pages, the CODEPAGE and CHARSET parameter values on the ISPSTART command are used. If the ISPSTART values are not specified, the default code page and character set is ENGLISH.

**Host Character Set**
The host character set value used in translating data from the host to the workstation. This value must be specified with a Host Codepage value if it is to be used. If only one, or neither, of these values is specified, the values from the terminal query are used. If your terminal or emulator does not support code pages, the CODEPAGE and CHARSET parameter values on the ISPSTART command are used. If the ISPSTART values are not specified, the default code page and character set is ENGLISH.

**GUI Window Frame**
Allows you to specify one of these types of window frames for your GUI session:

1. **Standard (STD)**. A GUI window frame that can be resized and that has max/min buttons.
2. **Fixed (FIX)**. A GUI window frame that has a min button but cannot be resized.
3. **Dialog (DLG)**. A GUI window frame that cannot be resized and that does not have max/min buttons.

**Note**: Pop-up panels will always be displayed in dialog window frames.

**Default window background color**
Select the background color:

- **Dialog (DLG)**
- **Standard (STD)**

When you complete the fields shown in [Figure 50 on page 60](#) and press Enter, the WSA connection panel is displayed in a separate window (unless your system has
been set up to bypass it - see the topic about the System Register panel in “Installing the Client/Server component”, in the z/OS ISPF User’s Guide Vol I for details).

This panel indicates the requestor and the type of connection requested. Click on Yes to accept the connection as described, or No to reject the connection.

If you accept the connection, the ISPF Settings panel is displayed. This will be in standard or GUI mode, depending on the option selected in the With GUI display field.

**Client/server component update:** If you select “Workstation connection” but the WSA code does not match the latest level available, the Client/Server Component Update panel is displayed, as shown in Figure 52 on page 64.

**Note:** If you have not started the WSA, the Initiate Workstation Connection panel displays, but you will not be able to establish a connection.
From this panel, you can download the latest WSA or continue to use your current WSA, and even tell ISPF not to notify you again if your WSA does not match the latest available. In the Download New Agent? field, you can specify one of three choices:

**Download now**

The download copies an installation program for the latest level of the WSA. You must specify the target directory in the “Directory to copy file to:” field. To create a new directory (one that does not already exist on your workstation) for the file, enter a slash mark (/) in the “Create directory to which the file is to be copied” field. The “Data Set to copy file from:” field should already be initialized by your system programmer. If it is not, you must specify the host data set that holds the latest WSA installation program. For example, ‘SYS1.ISP.SISPGUI’.

After downloading the installation program for the WSA, end your ISPF/GUI connection, terminate your old Workstation Agent, and run the installation program to install the new one.

**Do not download**

You might want to download the new WSA later. If so, select “Do not download”. ISPF does not download the new installation program at this time, but will prompt you again the next time you start a GUI session. Of course, you can always download the agent yourself with the Client/Server Component download function of the ISPF Utilities panel at any time. See “Download data set to workstation utility (option 3.7)” on page 188 for more information.

**Cease warnings**

ISPF does not download the agent installation program and you will not be notified again that your current WSA does not match the latest available on the host until an even higher level is available. That is, if you currently run level 433 and you have asked to Cease warnings at level 440, ISPF will not notify you again until at least level 441 is available.
Upon successful download of the new agent, the panel in Figure 53 appears. This panel gives you the option to end your GUI session and begin the installation immediately (by choosing option 1), or continuing your present session and installing the new Workstation Agent at a later time. See “Download data set to workstation utility (option 3.7)” on page 188 for more information.

### GUI panel settings

When you select “GUI panel settings” from the Workstation pull-down, the GUI Settings pop-up window is displayed, as shown in Figure 54 on page 66.

**Note:** You do not need to have a Workstation connection running, or to be in GUI mode, to change these settings.
The GUI Settings pop-up window allows you to specify these GUI parameters:

**Close Window**
Allows you to specify that one of these commands be processed when you close a GUI window:
- CANCEL
- END
- EXIT
- RETURN.

**Display Enter Key**
Select this field to display an Enter push button at the bottom of all GUI panels.

**Accelerator Support**
Select this field to use accelerator keys in this session.

**3270 mode after losing workstation connection**
Select this field if you want the ISPF session to continue in the 3270 emulator session rather than abend with code 989 when the workstation connection is lost while running in GUI mode.

**Download Images**
Select this field to download images from the host library defined to ddname ISPILIB, to the workstation image path. If you are not running ISPF in GUI mode, this setting is ignored.

**Make Path for Images**
Select this field to have ISPF create the image path you specify, when the image path you specify does not already exist on the workstation.

**Path for images**
In GUI mode, this field enables you to specify a workstation path for images. The image path can be 244 characters long with no embedded blanks. The image path you specify must follow the accepted path notation.

---

**Figure 54. GUI settings pop-up window (ISPISMGS)**

The GUI Settings pop-up window allows you to specify these GUI parameters:
for whichever operating system you are using. If you do not specify an image path, ISPF puts the image requested into the workstation's working directory.

**Workstation tool integration**

ISPF enables you to edit host data on the workstation, and workstation data on the host. ISPF calls this function *distributed editing*.

The ISPF Workstation Tool Integration dialog, or tool integrator, is a workstation customization tool that enables any workstation application to use data from an MVS host system. After setting up the tool integrator, your workstation-installed applications can interact with the ISPF View and Edit functions and services. Data flow goes both ways with the tool integrator connection. You can work with workstation files on the host or with host files on the workstation.

Overall, the tool integrator enables MVS-based users to use workstation applications and then share data through MVS. MVS, its file system, and RACF®, provide data integrity, security, and distribution capabilities beyond the workstation. Sharing data this way can reduce your installation's dependence on complex LANs, off-load CPU cycles to your workstation, and take advantage of workstation tools.

**Starting the tool integration dialog:**

Before you can use the tool integrator, the [Workstation Agent](http://example.com) must have been installed and configured. See “[Workstation connection](http://example.com) on page 60” for details on these prerequisite tasks.

You can run the tool integrator in either GUI mode or the standard ISPF mode. For information about running ISPF in GUI mode, see the topic about the ISPF user interface in the [z/OS ISPF User's Guide Vol I](http://example.com).

**Note:** You cannot issue a WSDISCON command or service call while running the workstation tool integration dialog.

You can display the Workstation Tool Integration Configuration panel, shown in Figure 55 on page 68, using any of these methods:

- Select Workstation Tool Integration from the Workstation pull-down.
- Select the Workstation choice on the action bars found on the Edit or View panels, then choose Workstation Tool Integration.
- Type INT on any ISPF command or action line and press Enter.
The information contained on this panel is defined as follows:

- **Line command field**
  - Enter `v` (view) or `e` (edit) to display the Tool Configuration panel in View or Edit mode.

**Description**
- Text explaining the ISPF action.

**Code**
- The ISPF action code assigned to this workstation application.

**Data**
- The format used for the object file during download and upload to the host.

**Mode**
- The processing mode for this action.

**Command**
- The workstation invocation command string or name.

You use this panel to begin to define how the ISPF actions interact with the workstation applications, or just to look at the actions you have already defined.

**The Tool Integrator action bar choices:** These action bar choices are available on the Workstation Tool Integration panel:

**File**
- **Edit**
  - Calls the edit function to update the parameters of a workstation action.
- **View**
  - Displays the parameters of a particular action.

**Cancel changes**
- Exit edit without updating the workstation action.

**Exit and Save**
- Exit edit and save changes made to the workstation action parameters.

**Map**
Settings (option 0)

Extension
Starts the Extension Mapping dialog. See “Extension mapping” on page 70 for more information.

Updating an action: To update the configuration of an action, use either of these methods:

- Type e (edit) in the line command field next to View or Edit, and press Enter.
- Type / in the line command field next to View or Edit, then choose File > Edit from the action bars in the panel

After you choose to edit an action, the screen shown in Figure 56 is displayed.

![Figure 56. Modify Tool Configuration window](image)

The fields found on this panel are as follows:

**Description**
Text explaining the ISPF action.

**Code**
The ISPF action code assigned to this workstation application.

**Data**
The format used for the object file during download and upload to the host. Use Binary for data that you want to leave unchanged on the host, for example, image files such as bitmaps.

**Invocation**
The processing mode for this action. Use Modal to ensure that an action is completed before your application moves on to another task. For example, if you want to upload and replace an object on the host, specify Modal. Modeless means that the action can continue while your application performs other tasks, effectively running in parallel with the application.
Workstation Command
The workstation invocation command string or name. This can be the actual command name of the workstation application, or a workstation path and command name.

Additional Parameters
Additional parameters that are recognized by the workstation command.

Working Directory
The directory on the workstation in which files used by Workstation Edit are stored. These include saved copies of workstation files and temporary copies of host files that are being processed by Edit or View on the workstation.

If you do not specify a location, a default directory is used. On Windows, the default is the directory where the ISPF WSA was started. On UNIX systems, the default is the user’s home directory.

Extension mapping: The Map choice on the tool integrator action bar enables you to associate a workstation file extension of up to 3 characters with a host data set type. The host data set type is the last qualifier of the data set. These are frequently longer than 3 characters, while most workstation file extensions are 3 or less. The Extension Mapping dialog panel, shown in Figure 57, shows how certain host data set types map to their workstation file extension counterparts.

To map a host to workstation pair, perform one of these actions:
1. In the Action field, type R to repeat a previous mapping, I to insert a new mapping, or D to delete a current mapping.
2. In the Host Type field, type the last qualifier of the host data set to be mapped.
3. In the Workstation Extension field, type the extension name to be used for the temporary workstation file created.
4. Press Enter.

Figure 57. Extension Mapping Dialog window

Log/List Function keys Colors Environ Workstation Identifier Help

<table>
<thead>
<tr>
<th>Workstation Tool Extension Mapping</th>
<th>gs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action: I=Insert D=Delete R=Repeat</td>
<td>More: +</td>
</tr>
<tr>
<td>Host Type Workstation Extension</td>
<td></td>
</tr>
<tr>
<td>==End==</td>
<td></td>
</tr>
<tr>
<td>rint Graphics</td>
<td></td>
</tr>
<tr>
<td>Family printer type 2</td>
<td></td>
</tr>
<tr>
<td>Device name . . .</td>
<td></td>
</tr>
<tr>
<td>Aspect ratio ... 1</td>
<td></td>
</tr>
<tr>
<td>emeral</td>
<td></td>
</tr>
<tr>
<td>Input field pad . . B</td>
<td></td>
</tr>
<tr>
<td>Command delimiter . ;</td>
<td></td>
</tr>
</tbody>
</table>

Command ===> Scroll ===> PAGE
F1=Help F2=Split F3=Exit
F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

3. Max 4. Part
Backward F8=Forward F9=Swap
If you attempt to use a host data set on a workstation and you have not mapped the data set type to one on your workstation, the first 3 characters of the data set type are used by default.

**Download ISPF C/S component**
When you select “Download ISPF C/S Component” from the Workstation pull-down, the Client/Server component dialog starts. See “Download data set to workstation utility (option 3.7)” on page 188 for more information.

**Disconnect from the workstation**
When you select “Disconnect from the workstation” from the Workstation pull-down, the Workstation Disconnect Confirmation dialog starts. From the dialog you have the choice of YES to disconnect, or NO which cancels the disconnect request.

**Displaying message, system, user, panel, and screen IDs**
The Identifier action bar choice allows you to display message IDs with the message text, and to display system, user, panel, and screen identifiers at the start of the Title line.

**Message identifier**
You can specify that you want to display message identifiers in either of two ways:
- Select the “Message identifier” choice from the Identifier pull-down on the ISPF Settings panel action bar, as shown in Figure 58
- Issue the ISPF system command MSGID ON.

When you select “Message identifier” from the Identifier pull-down, the Message Identifier panel is displayed.

If you select the “Display message identifier” option, the message identifier is set to On. The identifier will now display within the message text whenever a long message option is accessed (that is, when you enter the HELP command). Deselect this choice (or issue the MSGID OFF command) to set the message identifier to Off.

This setting only applies to the current ISPF session. To retain the setting across ISPF sessions, select “Default setting for message identifier”.

---

**Figure 58. Identifier pull-down on the ispf settings panel action bar (ISPISMMN)**
Settings (option 0)

Figure 59 shows an error message on the ISPF Settings panel displayed with the message identifier set to on.

<table>
<thead>
<tr>
<th>Log/List</th>
<th>Function keys</th>
<th>Colors</th>
<th>Environ</th>
<th>Workstation</th>
<th>Identifier</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ISPF Settings</td>
<td></td>
<td></td>
<td></td>
<td>Invalid value</td>
<td>+</td>
</tr>
<tr>
<td>Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>More:</td>
<td></td>
</tr>
<tr>
<td>Enter &quot;/&quot; to select option</td>
<td>Print Graphics</td>
<td>Family printer type 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ Command line at bottom</td>
<td></td>
<td>Device name</td>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Panel display CUA mode</td>
<td></td>
<td>Aspect ratio</td>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Tab to action bar choices</td>
<td>Tab to point-and-shoot fields</td>
<td>General</td>
<td>Input field</td>
<td>Command delimiter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Long message in pop-up</td>
<td>IDSP201</td>
<td>ISPF213</td>
<td>Valid</td>
<td>values are: 0 or 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Restore TEST/TRACE options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Session Manager mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 59. Panel displayed with the message identifier set to on

System name
You can specify that you want to display the system name in either of two ways:
• Select the “System name” choice from the Identifier pull-down on the ISPF Settings panel action bar.
• Issue the ISPF system command SYSNAME ON.

When you select “System name” from the Identifier pull-down, the System Name Identifier panel is displayed.

If you select the “Display system name identifier” option, the system name identifier is set to On. The identifier will now display in the panelid area. Deselect this choice (or issue the SYSNAME OFF command) to set the system name identifier to Off.

This setting only applies to the current ISPF session. To retain the setting across ISPF sessions, select “Default setting for system name”.

Figure 60 shows the top portion of the ISPF Settings panel displayed with the screen identifier set to On.

<table>
<thead>
<tr>
<th>Log/List</th>
<th>Function keys</th>
<th>Colors</th>
<th>Environ</th>
<th>Workstation</th>
<th>Identifier</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ISPF Settings</td>
<td></td>
<td></td>
<td></td>
<td>Invalid value</td>
<td>+</td>
</tr>
<tr>
<td>Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>More:</td>
<td></td>
</tr>
<tr>
<td>Enter &quot;/&quot; to select option</td>
<td>Print Graphics</td>
<td>Family printer type 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ Command line at bottom</td>
<td></td>
<td>Device name</td>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Panel display CUA mode</td>
<td></td>
<td>Aspect ratio</td>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Long message in pop-up</td>
<td>IDSP201</td>
<td>ISPF213</td>
<td>Valid</td>
<td>values are: 0 or 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 60. Panel displayed with the system name set to on
Settings (option 0)

Note: The commands SYSNAME, USERID, PANELID, and SCRNAME share the same 17-character area at the start of the Title line. If more than one of these commands are specified, ISPF displays as many as will fit, in this order of priority: SYSNAME, if specified, is always displayed. Then, as long as there is enough room, USERID is displayed, then PANELID, then SCRNAME.

User ID
You can specify that you want to display the user ID in either of two ways:

- Select the “User ID” choice from the Identifier pull-down on the ISPF Settings panel action bar.
- Issue the ISPF system command USERID ON.

When you select “User ID” from the Identifier pull-down, the User Identifier panel is displayed.

If you select the “Display user identifier” option, the user identifier is set to On. The identifier will now display in the panelid area. Deselect this choice (or issue the USERID OFF command) to set the user identifier to Off.

This setting only applies to the current ISPF session. To retain the setting across ISPF sessions, select “Default setting for user identifier”.

Figure 61 shows the top portion of the ISPF Settings panel displayed with the user identifier (and the system name) set to On.

![Figure 61. Panel displayed with the user ID set to on](image)

Note: The commands SYSNAME, USERID, PANELID, and SCRNAME share the same 17-character area at the start of the Title line. If more than one of these commands are specified, ISPF displays as many as will fit, in this order of priority: SYSNAME, if specified, is always displayed. Then, as long as there is enough room, USERID is displayed, then PANELID, then SCRNAME.

Panel identifier
You can specify that you want to display panel identifiers in either of two ways:

- Select the “Panel identifier” choice from the Identifier pull-down on the ISPF Settings panel action bar, as shown in Figure 58 on page 71.
- Issue the ISPF system command PANELID ON.

When you select “Panel identifier” from the Identifier pull-down, the Panel Identifier panel is displayed.
Settings (option 0)

If you select the “Display panel identifier” option, the panel identifier is set to On. The identifier will now display in the panelid area. Deselect this choice (or issue the PANELID OFF command) to set the panel identifier to Off.

This setting only applies to the current ISPF session. To retain the setting across ISPF sessions, select “Default setting for panel identifier”.

Figure 62 shows the top portion of the ISPF Settings panel displayed with the panel identifier set to On.

```
ISPISMMN
Options
Enter "/" to select option
/ Command line at bottom
7 Panel display CUA mode
7 Long message in pop-up

Print Graphics
Family printer type 2
Device name ...
Aspect ratio ...

More: +
```

Figure 62. Panel displayed with the panel identifier set to on

Note: The commands SYSNAME, USERID, PANELID, and SCRNAME share the same 17-character area at the start of the Title line. If more than one of these commands are specified, ISPF displays as many as will fit, in this order of priority: SYSNAME, if specified, is always displayed. Then, as long as there is enough room, USERID is displayed, then PANELID, then SCRNAME.

Screen name
You can specify that you want to display the screen name in either of two ways:
• Select the “Screen name” choice from the Identifier pull-down on the ISPF Settings panel action bar.
• Issue the ISPF system command SCRNAME ON.

When you select “Screen name” from the Identifier pull-down, the Screen Name Identifier panel is displayed.

If you select the “Display screen identifier” option, the screen identifier is set to On. The identifier will now display in the panelid area. Deselect this choice (or issue the SCRNAME OFF command) to set the screen identifier to Off.

This setting only applies to the current ISPF session. To retain the setting across ISPF sessions, select “Default setting for screen identifier”.

Figure 63 shows the top portion of the ISPF Settings panel displayed with the screen identifier set to On.
Note: The commands SYSNAME, USERID, PANELID, and SCRNAME share the same 17-character area at the start of the Title line. If more than one of these commands are specified, ISPF displays as many as will fit, in this order of priority: SYSNAME, if specified, is always displayed. Then, as long as there is enough room, USERID is displayed, then PANELID, then SCRNAME.
Settings (option 0)
Chapter 3. View (option 1)

The View option (1) displays the View Entry Panel shown in Figure 64.

![View Entry Panel](ISRBRO01)

This option enables you to view or browse source data and listings stored in ISPF libraries, other partitioned or single-volume or multivolume sequential data sets, or z/OS UNIX files.

**View**

Allows you to use all Edit line commands, primary commands, and macros to manipulate the data. View functions exactly like Edit, with the exception of these primary commands:

- **SAVE** When you enter the SAVE command, ISPF issues a message that you must use the CREATE command to save any data you have changed.
- **END** When you enter the END command, ISPF terminates the View function; no data changes are saved.

**Browse**

Allows you to use the Browse primary commands described in "Browse primary commands" on page 81 to manipulate data.

View is enabled by default. You can disable View, thus allowing only Browse, by modifying the ISPF Configuration Table. You must set the keyword **IS_VIEW_SUPPORTED** to NO. For more information, see the topic about the ISPF Configuration Table in z/OS ISPF Planning and Customizing.

You can view or browse data that has these characteristics:
**View (option 1)**

- **Record Format (RECFM):**
  - Fixed, variable (non-spanned), or undefined
  
  **Note:** If you try to view a data set with RECFM=U, the Browse function is substituted.
  - Blocked or unblocked
  - With or without printer control characters
- **Logical Record Length (LRECL):**
  - For fixed-length records, up to 32 760 characters. For view only, the minimum record length is 1 character.
  - For variable-length records, up to 32 756 characters. For view only, the minimum record length is 5 characters.
- **VSAM data**
  - VSAM data can be browsed if the ISPF Configuration table has been customized to enable VSAM support (that is, VSAM_BROWSE_ENABLED or VSAM_VIEW_ENABLED is set to "YES").
  
  **Note:** When VSAM support is enabled, the default value for VSAM_BROWSE_COMMAND and VSAM_VIEW_COMMAND is "FMNMAIN DSB /". If the command is not available, IKJ56501 COMMAND FMNMAIN NOT FOUND, is issued as a TSO message.
- **z/OS UNIX files.**

---

**View Entry Panel action bar**

The View Entry Panel action bar choices function as follows:

- **Menu**

- **RefList**

- **RefMode**

- **Utilities**

- **Workstation**
  The Workstation pull-down offers you one choice:
  
  **1. Workstation Tool Integration**

- **Help**
  The Help pull-down provides general information about the options and commands available in View, as well as information about each available choice on the View Entry Panel.

---

**View Entry Panel fields**

The “ISPF Libraries and Data Sets chapter” of the [z/OS ISPF User’s Guide Vol I](https://www.ibm.com/support/knowledgecenter/en/SC9LXW_1.3.2/entry/com.ibm.ispf.ispfug/v1/ps000263.html) contains information about all the fields on the View Entry Panel except these:
Initial Macro
You can specify an Edit macro to be processed before you begin viewing your sequential data set or any member of a partitioned data set. This initial macro enables you to set up a particular environment for the View session you are beginning.

If you leave the Initial Macro field blank and your Edit profile includes an initial macro specification, the initial macro from your Edit profile is processed.

If you want to suppress the processing of an initial macro in your Edit profile, enter NONE in the Initial Macro field.

Profile Name
You can specify a profile name to override the default Edit profile.

Format Name
Contains the name of a format definition, which is used to view or browse a formatted data set.

Browse Mode
Specifies that you want to browse the data set using the Browse function. This function is useful for large data sets and data sets that are formatted RECFM=U.

Confirm Cancel/Move/Replace
Specifies that you want ISPF to display a confirmation panel whenever you issue a Cancel, Move, or Replace command.

Mixed Mode
Specifies that you want to view or browse unformatted data that contains both EBCDIC and DBCS characters.

View on Workstation
Specifies that you want to view the data on your workstation. This option requires a workstation connection to be used.

Warn on First Data Change
Specifies that you want ISPF to warn you that changes cannot be saved in View. The warning is displayed when the first data change is made.

Record Length
Can be used when browsing a z/OS UNIX file. The numeric value entered in this field is used by ISPF to display the data in the file as fixed-length records, rather than using the newline character to delimit each record. This is useful for browsing files which would otherwise have very large records if the newline character is used as the record delimiter.

View ASCII data
You can use this option when viewing a z/OS UNIX file containing data encoded in ASCII and the file is not tagged with a CCSID of 819. You can also specify this option when creating a new file containing ASCII data. When you select this field with a "/", the editor renders the ASCII data readable by converting the data to the CCSID of the terminal. Also, the editor breaks up the data into records using the ASCII linefeed character (X'0A') and the ASCII carriage return character (X'0D') as the record delimiter. The linefeed and carriage return characters are removed from the data loaded into the editor, but written back to the file when the data is saved. It is not necessary to use this option when the file is tagged with a CCSID of 819. If ISPF detects the file is tagged with CCSID 819, it converts
the data from ASCII to the CCSID of the terminal. When the file is saved, ISPF ensures the file is tagged with a CCSID of 819.

Browsing a data set

If you select Browse Mode on the View Entry Panel, ISPF displays either a member selection list or a Browse data display. For information about displaying a member list, see the topic about Using Member Selection Lists in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.

**Note:** If you specify a volume serial on the View Entry Panel, you can browse a single volume of a non-SMS multivolume data set.

A Browse data display is shown in Figure 65.

---

Menu Utilities Compilers Help
-------------------------------------------------------------------------------------
BROWSE ISPFDEMO.XXX.COBOL(CBLMAIN) - 01.01 Line 0000000 Col 001 080
*******************************************************************************
IDENTIFICATION DIVISION.
PROGRAM-ID. 'F20D1000'.
DATE-COMPILED. OCT. 20, 1985
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER. IBM-370.
OBJECT-COMPUTER. IBM-370.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
  SELECT OLD-COMREC ASSIGN TO DA-S-DD1.
  SELECT D1-REPORTS ASSIGN TO UR-S-D1OUT.
  SELECT OPTION-CARD-FILE ASSIGN TO UR-S-SYSIN.
DATA DIVISION.
FILE SECTION.
FD  OLD-COMREC
  LABEL RECORD IS STANDARD
  RECORDED MODE IS F
Command ==> ___________________________________________ Scroll ===> PAGE
F1=Help   F2=Split   F3=Exit   F5=Rfind   F7=Up   F8=Down   F9=Swap
F10=Left  F11=Right  F12=Cancel

Figure 65. Browse - data display (ISRBROBA)

Each character in the data that cannot be displayed is changed on the display to either a period or a character that you have specified. Using the DISPLAY command, you can specify whether printer carriage-control characters are to be treated as part of the data, and thus displayed.

You can browse data that is stored in a Unicode format. MVS Conversion Services must first be set up for the appropriate conversions. See z/OS ISPF Planning and Customizing.

During Browse, four-way scrolling is available through the scroll commands. You can also use the FIND and LOCATE commands to scroll to a particular character string, line number, or symbolic label.

Whenever you enter a command, such as FIND or one of the scroll commands, that puts the cursor under a character string in the data set, ISPF highlights that character string. This highlighting occurs whether you type the command on the command line and press Enter or press a function key that the command is assigned to.
Ending browse

To end a Browse data display, use the END command. This returns you to the previous panel, which is either a member list display or the View Entry panel. If a member list is displayed, the name of the member you just browsed is at the top of the list. You can select another member from the list or enter the END command again to return to the View Entry Panel.

When the View Entry Panel is displayed again, you can select another data set or member, or you can use the END command to return to the ISPF Primary Option menu.

Browse primary commands

You can prefix any BROWSE command with an ampersand to keep the command displayed on the command line after the command has been processed. This technique allows you to repeat similar commands without reentering the data. For example, if you enter:

```
Command ===> &FIND ABCD
```

the command is displayed after the string has been found, which allows you to then change the operand and issue another FIND command.

Browse provides the functions described in these topics, each of which is controlled by a command that you can type on the command line:

- **BROWSE**—browse recursively
- **COLUMNS**—identify columns
- **DISPLAY**—control the display
- **EDIT**—edit a member
- **FIND**—find character strings
- **HEX**—display data in hexadecimal format
- **LOCATE**—locate lines
- **RESET**—remove the column-identification line
- **SUBMIT**—submit a job stream for background execution
- **VIEW**—view a member

**BROWSE—browse recursively**

The BROWSE command allows you to browse another member of the same data set. It also allows you to browse any other data set or a z/OS UNIX file without ending your current Browse session.

The BROWSE command has this syntax:

```
>>>BROWSE [member]
```

where:

- **member** An optional member of the ISPF library or other partitioned data set that you are currently browsing. You may enter a member pattern to generate a member list.

For example, if you were browsing a member of library ISPFDEMO.XXX.COBOL, you could enter this command to display the panel shown in Figure 65 on page 80.
BROWSE CBLMAIN

If you do not specify a member name, the Browse Command - Entry Panel is displayed.

You end a nested Browse session the same way you would a normal one. When you end the nested Browse session, the current Browse session resumes.

**COLUMNS—identify columns**

You can use the COLUMNS command to provide a temporary indication of where columns occur on the panel. This command displays a column-identification line on the first line of the data area. The command has this syntax:

```
/COLUMNS
```

where:

- **ON** The default. Displays the column-identification line.
- **OFF** Removes the column-identification line from the display.

**Note:** You can also remove the column-identification line by entering the RESET command.

An example of the column-identification line is shown in [Figure 66](#). The digits on the identification line show the tens positions: 1 shows column 10, 2 shows column 20, and so forth. The plus signs (+) show the fives positions (columns 5, 15, 25, and so forth.)

![Figure 66. Browse - column-identification line (ISRBROBA)](image)

**DISPLAY—control the display**

The DISPLAY command allows you to view data that would not normally be displayed, such as carriage control characters and Unicode data. For other nondisplayable data you can specify a character to represent each character that cannot be displayed.

The DISPLAY command has two formats. The first is used to display carriage-control characters and other nondisplay characters. The second allows data stored using a Unicode CCSID (Coded Character Set Identifier) to be displayed using the CCSID of the terminal.
Carriage-control characters and other nondisplay characters

You must enter at least one operand, but you can enter them in any order. If you enter only one operand, the other operand retains its current value.

where:

char  The character you want to use to represent characters that cannot be displayed on the screen. It can be a single character, or a single character enclosed in apostrophes (‘) or quotation marks (“). If you specify a blank as the character, you must enclose it in apostrophes or quotation marks.

CC  Shows that carriage control characters are to be displayed and are to be considered part of the data.

NOCC  Shows that carriage control characters are not to be displayed and are not to be considered part of the data.

Both operands are stored in your user profile and are in effect whenever you are using Browse. You need to reenter the DISPLAY command only if you want to change one of the operands.

The first settings for display mode are period (.) and NOCC, but the carriage control character status has no effect if the data that you are browsing has no carriage control characters.

Unicode data

where:

LINE start_line end_line  Specifies the number of the first and last lines within which Unicode data is displayed. If the LINE keyword is not specified, the DISPLAY command applies to the all lines in the data. If only one value is specified, the DISPLAY command only applies to that line.

COLS start_col end_col  Specifies the number of the first and last column within which Unicode data is displayed. If the COLS keyword is not specified, the DISPLAY command applies to the full range of columns in the data. If only one value is specified, the DISPLAY command only applies to that column.
CCSID ccsid_number | ASCII | USASCII | EBCDIC | UCS2 | UTF8 | UTF16 | UTF32
Specifies the CCSID of the data. The CCSID represents a code page and character set combination.

RESET
This format of the command resets all definitions made with the DISPLAY command. All data is displayed as though it had been stored using the terminal CCSID.

LINE and COLS are optional. LINE, COLS, and CCSID can be specified in any order.

You can issue multiple DISPLAY commands, in which case the specifications are merged. If a range of data is specified more than once, later specifications take precedence over earlier specifications. For example, if you specify one CCSID that applies to rows 3 to 10, then specify another CCSID that applies to columns 30 to 60, the second CCSID takes effect in the area where the DISPLAY commands overlap—that is, columns 30 to 60 in rows 3 to 10.

When you exit the current Browse session, all definitions are reset (as though you had entered DISPLAY RESET).

Examples:
- To use blanks to represent characters that cannot be displayed, enter:
  DISPLAY " "
- To use a vertical bar (|) to represent characters that cannot be displayed, enter:
  DISPLAY |
- To suppress the display of carriage control characters, enter:
  DISPLAY NOCC
- To display columns 20 through 30 of lines 5 through 15 as though the data had been stored using a CCSID of UTF16:
  DISPLAY LINE 5 15 COLS 20 30 CCSID 1200
- To display lines 4 through 18 as though the data had been stored using a CCSID of UTF16, except for column 72 in lines 12 through 18, which should be displayed as though the data had been stored using a CCSID of ASCII:
  DISPLAY LINE 4 18 UTF16
  DISPLAY LINE 12 18 COLS 72 ASCII
- To revert to displaying the data as though it had been stored using the CCSID of the terminal:
  DISPLAY RESET

EDIT—edit a member
The EDIT command allows you to edit another member of the same data set. It also allows you to edit any other data set or z/OS UNIX file without ending your current Browse session.

The EDIT command has this syntax:

```
>>>>EDIT [member]
```

where:
Browsing a data set

member

An optional member of the ISPF library or other partitioned data set that you are currently browsing. You may enter a member pattern to generate a member list.

For example, if you were browsing a member of library ISPFDEMO.XXX.COBO, you could enter this command to display the panel shown in Figure 65 on page 80:

```
EDIT CBLMAIN
```

If you do not specify a member name, the Edit Command - Entry Panel is displayed.

You end a nested Edit session the same way you would a normal one. When you end the nested Edit session, the current Browse session resumes.

FIND—find character strings

The FIND command allows you to find a specified character string. The syntax of the FIND command is:

```
/FIND <string> [UTF8 | ASCII | USASCII] [NEXT | ALL | FIRST | LAST | PREV] [CHARS | PREFIX | SUFFIX | WORD] [left_col right_col]
```

Note: FIND as a Browse command, shown here, has the same syntax as FIND as an Edit command, except the optional X/NX/EX and line range operands are not included.

where:

**string**

Required operand. The character string you want to find.

**NEXT | ALL | FIRST | LAST | PREV**

Optional operands that define the starting point, direction, and extent of the search. NEXT is the default.

**CHARS | PREFIX | SUFFIX | WORD**

Optional operand. Operands that set the conditions for a character string match. CHARS is the default.

**UTF8 | ASCII | USASCII**

Optional operand which specifies that the FIND string is either a UTF8, ASCII, or USASCII character string. This form of the FIND command is only available for the character FIND command, and only for UTF8, ASCII, or USASCII strings.

**left_col and right_col**

Optional operands. Numbers that identify the columns the FIND command is to search.

You can separate the operands with blanks or commas and you can type them in any order, but right_col, if typed, must follow left_col.

**Specifying find strings:** The string operand specifies the characters to be found. For examples of different string formats, refer to the description of the FIND command in the z/OS ISPF Edit and Edit Macros.
Browsing a data set

The default is not to differentiate between uppercase and lowercase characters when searching. Except for the character (C) string, differences between uppercase and lowercase strings are ignored. For example, this command:

```
FIND ALL 'CONDITION NO. 1'
```

successfully finds any of these:
```
CONDITION NO. 1
Condition No. 1
condition No. 1
condition no. 1
```

Omitting string delimiters:

Generally, you enter the strings without delimiters. For example, to find all occurrences of ABC, enter:

```
FIND ALL ABC
```

**Using string delimiters:** You must use delimiters if a string contains embedded blanks or commas, or if a string is the same as a command keyword. You delimit strings with either apostrophes ('') or quotation marks ("'). For example, to find the next occurrence of *every one*, enter:

```
FIND 'every one'
```

The FIND command does not find the apostrophe or quotation mark string delimiters.

**Note:** The Browse FIND command does not work with a search argument that contains the command delimiter, even if string delimiters are used. You can specify a hexadecimal search string or use ISPF Option 0 to change the command delimiter to a different character.

**Starting point, direction, and extent of search:** You can control the starting point, direction, and extent of the search by using one of these operands:

- **NEXT** The scan starts at the first position after the current cursor location and searches ahead to find the next occurrence of the string. NEXT is the default.
- **ALL** The scan starts at the top of the data and searches ahead to find all occurrences of the string. A message in the upper-right corner of the screen shows the number of occurrences found. The second-level message that is displayed when you enter the HELP command shows which columns were searched.
- **FIRST** The scan starts at the top of the data and searches ahead to find the first occurrence of the string.
- **LAST** The scan starts at the bottom of the data and searches backward to find the last occurrence of the string.
- **PREV** The scan starts at the first position before the current cursor location and searches backward to find the previous occurrence of the string.

If you specify FIRST, ALL, or NEXT, the direction of the search is forward; pressing the RFIND function key (F5/17) finds the next occurrence of the designated string. If you specify LAST or PREV, the direction of the search is backward; pressing the RFIND function key finds the previous occurrence of the string. The other optional operands remain in effect, as specified in the last FIND command. These operands include CHARS, WORD, PREFIX, SUFFIX, and left_col, right_col.
Browsing a data set

The search proceeds until one or all occurrences of the string are found, or until the end of data is found. If the string is not found, one of these actions takes place:

- If the FIND command was entered on the Command line, a **NO string FOUND** message is displayed in the upper-right corner of the screen.
- If the FIND command was repeated using the RFIND command, either a **BOTTOM OF DATA REACHED** message or a **TOP OF DATA REACHED** message is displayed, depending on the direction of the search. When these messages appear, you can press the RFIND function key again to continue the search by wrapping to the top or bottom of the data. If the string is still not found anywhere in the data, a **NO string FOUND** message is displayed.

**Conditions for character string matches:** The operands CHARS, PREFIX, SUFFIX, and WORD control the conditions for a successful match with the string based on whether the data string begins and/or ends with a non-alphanumeric character; that is, a special character or a blank. You can abbreviate PREFIX, SUFFIX, and CHARS to PRE, SUF, and CHAR, respectively.

In this example, the highlighted strings would be found and the strings that are not highlighted would be ignored:

**CHARS** 'DO' - DO DONE ADO ADOPT 'DO' +ADO (DONE) ADO-

**PREFIX** 'DO' - DO DONE ADO ADOPT 'DO' +ADO (DONE) ADO-

**SUFFIX** 'DO' - DO DONE ADO ADOPT 'DO' +ADO (DONE) ADO-

**WORD** 'DO' - DO DONE ADO ADOPT 'DO' +ADO (DONE) ADO-

If you do not specify an operand, the default is CHARS.

**Using text strings:** Text strings are processed exactly the same as delimited strings. They are provided for compatibility with prior versions of the product.

**Using character strings:** A character string, which may be used as a string operand in a FIND command, requires that the search be satisfied by an exact character-by-character match. Lowercase alphabetic characters match only with lowercase alphabetic characters and uppercase alphabetic characters match only with uppercase.

If you specify a text string that contains any SO or SI characters, the string is considered a character string.

Specifying the keyword UTF8, ASCII, or USASCII with this form of the FIND command will find occurrences of 'string' within the data being browsed, where 'string' has been stored in the corresponding CCSID format.

**Examples:**

To find the next occurrence of the characters XYZ only if they are in uppercase:

FIND C'XYZ'

To find the next occurrence of the characters xyz only if they are in lowercase:

FIND C'xyz'

To find the next occurrence of the UTF8 string 'Found' (but not 'FOUND', 'found', or 'FoUnD'):
**Using picture strings:** A picture string used as a string operand in a FIND command allows you to search for a particular type of character, without regard for the specific character involved. You can use special characters within the picture string to represent the type of character to be found, as follows:

<table>
<thead>
<tr>
<th>String</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>P='='</td>
<td>Any character</td>
</tr>
<tr>
<td>P='-'</td>
<td>Any nonblank character</td>
</tr>
<tr>
<td>P='¬'</td>
<td>Any nondisplayable (invalid) character</td>
</tr>
<tr>
<td>P='#'</td>
<td>Any numeric character (0-9)</td>
</tr>
<tr>
<td>P='.'</td>
<td>Any nonnumeric character</td>
</tr>
<tr>
<td>P='@'</td>
<td>Any alphabetic character (uppercase or lowercase).</td>
</tr>
</tbody>
</table>

If an APL or TEXT keyboard is being used, this additional character can be used in a picture string:

- P'=\[\]' Any APL-specific or TEXT-specific character
- P'=_' Any underscored alphabetic APL character and delta.

Only the special characters listed are valid within a picture string, but the string can include alphabetic or numeric characters that represent themselves.

A DBCS subfield cannot be specified as the subject of a picture string for the FIND command.

**Examples of picture strings:**
- P'###' A string of 3 numeric characters
- P'=¬¬' Any 2 nonblank characters separated by a blank
- P'=.' Any nondisplayable character
- P'=#' A blank followed by a numeric character
- P'#AB' A numeric character followed by 'AB'.

**Examples of FIND commands using picture strings:**

- FIND P'=.' Find next nondisplayable character
- FIND P'=¬¬' 72 Find next nonblank character in column 72
- F P'=¬' 1 Find the next line with a blank in column 1 followed by a nonblank.

When you use the special characters '=' or '. ' and a nondisplayable character is found, a hexadecimal representation is used in the confirmation message that appears in the upper-right corner of the screen. For example:

**Column limitations:** The left_col and right_col operands allow you to search only a portion of each line, rather than the complete line. These operands, which are integers separated by a comma or by at least one blank, show the starting and ending columns for the search. These rules apply:
If you specify neither left_col nor right_col, the search continues across all columns within the current boundary columns.

If you specify left_col without right_col, the string is found only if it starts in the specified column.

If you specify both left_col and right_col, the complete string, not just part of it, must be within the specified columns.

**Using RFIND:** The RFIND command, which is usually assigned to the F5/17 key, allows you to repeat the previous FIND command without retyping it. Therefore, you can use this command to find successive occurrences of the string specified in the last FIND command. You can also use the RFIND command to return to the top of your data and continue searching when the BOTTOM OF DATA REACHED message appears. If you enter the RFIND command on the Command line instead of using a function key, you must position the cursor to the desired starting location before pressing Enter.

If you specify a 1-byte hexadecimal string as the FIND string and the string is found at the second byte of a double-byte character set (DBCS) character, hardware sets the cursor to the first byte of the character. If you then request RFIND, the same data is found again. To find the next occurrence of the string, you must move the cursor to the next character position before requesting RFIND again.

**HEX—display data in hexadecimal format**

The HEX command causes data to be displayed in hexadecimal format. The syntax of the command is:

```
HEX [ON|OFF] [VERT|DATA]
```

You can specify the operands in any order:

where:

- **ON** Turns hexadecimal mode on. This is the default.
- **OFF** Turns hexadecimal mode off.
- **VERT** Valid only when hexadecimal mode is ON. This is the default. [Figure 67](#) shows how VERT causes the hexadecimal representation to be displayed vertically, two rows per byte, under each character.
- **DATA** Valid only when hexadecimal mode is ON. [Figure 68 on page 91](#) shows how DATA causes the hexadecimal representations to be displayed as a string of hexadecimal characters, two per byte. Because the hexadecimal string is twice the length of the data string, it occupies two rows. If you omit this operand, VERT is assumed.

When using browse and placing the cursor anywhere within the record, SCROLL UP positions the data where the cursor is located as the last complete line record on the display. A complete line record consists of the standard character form line, two hexadecimal character lines, and a separator line.

For example, this command would display the hexadecimal notation vertically:
Three lines are displayed for each source line. The first line shows the data in standard character form. **Figure 67** shows the next two lines with the same data in vertical hexadecimal representation. A separator line is displayed between the two representations to make it easier for you to read the data.

**Figure 67. Browse hexadecimal display - vertical (ISRBROBA)**

To display the hexadecimal notation horizontally, use this command:

```
HEX DATA
```

**Figure 68 on page 91** shows the next two lines with the same data in DATA hexadecimal representation.
You can use the FIND command to find invalid characters or any specific hexadecimal character regardless of the setting of hexadecimal mode. See the syntax for picture strings and hexadecimal strings under the description of the FIND command in z/OS ISPF Edit and Edit Macros.

**LOCATE—locate lines**

Use the LOCATE command to bring a particular line to the top of the display. You can identify the line by either its relative line number or a previously defined label.

During Browse, the current position of the screen window is shown by the line/column numbers in the upper-right corner of the screen. The line number refers to the first line of data following the two header lines, and shows the relative position of that line in the data. The Top of Data message is treated as relative line zero. You must enter either a line number or a label as an operand.

```
LOCATE line-number
LOCATE label
```

where:

- **line-number**  A numeric value of up to 8 digits that shows the position of the line from the beginning of the data. The line number is displayed in the upper-right corner.

- **label**  Defined by scrolling to the top of the screen the line with which you want to associate the label. You then type the label on the command line in the form:

  `.ccccccc`

For example, to find line 18463, you could enter this command:

```
LOCATE 18463
```
Browsing a data set

ISPF then moves line 18463 to the top of the screen. You can assign a label to it by entering:

.label

The label is a period followed by up to seven characters that can be displayed, except the comma and the space. It is treated as an internal symbol and is equated to the top line on the screen. You are required to specify the period when you define the label. The next time you want to find this line, you can enter:

LOCATE .label

The period is usually optional when you use it as an operand in a LOCATE command. However, if the first character in the label is a number, you must specify the period to distinguish the label from a line number.

The latest assignment of a label overrides any previous assignments. You can assign several labels to the same line. Labels are not retained when you leave the Browse option.

RESET—remove the column-identification line

The RESET command removes the column-identification line that you can display by using the COLUMNS command (see page 82). This command has no operands.

SUBMIT—submit a job stream for background execution

The SUBMIT command is used to submit a job stream that is being browsed. If the data set being browsed is modified and saved by another user or by the same user on another screen, the SUBMIT command will submit the updated data set, not the copy being browsed. The TSO SUBMIT command is invoked directly to submit the job stream, so the data set has to be fixed-record format with a record length of 80.

Note: The Browse SUBMIT command is not supported if the underlying data is packed.

VIEW—view a member

The VIEW command allows you to view another member of the same data set. It also allows you to view any other data set or z/OS UNIX file without ending your current Browse session.

The VIEW command has this syntax:

```
VIEW member
```

where:

```
member
```

An optional member of the ISPF library or other partitioned data set that you are currently browsing. You may enter a member pattern to generate a member list.

For example, if you were browsing a member of library ISPFDEMO.XXX.COBOL, you could enter this command to display the panel shown in Figure 65 on page 80:

```
VIEW CBLMAIN
```

If you do not specify a member name, the View Command - Entry Panel is displayed.
Browsing a data set

You end a nested View session the same way you would a normal one. When you end the nested View session, the current Browse session resumes.
Chapter 4. Edit (option 2)

The Edit option (2) allows you to create, display, and change data stored in ISPF libraries, other partitioned or single-volume or multivolume sequential data sets, or z/OS UNIX files with these characteristics:

- **Record Format (RECFM):**
  - Fixed or variable (non-spanned)
  - Blocked or unblocked
  - With or without printer control characters

- **Logical Record Length (LRECL):**
  - From 1 to 32,760, inclusive, for fixed-length records
  - From 5 to 32,756, inclusive, for variable-length records.

- **VSAM data**
  - VSAM data can be edited if the ISPF Configuration table has been customized to enable VSAM support (that is, VSAM_EDIT_ENABLED is set to "YES").

  **Note:** When VSAM support is enabled, the default value for VSAM_EDIT_COMMAND is "FMNMAIN DSE /". If the command is not available, IKJ56500I COMMAND FMNMAIN NOT FOUND, is issued as a TSO message.

- **z/OS UNIX files.**

**Editing a data set**

When you select the Edit option, the Edit Entry Panel shown in Figure 69 on page 96 is displayed.
Edit Entry Panel action bar

The Edit Entry Panel action bar choices function as follows:

- **Menu**

- **RefList**

- **RefMode**
  - See the details about Personal List Modes in the Using Personal Data Set Lists and Library Lists topic in the [z/OS ISPF User’s Guide Vol I](https://www.ibm.com/support/docview.wss?ln=en&uid=swg21283127) for information about referral list modes.

- **Utilities**
  - For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User’s Guide Vol I](https://www.ibm.com/support/docview.wss?ln=en&uid=swg21283127) for information about referral list modes.

- **Workstation**
  - Configure ISPF workstation tool integration.

- **Help**
  - The Help pull-down provides general information about the Edit environment as well as information about the main options and edit commands.

Edit Entry Panel fields

You can specify a concatenated sequence of up to four ISPF libraries, but the libraries must have been previously allocated to ISPF with the Data Set utility (3.2).

The fields on this panel are:
Edit (option 2)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>The common identifier for all ISPF libraries belonging to the same programming project.</td>
</tr>
<tr>
<td>Group</td>
<td>The identifier for the particular set of ISPF libraries; that is, the level of the libraries within the library hierarchy. You can specify a concatenated sequence of up to four existing ISPF libraries. The editor searches the ISPF libraries in the designated order to find the member and copies it into working storage. If the editor does not find the member in the library, it creates a new member with the specified name. When you save the edited member, the editor places or replaces it in the first ISPF library in the concatenation sequence, regardless of which library it was copied from.</td>
</tr>
<tr>
<td>Type</td>
<td>The identifier for the type of information in the ISPF library.</td>
</tr>
<tr>
<td>Member</td>
<td>The name of an ISPF library or other partitioned data set member. Leaving this field blank or entering a pattern causes PDF to display a member list. See z/OS ISPF User’s Guide Vol I if you need information about entering patterns. For more details about the Name field, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide.</td>
</tr>
<tr>
<td>Name</td>
<td>Any fully qualified data set name or z/OS UNIX file path name. For more details about the Name field, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide.</td>
</tr>
<tr>
<td>Volume Serial</td>
<td>A real DASD volume or a virtual volume residing on an IBM 3850 Mass Storage System. To access 3850 virtual volumes, you must also have MOUNT authority, which is acquired through the TSO ACCOUNT command.</td>
</tr>
<tr>
<td>Workstation File</td>
<td>If you have made a connection to the workstation, you can specify a workstation file name, for example C:\AUTOEXEC.BAT, in this field.</td>
</tr>
<tr>
<td>Initial Macro</td>
<td>You can specify a macro to be processed before you begin editing your sequential data set or any member of a partitioned data set. This initial macro allows you to set up a particular editing environment for the Edit session you are beginning. This initial macro overrides any IMACRO value in your profile. If you leave the Initial Macro field blank and your edit profile includes an initial macro specification, the initial macro from your edit profile is processed. If you want to suppress an initial macro in your edit profile, type NONE in the Initial Macro field. See the topics about Initial Macros and the IMACRO primary command in the z/OS ISPF Edit and Edit Macros for more details.</td>
</tr>
<tr>
<td>Profile Name</td>
<td>The name of an edit profile, which you can use to override the default edit profile. See the topics about Edit Profiles and the edit environment in the z/OS ISPF Edit and Edit Macros.</td>
</tr>
<tr>
<td>Format Name</td>
<td>The name of a format definition or blank if no format is to be used.</td>
</tr>
</tbody>
</table>
**Edit (option 2)**

**Data Set Password**
The password for OS password-protected data sets. This is not your RACF password.

**Record Length**
Applicable when editing a z/OS UNIX file. ISPF normally treats z/OS UNIX files as having variable length records. This field allows you to specify a record length which is used by the editor to load the records from the file into the edit session as fixed-length records. When the file is saved, it is saved with fixed-length records. The Record Length field allows you to convert a variable-length file to fixed length. The value specified in this field must be able to accommodate the largest record in the file. If the editor finds a record that is larger than the length specified, an error message is displayed and the edit session does not proceed.

**Line Macro Table**
Use this field to define a set of user line commands that you can use during the edit session. The table you specify can be generated using the ISPF table editor and contains the line commands that you wish to have available and associates each line command with an edit macro that will be run if the line command is entered during the edit session.

**Confirm Cancel/Move/Replace**
When you select this field with a "/", a confirmation panel displays when you request one of these actions, and the execution of that action would result in data changes being lost or existing data being overwritten.
- For MOVE, the confirm panel is displayed if the data to be moved exists. Otherwise, an error message is displayed.
- For REPLACE, the confirm panel is displayed if the data to be replaced exists. Otherwise, the REPLACE command functions like the edit CREATE command, and no confirmation panel is displayed.
- For CANCEL, the confirmation panel is displayed if any data changes have been made, whether through primary commands, line commands, or typing.

**Note:** Any commands or data changes pending at the time the CANCEL command is issued are ignored. Data changes are "pending" if changes have been made to the displayed edit data, but no interaction with the host (ENTER, PF key, or command other than CANCEL) has occurred. If no other changes have been made during the edit session up to that point, the confirmation panel is not displayed.

**Mixed Mode**
When you select this field with a "/", it specifies that the editor look for shift-out and shift-in delimiters surrounding DBCS data. If you do not select it, the editor does not look for mixed data.

**Edit on Workstation**
You can select this option to use your workstation as the editing environment for whichever host data set or workstation file you want to edit.
Preserve VB record length

When you select this field with a "/", it specifies that the editor store the original length of each record in variable-length data sets and when a record is saved, the original record length is used as the minimum length for the record. The minimum length can be changed using the SAVE_LENGTH edit macro command. The editor always includes a blank at the end of a line if the length of the record is zero or eight.

Edit ASCII data

You can use this option when editing a z/OS UNIX file containing data encoded in ASCII and the file is not tagged with a CCSID of 819. You can also specify this option when creating a new file containing ASCII data. When you select this field with a "/", the editor renders the ASCII data readable by converting the data to the CCSID of the terminal. Also, the editor breaks up the data into records using the ASCII linefeed character (X'0A') and the ASCII carriage return character (X'0D') as the record delimiter. The linefeed and carriage return characters are removed from the data loaded into the editor, but written back to the file when the data is saved. It is not necessary to use this option when the file is tagged with a CCSID of 819. If ISPF detects the file is tagged with CCSID 819, it converts the data from ASCII to the CCSID of the terminal. When the file is saved, ISPF ensures the file is tagged with a CCSID of 819.

Distributed editing

If you have made a connection to the workstation, you can also specify a workstation file name such as C: \AUTOEXEC.BAT on the Edit Entry Panel. Or you can specify which environment (host or workstation) should be used to edit a data set. With these options, one of four editing situations can occur:

- Edit a host data set on the host
- Edit a host data set on the workstation
- Edit a workstation file on the host
- Edit a workstation file on the workstation.

Edit a Host Data Set on the Host

The editor searches the ISPF libraries in the designated order to find the member and copy it into working storage. If you specified a nonexistent member of an ISPF library, a new member is created with the specified name.

When you save the edited member, the editor places or replaces it in the first ISPF library in the concatenation sequence, regardless of which library it was copied from.

Edit a Host Data Set on the Workstation

The editor searches the ISPF libraries in the designated order to find the member and copy it into working storage. The data set name is converted to a workstation file name, and that name is appended to the workstation's current working directory. The host data set is transferred to the workstation, and the working file is then passed to the user's chosen edit program.

When you finish the edit session, the working file is transferred back to the host and stored in the first ISPF library in the concatenation sequence.
Edit (option 2)

Edit a Workstation File on the Host
The editor searches the workstation files to find the desired file and copy it into working storage. The workstation file name is converted to a host data set name, and, if greater than 44 characters, it is truncated to be 44. The workstation file is transferred to the host, where you can edit it.

When you finish the edit session, the working file is transferred back to the workstation and stored.

Edit a Workstation File on the Workstation
This edit proceeds as it normally does on your workstation.

Note: Some file names are reserved or restricted depending on the workstation operating system. An attempt to edit a file name that is reserved or restricted by your operating system might cause your workstation operating system or host system to hang. See your workstation operating system documentation to learn restricted or reserved file names.

Double-byte character set support
The ISPF editor supports DBCS alphabets in two ways:

• Formatted data where DBCS characters are in the column positions specified in the format definition created with the Format Utility (option 3.11)
• Mixed characters delimited with the special shift-out and shift-in characters.

If you are using mixed mode and the record length of a data set is greater than 72 bytes, there is a possibility that a DBCS character might encroach on the display boundary. Here, PDF attempts to display the other characters by replacing an unpaired DBCS character byte with an SO or SI character. If there is a possibility that the replaced SO or SI character was erased, the line number of the line is highlighted. If you change the position of the SO and SI characters on the panel, or if you delete the SO and SI characters entirely, the DBCS character on the boundary is removed to keep the rest of the data intact.
Chapter 5. Utilities (option 3)

The Utilities option (3) provides a variety of functions for library, data set, and catalog maintenance, each of which is described in this topic. The Utility Selection Panel is shown in Figure 70.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Library Compress or print data set. Print index listing. Print, rename, delete, browse, edit or view members</td>
</tr>
<tr>
<td>2</td>
<td>Data Set Allocate, rename, delete, catalog, uncatalog, or display information of an entire data set</td>
</tr>
<tr>
<td>3</td>
<td>Move/Copy Move, or copy members or data sets</td>
</tr>
<tr>
<td>4</td>
<td>Dslist Print or display (to process) list of data set names. Print or display VTOC information</td>
</tr>
<tr>
<td>5</td>
<td>Reset Reset statistics for members of ISPF library</td>
</tr>
<tr>
<td>6</td>
<td>Hardcopy Initiate hardcopy output</td>
</tr>
<tr>
<td>7</td>
<td>Transfer Download ISPF Client/Server or Transfer data set</td>
</tr>
<tr>
<td>8</td>
<td>Outlist Display, delete, or print held job output</td>
</tr>
<tr>
<td>9</td>
<td>Commands Create/change an application command table</td>
</tr>
<tr>
<td>11</td>
<td>Format Format definition for formatted data Edit/Browse</td>
</tr>
<tr>
<td>12</td>
<td>SuperC Compare data sets (Standard Dialog)</td>
</tr>
<tr>
<td>13</td>
<td>SuperCE Compare data sets Extended (Extended Dialog)</td>
</tr>
<tr>
<td>14</td>
<td>Search-For Search data sets for strings of data (Standard Dialog)</td>
</tr>
<tr>
<td>15</td>
<td>Search-ForE Search data sets for strings of data Extended (Extended Dialog)</td>
</tr>
<tr>
<td>16</td>
<td>Tables ISPF Table Utility</td>
</tr>
<tr>
<td>17</td>
<td>Udlist Print or display (to process) z/OS UNIX directory list</td>
</tr>
</tbody>
</table>

Option ===>
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap F10=Actions F12=Cancel

Figure 70. Utility Selection Panel (ISRUTIL)

Utility Selection Panel action bar

The Utility Selection Panel action bar choices function as follows:

Menu For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I

Help The Help pull-down provides information about each available choice on the Utilities Menu.

Library utility (option 3.1)

When you select this option, a panel is displayed [Figure 71 on page 102] that allows you to specify a data set and an action to be performed. The Library utility is intended primarily for maintenance of partitioned data sets. However, the print index listing (X), print entire data set (L), data set information (I), and short data set information (S) functions also apply to sequential data sets.
Library Utility panel action bar

The Library Utility panel action bar choices function as follows:

Menu  For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

RefList  For information about referral lists, see the details about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User’s Guide Vol I.

Utilities  For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Help  The Help pull-down provides information on the options available for processing libraries and members, including compressing and printing partitioned data sets, displaying data set information and member lists, and printing, renaming, deleting, browsing, editing, and viewing members.

Library Utility panel fields

All the fields on the Library Utility panel, with the exception of the “New name” field, are discussed in the Libraries and Data Sets topic in the z/OS ISPF User’s Guide Vol I. The “New name” field is required when option R (rename member) is chosen; the field must contain the new member name. See “R — rename member” on page 112 for more information about this option.

Library utility options for data sets

The topics listed here describe the options shown on the left side of the Library Utility panel shown in Figure 71. These options are used to work with data sets.

- “Blank — (display member list)” on page 103
- “C — compress data set” on page 103
Library utility (option 3.1)

- “X — print index listing” on page 104
- “L — print entire data set” on page 104
- “I — data set information” on page 104
- “S — short data set information” on page 108

Blank — (display member list)
If you leave the Option field blank, you must specify a partitioned data set. ISPF displays a member list when you press Enter. For more information, see the details about Using Member Selection Lists and Library and Data Set List Utility Line Commands in the Libraries and Data Sets topic in the z/OS ISPF User’s Guide Vol I.

Notes:
1. The column headers on a member list display (with the exception of Rename) are point-and-shoot sort fields.
2. If you enter a slash in the 1-character or 9-character command field, the Member List Commands pop-up window shown in Figure 72 is displayed so that you can select the command you want to use.
3. The 1-character or 9-character line command field is a point-and-shoot field. If you select the line command field beside a member name, the Member List Commands pop-up window shown in Figure 72 is displayed so that you can select the command you want to use. In addition, you can enter commands (for example, TSO) directly in the 9-character field.
4. You can chain the P, R, D, V, E, and B commands; that is, you can select multiple members from a member list for various processing tasks. Use the CANCEL command (from a View, Browse, or Edit session) to break the chain and return to the member list.

Figure 72. Member list commands pop-up window (ISRCMLEP)

C — compress data set
If you select option C, you can specify any partitioned data set. The compress function is not valid for a PDSE. The compress is accomplished by calling either of these:
The IEBCOPY utility

An optional compress request exit routine, which can be specified by your installation.

Using this option can change an existing data set allocation to exclusive.

ISPF allocates the IEBCOPY SYSUT3 and SYSUT4 data sets as one primary cylinder, one secondary cylinder. If this is not sufficient for your compress request, these DDNAMES can be preallocated.

**X — print index listing**

If you select option X, you must specify either a DASD-resident sequential or partitioned data set. The index listing is recorded in the ISPF list data set. For a partitioned data set, the index listing includes general information about the data set followed by a member list. For a sequential data set, the index listing includes general information only. See the topic about Listing Formats in z/OS ISPF User's Guide Vol I for examples of the index listing format for source libraries and load libraries.

**Notes:**
1. A volume serial is not allowed for multivolume data sets using option X.
2. If ISPF was entered in TEST mode, the listing also includes TTR data for each member of the data set. This data is the track and record address, where the members reside on the volume.

**L — print entire data set**

If you select option L, you must specify either a DASD-resident sequential or partitioned data set. The allowable data set characteristics are the same as for Browse, except that data sets with a logical record length greater than 300 characters are not printed. Also, the data should not contain any printer control characters. Use the Hardcopy utility (option 3.6) to print data sets that contain printer control characters. A source listing of the complete data set (including all members of a partitioned data set), preceded by an index listing, is recorded in the ISPF list data set.

**Notes:**
1. A volume serial is not allowed for multivolume data sets using option L.
2. The page-numbering format of the ISPF list data set is PAGE: XX of YY. The YY value is calculated using the data set member’s current size statistic. When the member’s current size is larger than the actual member size, the result is PAGE: XX of YY, where YY is a page number greater than the last value of XX. When the size statistic is smaller than the actual member size, the result is PAGE: XX of YY, until the actual size number XX exceeds YY. Then the result is PAGE: XX, until the end of the member is processed.

**I — data set information**

If you select option I, the location, characteristics, and current space utilization of the specified data set are displayed. The format ISPF uses to display data set information when DFSMSdftp is not installed or is not available, or when the Storage Management Subsystem is not active, is shown in “U — uncatalog data set” on page 124. See “Information for managed data sets” on page 107 to see how ISPF displays data set information when these products are installed, available, and active.

For sequential data sets, options I and S display the same information. For multivolume data sets, options I and S display current allocation and utilization
values that represent totals from all volumes used. You may not enter a volume serial when you are requesting information on a multivolume data set.

Notes:
1. The space for data sets allocated in blocks is calculated as if all of the tracks, including the last one, contain only full blocks of data. Any partial “short” blocks are ignored.
2. The information shown for current space utilization is the actual data that the data set contains, based on the number of allocation units (blocks, tracks, bytes, megabytes, and so on) that have been written. For a data set allocated in units other than tracks and cylinders, it does not include the unused portion of a track that is only partially filled.

For example, if a data set allocated in bytes with block size of 600 has one block written to a device with a track size of 1000, 600 bytes of data are written and the remaining 400 bytes cannot be used by a different data set. A track is the smallest possible unit of physical allocation to a data set on DASD. ISPF reports 600 bytes used while other products (such as ISMF) report 1000 bytes used. ISPF reports the space occupied by data in the data set. ISMF reports the space used by this data set that is not available for use by another data set. The difference is a relative indication of the effectiveness of the block size used when the data set was created.

If the volume serial is followed by a plus (for example, HSM016+), the data set spans multiple volumes. Press Enter to display a list of all allocated volumes that have been used, as shown in Figure 74 on page 106.
The "Allocated units" and "Used units" fields can vary, depending on the value that was specified in the "Space units" field when you allocated the data set. For example, Figure 74 shows what the Data Set Information panel would look like if the data set was allocated by specifying Cylinders in the "Space units" field.

If directory block information is not available, the Data Set Information panel shows a value of 0* for the "Maximum dir. blocks", "Used dir. blocks", and "Number of members" fields. The asterisk beside the zero refers you to a note on the panel, which states that the directory is unavailable.

If the data set is a PDS, ISPF must open it to retrieve the directory information. This updates the referenced date for the next time option I is displayed.

If the data set is a PDSE, the "Data set name type" field is LIBRARY and the "Maximum dir. blocks" field is NOLIMIT. Because the used blocks, used extents, and used directory blocks are not applicable to a PDSE, the Data Set Information panel replaces these values with "Used pages" and "% Utilized" (Figure 75 on page 107). Other values that can appear in the "Data set name type" field are:
- HFS - MVS Hierarchical File System data set
- EXTENDED - DFSMSdfp Striped data set
- LARGE - Large format sequential data set

Note: When a PDSE data set is created, it sets aside five pages. This may cause a significant change to the "% Utilized" value for a small data set.
Library utility (option 3.1)

Information for managed data sets: The Library Utility option 1 (Figure 76) displays information for data sets that reside on Storage Management Subsystem Volumes (also called managed data sets) when:

- DFSMSdfp is installed and available.
- Storage Management Subsystem is active.
- Directory block information is available.

Figure 75. Data Set Information for PDSE Managed Data Sets (ISRUAISE)

Figure 76. Data Set Information for Managed Data Sets (ISRUAISE)
Library utility (option 3.1)

Note: A “+” may be displayed beside the Volume serial field if the data set is a multiple volume data set. This is determined from the number of volume entries in the catalog. Depending on the system set-up, a “+” may not be displayed until the additional volumes have been accessed. For example, a data set with a non-zero dynamic volume count in the SMS dataclass will not show multiple volume entries in the catalog until the additional volumes have been accessed. Other vendor products which can dynamically expand the volume list will also not show multiple volume entries in the catalog until the additional volumes have been accessed.

Press Enter to display a list of all allocated volumes as shown in Figure 77.

The major difference between this information and the information that is displayed for data sets on non-managed volumes is the addition of these classes:

- Management class
- Storage class
- Data class

S — short data set information

If you select option S, information about the selected data set is displayed. The information displayed by option S is the same as that displayed by option S of the Data Set utility (option 3.2), but it differs from option I in two respects.

Information for partitioned data sets, when displayed by option S, lacks the number of maximum and used directory blocks, and the number of members. For sequential data sets, options I and S display the same information. You cannot enter a volume serial when you are requesting information on multivolume data sets.

Notes:

1. The space for data sets allocated in blocks is calculated as if all of the tracks, including the last one, contain only full blocks of data. Any partial “short” blocks are ignored.
2. The information shown for current space utilization is the actual data that the data set contains, based on the number of allocation units (blocks, tracks, bytes, megabytes, and so on) that have been written. For a data set allocated in units other than tracks and cylinders, it does not include the unused portion of a track that is only partially filled.

For example, if a data set allocated in bytes with block size of 600 has one block written to a device with a track size of 1000, 600 bytes of data are written and the remaining 400 bytes cannot be used by a different data set. A track is the smallest possible unit of physical allocation to a data set on DASD. ISPF reports 600 bytes used while other products (such as ISMF) report 1000 bytes used. ISPF reports the space occupied by data in the data set. ISMF reports the space used by this data set that is not available for use by another data set. The difference is a relative indication of the effectiveness of the block size used when the data set was created.

Figure 78 shows a short format example of data set information for a partitioned data set. This is the short format ISPF uses to display data set information when DFSMSdfp is not installed or not available, or when the Storage Management Subsystem is not active. See "Short information for managed data sets" to see how ISPF displays data set information when these products are installed, available, and active.

The "Allocated units" and "Used units" fields can vary, depending on the value that was specified in the "Space units" field when you allocated the data set. For example, Figure 78 shows what the short format of the Data Set Information panel would look like if the data set was allocated by specifying CYLS in the "Space units" field.

**Figure 78. Short data set information (ISRUAIP)**

The "Allocated units" and "Used units" fields can vary, depending on the value that was specified in the "Space units" field when you allocated the data set. For example, Figure 78 shows what the short format of the Data Set Information panel would look like if the data set was allocated by specifying CYLS in the "Space units" field.

**Short information for managed data sets:** The Library Utility option S displays information for data sets that reside on Storage Management Subsystem volumes (also called managed data sets) when:
- DFSMSdfp is installed and available
Storage Management Subsystem is active.

The major difference between this information and the information that is displayed for data sets on non-managed volumes is the addition of these classes:
- Management class
- Storage class
- Data class

If the data set is a PDSE, the “Data set name type” field is LIBRARY. Because the used blocks and used extents are not applicable to a PDSE, the Data Set Information panel replaces these values with “Used pages” and “% Utilized” (Figure 80 on page 111). Other values that can appear in the “Data set name type” field are:
- HFS - MVS Hierarchical File System data set
- EXTENDED - DFSMSdfp Striped data set. When the Data Set Name Type is EXTENDED, the SMS Compressible field indicates if the data set is compressible or not (YES or NO).
- LARGE - Large format sequential data set

Figure 79. Data Set Information (Short) for Managed Data Sets (ISRUAISE)
Library utility options for members

The topics listed here describe the options shown on the right side of the Library Utility panel shown in Figure 71 on page 102. These options are used to work with members.

- "B — browse member"
- "C — copy member" on page 112
- "D — delete members" on page 112
- "E — edit member" on page 112
- "G — reset member" on page 112
- "M — move member" on page 112
- "P — print member" on page 112
- "R — rename member" on page 112
- "T — TSO command for member" on page 113
- "V — view member" on page 113
- "W — WS command for member" on page 113

Notes:

1. You can chain these commands; that is, you can select multiple members from a member list for various processing tasks. Use the CANCEL command (from a View, Browse, or Edit session) to break the chain and return to the member list.

2. With an enhanced member list, you can enter other commands. See "M — display member list" on page 164.

**B — browse member**

If you select option B, you must specify a partitioned data set and a member name. The specified member is displayed in Browse mode. You can use all the Browse commands. When you exit Browse, the Library Utility panel reappears.
**Library utility (option 3.1)**

**C — copy member**
If you select option C, the copy prompt panel appears where you must specify a partitioned data set and member name for the new member. When you exit Copy, the Library Utility panel reappears.

**D — delete members**
If you select option D, you must specify a partitioned data set and a member name or pattern. Option D prevents you from deleting a PDS member that any user is currently editing.

If you have selected Confirm Member Delete on the Library Utility panel (ISRUDA1), then you are asked to confirm your intention to delete this member. Note that Confirm Delete is forced on when deleting members by pattern.

Where the member to be deleted is the name of a primary member, the primary name and all associated alias names are deleted. Where the member is an alias member, only the alias name and its directory entry are deleted.

Where a member pattern has been specified, these rules apply:
- All primary members whose name matches the member pattern are deleted.
- All aliases that are associated with a primary member whose name matches the member pattern are deleted, even if the alias name itself does not match the member pattern.
- All aliases whose name matches the member pattern are deleted, even if the alias is associated with a primary member whose name does not match the member pattern.

**E — edit member**
If you select option E, you must specify a partitioned data set and member name. The specified member is displayed in Edit mode. You can use all EDIT commands. When you exit Edit, the Library Utility panel reappears.

**G — reset member**
If you select option G, the reset prompt panel displays, where you enter the data set and member name. When you exit, the Library Utility panel reappears.

**M — move member**
If you select option M, the move prompt panel displays, where you enter the data set and member name. When you exit, the Library Utility panel reappears.

**P — print member**
If you select option P, you must specify a partitioned data set and a member name. A source listing of the member is recorded in the ISPF list data set.

*Note:* If any members are to be printed, the data set characteristics must conform to those for the L option.

**R — rename member**
If you select option R, you must specify a partitioned data set and member name. You must also specify a new member name in the “New name” field. Option R prevents you from renaming a member that is currently being edited by you or another user.
Library utility (option 3.1)

Where the data set refers to a partitioned data set load library (RECFM=U), and the member to be renamed is the name of an primary member, the user data component of any associated alias names will be updated to refer to the renamed primary name.

**T — TSO command for member**
If you select option T, the TSO command prompt panel appears, where you can enter the TSO command to be run for the member.

**V — view member**
If you select option V, you must specify a partitioned data set and member name. The specified member is displayed in View mode. You can use all EDIT commands. When you exit View, the Library Utility panel reappears. For more information, see the topic about the View (option 1) in the `/OS ISPF User’s Guide Vol I`.

**W — WS command for member**
If you select option W, the WS command prompt panel appears, where you can enter the WS command to be run for the member.

---

**Data set utility (option 3.2)**

When you select this option, a panel is displayed [Figure 81](#) that allows you to specify a data set and an action to be performed.

<table>
<thead>
<tr>
<th>Menu</th>
<th>RefList</th>
<th>Utilities</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Set Utility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Allocate new data set</td>
<td>C Catalog data set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Rename entire data set</td>
<td>U Uncatalog data set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Delete entire data set</td>
<td>S Short data set information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>blank Data set information</td>
<td>V VSAM Utilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ISPF Library:**
- Project . . . Enter "/" to select option
- Group . . . / Confirm Data Set Delete
- Type . . .

**Other Partitioned, Sequential or VSAM Data Set:**
- Data Set Name . . .
- Volume Serial . . . (If not cataloged, required for option "C")
- Data Set Password . . . (If password protected)

**Option ==>**
- F1=Help
- F2=Split
- F3=Exit
- F7=Backward
- F8=Forward
- F9=Swap
- F10=Actions
- F12=Cancel

*Figure 81. Data Set Utility panel (ISRUDA2S)*

**Data Set Utility panel action bar**

The Data Set Utility panel action bar choices function as follows:

**Menu** For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the `/OS ISPF User’s Guide Vol I`.

**RefList** For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the `/OS ISPF User’s Guide Vol I`.
Data set utility (option 3.2)

Utilities
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Help
The Help pull-down provides information on:
- allocating new partitioned and sequential data sets
- processing existing data sets (renaming, deleting, cataloging, uncataloging, and displaying data set information)
- The VSAM utilities

Data Set Utility panel fields
All the fields on the Data Set Utility panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I. For option A you can specify any DASD-resident sequential or partitioned data set. For the other options, you can specify any DASD-resident data set that is not VSAM. You can get short information on a VSAM data set.

Data set utility options
These topics describe the options shown on the Data Set Utility panel:
- “A — allocate new data set” on page 121
- “Allocation errors” on page 121
- “C — catalog data set” on page 122
- “R — rename entire data set” on page 122
- “U — uncatalog data set” on page 124
- “D — delete entire data set” on page 124
- “S — data set information (short)” on page 126
- “Blank — (data set information)” on page 126
- “V — VSAM utilities” on page 127

A — allocate new data set
Use option A to allocate a new data set with or without the Storage Management Subsystem classes (management class, storage class, and data class). A data set that is allocated on a volume that is managed by the Storage Management Subsystem (SMS) is called a managed data set. A data set that is allocated on a volume that is not managed by the SMS is called a non-managed data set.

To use option A, you must:
1. Enter one of these:
   - An ISPF library name in the Project, Group, and Type fields
   - Another partitioned or sequential data set name in the Data Set Name field.
     See the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for information on how to enter the ISPF library name or the data set name.
2. If you entered an ISPF library name, the value in the Volume Serial field is ignored. However, if you entered another data set name, you can specify the volume on which to allocate the data set in the Volume Serial field. Do not enter a volume serial if you want to do one of these:
   - Use the authorized default volume.
   - Enter a generic unit address in the “Generic unit” field on the Allocate New Data Set panel.

For more information about Volume Serials, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.
3. If your ISPF libraries and data sets are password-protected, enter the password in the Data Set Password field.
   For more information about Data Set Passwords, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.

   **Note:** You cannot assign a password to a managed data set. Therefore, the Data Set Password field is ignored when you allocate a managed data set.

4. Press Enter.

The Allocate New Data Set panel is displayed. This panel enables you to specify data set allocation values. The fields displayed on this panel depend upon the value of the ALLOWED_ALLOCATION_UNITS keyword in the ISPF configuration table. When ALLOWED_ALLOCATION_UNITS is not ‘A’ the panel shown in Figure 82 is displayed.

![Allocate New Data Set panel (ISRUAAP2)](image)

Figure 82. Allocate New Data Set panel (ISRUAAP2)

Otherwise, this panel is displayed: [Figure 83 on page 116].
When you press Enter with this panel displayed, the new data set is allocated and cataloged. Entering the END command returns you to the previous panel without allocating the data set.

An optional installation exit, the data set allocation exit, can control all data set creation, deletion, allocation, and deactivation done directly by ISPF. This does not include allocations done by ISPF, the TSO ALLOCATE command, or other TSO commands. See z/OS ISPF Planning and Customizing for more information about the data set allocation exit.

Your installation must use DFSMSdfp to define the values that you enter in the “Management class”, “Storage class”, and “Data class” fields. If you have no specific requirements, you can leave these fields blank. However, be aware that your installation may provide default management, storage, and data classes. These defaults would take effect if you leave any of the class fields blank and may even override any classes that you specify.

**Management class**

Used to obtain data management-related information (migration, backup, and retention criteria, such as expiration date) for the data set allocation.

If you have no specific management class requirements, you can leave this field blank. However, be aware that your installation may provide a default management class. This default may even override any management class that you specify.

**Storage class**

Used to obtain the storage-related information (volume serial) for the data set allocation. Any volume serial that you enter in the “Volume serial”
Data set utility (option 3.2)

Field is ignored unless the storage class that you use includes the Guaranteed Space=Yes attribute (useful if you are allocating multivolume data sets).

Data class

Used to obtain the data-related information (space units, primary quantity, secondary quantity, directory block, record format, record length, and data set name type) for the allocation of the data set.

Default values are provided for the fields in Figure 82 on page 115 except for expiration date, based on which of these occurred most recently:

- What you last entered on this panel
- The last display data set information request (options 3.1, 3.2, or 3.4).

You can type over the displayed defaults if you want to change them. Here is a list of the fields on this panel and their definitions:

Volume serial

This field is one that you probably will not need to use very often. It is not required and is usually ignored by the Storage Management Subsystem. Do not enter a volume serial if you want to do one of these:

- Use the authorized default volume.
- Enter a generic unit address in the Generic unit field.
- Use the volume specified by the storage class you are using.

When a storage class is used, your installation and the SMS assume joint responsibility for determining the volume on which the data set is allocated. The SMS enables the installation to select the volumes that are eligible to contain the data set. It then chooses one of those volumes and allocates the data set. The SMS’s volume choice is based on:

- storage requirements
- The amount of space a volume has available.

Note: ISPF does not support allocation of tape data sets.

Generic unit

The generic unit address for the direct access volume that is to contain the data set, such as 3380 or 3390. This field overrides the Volume Serial field on the Data Set Utility panel. Therefore, you should leave this field blank if you want to do one of these:

- Use the authorized default volume
- Enter a volume serial in the Volume serial field.

Notes:

1. Leave both the Volume serial and Generic unit fields blank to allow ISPF to select an eligible volume. Eligibility is determined by the unit information in your user entry in the TSO User Attribute Data Set (UADS) or the TSO segment of RACF.

2. At some installations, you are limited to eligible volumes even when an explicit volume serial is specified. At other installations you can specify any mounted volume. This is an installation option.

3. To allocate a data set to a 3850 virtual volume, you must also have MOUNT authority, gained by using the TSO ACCOUNT command or by using the RACF PERMIT command for the TSO AUTH general resource class.
4. If you are allocating an SMS data set, you can enter either an installation defined group name or a generic device type in the Generic unit field, but not a specific device number.

**Space units**

Any of these:

- **Track** Shows that the amounts entered in the primary and secondary quantity fields are expressed in tracks.
- **Cylinder** Shows that the amounts entered in the primary and secondary quantity fields are expressed in cylinders.
- **Block** Shows that the amounts entered in the primary and secondary quantity fields are expressed in blocks.
- **Megabyte** Shows that the amounts entered in the primary and secondary quantity fields are expressed in megabytes.
- **Kilobyte** Shows that the amounts entered in the primary and secondary quantity fields are expressed in kilobytes.
- **Byte** Shows that the amounts entered in the primary and secondary quantity fields are expressed in bytes.
- **Records** Shows that the amounts entered in the primary and secondary quantity fields are the average number of records of the size specified by the block size field.

**Note:** “Space units” allows the shortest unique abbreviation for each attribute; for example, T for TRKS, C for CYLS, K for KB, and M for MB, BY for BYTE, R for RECORDS, and BL for BLKS.

**Average record unit**

Shows the unit used when allocating average record length. U specifies single-record units (bytes). K specifies thousand-record units (kilobytes). M specifies million-record units (megabytes). The default value is U.

**Primary quantity**

The primary allocation quantity in tracks, cylinders, blocks, megabytes, kilobytes, bytes, or records, as shown in the “Space units” field. This number can be zero for sequential data sets, but must be greater than zero for PDSs. Also, if the primary quantity is zero, the secondary quantity must be greater than zero.

**Secondary quantity**

The secondary allocation quantity in tracks, cylinders, blocks, megabytes, kilobytes, bytes, or records, as shown in the “Space units” field. This quantity is allocated when the primary quantity is insufficient.

**Directory blocks**

Enter one of these:

- For partitioned data sets, you must specify the number of directory blocks. Each 256-byte block accommodates these number of directory entries:
  - Data sets with ISPF statistics: 6
  - Data sets without ISPF statistics: 21
  - Load module data sets: 4-7, depending on attributes
- For sequential data sets, set this field to zero.

**Record format**

Any valid combination of these codes:
### Data set utility (option 3.2)

- **F** Fixed-length records.
- **V** Variable-length records.
- **U** Undefined format records.
- **B** Blocked records.
- **A** ASA printer control characters.
- **M** Machine code printer control characters.
- **S** Standard (for F) or spanned (for V); use only with sequential data sets.
- **T** Track-overflow feature.

**Notes:**
1. You must enter either F, V, or U.
2. You can specify S and T, but ISPF does not otherwise support them.

#### Record length
The logical record length, in bytes, of the records to be stored in the data set.

#### Block size
The block size, also called physical record length, of the blocks to be stored in the data set. Use this field to specify how many bytes of data to put into each block, based on the record length. For example, if the record length is 80 and the block size is 3120, 39 records can be placed in each block.

**Note:** The record length and block size are verified to be consistent with the record format. If you need to use non-standard characteristics, use the TSO ALLOCATE command.

#### Data set name type
The type of data set to be allocated:

- **LIBRARY**
  Allocates a partitioned data set extended.
- **HFS**
  Allocates an HFS PDSE. This is valid for DFSMS 1.2 only.
- **PDS**
  Allocates a partitioned data set.
- **LARGE**
  Allocates a large format sequential data set.
- **EXTREQ**
  Indicates that an extended data set is required.
- **EXTPREF**
  Indicates that an extended data set is preferred.
- **BASIC**
  Indicates that neither an extended nor a large format sequential data set is to be allocated.
- **blank**
  Allocates a partitioned or sequential data set based on the data set characteristics entered.

**Note:** If you specify LIBRARY and a zero directory size, ISPF allocates a PDSE and overrides the zero directory size. If you specify blanks for the directory size, a sequential data set is allocated instead of a PDSE.

#### Extended Attributes
Valid values are:

- **NO** Data set cannot have extended attributes or reside in EAS. This is the default for non-VSAM data sets.
- **OPT** Data set can have extended attributes and reside in EAS. This is the default for VSAM data sets.
- **blank** Use default based on data type.
Data set utility (option 3.2)

Expiration date

Allows you to protect valuable data by specifying a date, in your national language, when the data set may be deleted. If you try to delete an unexpired data set, ISPF displays two panels: a Confirm Delete panel, followed by a Confirm Purge panel. See "D — delete entire data set" on page 124 for more information about deleting unexpired data sets.

An expiration date is not required, but if you enter one it should be in one of these formats:

**YYYY/MM/DD**

Date shown in year, month, and day, or your equivalent national format. The maximum expiration date allowed is 2155/12/31.

**YYYY.DDD**

Date shown in Julian format, such as 2006.066 for March 7, 2006. The maximum expiration date allowed is 2155.365.

You can specify a DDD value of up to 366 if the YYYY value represents a leap year.

**DDDD**

The number of days, starting with the creation date, after which the data set can be deleted. DDDD has a range of 0 to 9999.

**PERM, NOLIMIT, NEVER, 9999**

Specifying any of these values causes ISPF to translate it to a value of 1999.365. This is treated by ISPF as permanent retention.

Allocate Multiple Volumes

Allows you to allocate sequential data sets that span multiple volumes. ISPF supports a maximum of 59 volumes. Place a slash in this field and press Enter to display a panel similar to the one shown in Figure 84.

![Multivolume allocation panel (ISRUAMV)](image)

**Figure 84. Multivolume allocation panel (ISRUAMV)**

This panel allows you to specify up to 59 volumes.
Data set utility (option 3.2)

Note:
- Although the volume input fields are numbered consecutively, you may enter volume names in any of the fields.
- The volume that you enter in the “Volume serial” field on the Allocate New Data Set panel will be placed in the first field of the Multivolume Allocation panel.
- If you enter only one volume, standard data set allocation is invoked.
- If you enter a number in the “Number of volumes to allocate” field, any volume names left in the name fields are ignored, and might or might not be the volumes the data set is allocated to.
- When displaying information about a multivolume data set, depending on your system setup, all volumes might not be shown until they have been accessed.

Allocation errors
ISPF attempts to recognize inconsistent attributes for partitioned and sequential data sets before allocating them. However, when conditions outside ISPF’s control result in the allocation of such a data set, the Allocation Error panel is displayed. These conditions are caused by:
- A data class that specifies inconsistent attributes
- Attributes entered on the Allocate New Data Set panel that create inconsistency by overriding other attributes specified by the data class.

---

Data Set Name: SYSTEM.LOAD

Specified data set has zero block size

The data set allocated contains inconsistent attributes as indicated by the message displayed above. Prior to allocating a managed data set, PDF cannot always determine if the attributes are inconsistent. The data class used when allocating the data set may contain inconsistent attributes, or the attributes you specified on the allocation panel may conflict with those defined in the data class. This panel gives you the opportunity to delete this data set. If you keep the data set, other PDF functions, such as edit, move, copy, or promote, may not be able to use the data set.

Instructions:
- Press the Enter key to DELETE the data set.
- Enter the END command to KEEP the data set.

Command ===> _____________________________________________________
F1=Help    F2=Split   F3=Exit    F9=Swap   F12=Cancel

Figure 85. Allocation Error Panel (ISRUADCS)

The term inconsistent attributes refers to incompatible values that have been specified for one or more of these items: Space units; Primary or Secondary quantity; Directory blocks; Record format; Record length; Block size.
For example, if you allocate a data set with an undefined record format (RECFM=U) and a block size of zero (BLOCKSIZE=0), some ISPF functions (such as Move and Copy) and services (such as LMOVE, LMCOPY, and LMINIT) cannot use the data set.

However, when either the linkage editor or the IEBCOPY utility has been called, these functions and services determine the best block size for the data set. Then, when the data set has a block size greater than zero, the ISPF functions and services listed can be used.

The Allocation Error panel gives you the opportunity to delete such a data set because other ISPF functions, such as View (option 1) and Edit (option 2), may not be able to use it.

For information about allocation errors and how they affect data set promotion when using SCLM, refer to [z/OS ISPF Software Configuration and Library Manager Guide and Reference](#).

C — catalog data set

If you select option C, the specified data set is cataloged. For this option, you must specify the volume serial on which the data set resides, regardless of whether the data set is specified as project, library, and type, or as another data set name. The data set must reside on the specified volume.

The preceding instructions for cataloging data sets do not apply to data sets that reside on Storage Management Subsystem volumes. These data sets are automatically cataloged when you allocate them. They cannot be cataloged by using option C.

R — rename entire data set

If you select option R, a panel is displayed to allow you to enter the new data set name.

Type the new data set name and press Enter to rename, or enter the END command to cancel. Either action returns you to the previous panel.

If you specify a volume serial for a data set to be renamed, ISPF checks to see whether the data set is cataloged on that volume. If it is, the Rename panel prompts you to specify whether to recatalog the data set. If you specify a volume serial and the data set is not cataloged, it remains uncataloged after you rename it. If a volume serial is not specified, the data set is recataloged to the new data set name and the old data set name is uncataloged.

Notes:

1. ISPF does not rename VSAM data sets or password-protected data sets.
2. A volume serial is not allowed for multivolume data sets using Rename.
3. Generation Data Group (GDG) data sets can only be renamed to something other than GDG names.
   
   **Attention:** Trying to rename GDG data sets to a different generation or version number can cause deletion of your GDG data set or group of GDG data sets.

4. When you rename a data set that resides on a Storage Management Subsystem volume, you cannot specify a volume serial in the Volume Serial field. Both the cataloged entry and the VTOC entry are renamed.
**Rename processing with RACF:** The normal order of processing when ISPF is asked to rename a data set is as follows:
1. The new data set name is cataloged using SVC 26
2. The data set is renamed using SVC 30
3. The old data set name is uncataloged using SVC 26

There are three occasions, however, when ISPF will deviate from this order of processing:
- If the data set is a System Managed (SMS) data set, the update of the catalog (both cataloging the new name and uncataloging the old name) is handled by the operating system when the SVC 30 is issued. In this case, ISPF does not issue either of the SVC 26 requests.
- If the data set is an uncataloged data set, no catalog update will be done. The data set is renamed using the SVC 30 only.
- If the data set is cataloged, but the user specified both the data set name and volume, panel ISRURM2 is displayed. The user has the option of specifying whether the catalog processing should be done. If the user indicates (via a NO in the “Reply to uncatalog the data set” field) that no catalog processing should be done, only the SVC 30 is used to rename the data set. If the reply is YES, the SVC 30 as well as both SVC 26 requests are issued.

If an error is encountered during a rename request, an attempt is made to return the data set to its original name, and to reset the catalog entries to their original status (remove the new name from the catalog and leave the old name in the catalog).

This order of processing is intended to minimize the possibility that an uncataloged data set will result if an error is encountered during the rename process. Errors may be encountered due to certain combinations of RACF data set profiles and user access to the groups under which those data set profiles fall. When an error occurs, the user receives a message indicating the status of the data set name, and of the catalog entries.

See the **z/OS Security Server RACF Security Administrator’s Guide** or equivalent documentation for your security package, to determine the authorization levels required for each of these operations. The user will need authorization first to catalog the new data set name, then to rename the data set, and then to uncatalog the old data set name. This will require adequate authorization to any discrete or generic data set profiles involved and to the catalogs involved. Be aware that a discrete data set profile is renamed when the data set is renamed.

**Renaming with expiration dates:** If the data set has an expiration date in its catalog entry, the expiration date is not propagated forward to the new catalog entry. In this case, a confirmation panel is displayed.

As directed by the panel, press Enter if you want to confirm the rename request. If you want the data set to have an expiration date under its new name, use the TSO ALTER command or a similar function to update the new catalog entry.

**Renaming with aliases:** The results of renaming a data set with an alias differ depending upon whether the data set is on a System Managed Storage (SMS) volume or not. For an SMS data set, DFSMS ensures the alias is preserved and is associated with the new data set name. For a non-SMS data set, the alias is removed.
Data set utility (option 3.2)

**U — uncatalog data set**
If you select option U, the specified data set name is uncataloged. There is no need for the specified data set to be allocated or for the volume on which it resides to be mounted.

If the catalog entry being removed contains an expiration date in the future, a confirmation panel is displayed. Press Enter if you want to confirm the uncatalog request, otherwise press END to cancel the request.

Note: Uncatalog is not allowed for multivolume data sets.

You cannot use option U to uncatalog a data set that resides on a Storage Management Subsystem volume. However, the system uncatalogs these data sets when you delete them, which is done by using option D of either the Data Set utility (option 3.2) or the Data Set List utility (option 3.4).

**D — delete entire data set**
If you select option D, a confirmation panel is displayed so you can make sure you did not select this option by mistake.

If you specify a volume serial for the data set to be deleted, ISPF checks to see whether the data set is cataloged on that volume. If so, the Confirm Delete panel prompts you to specify whether to uncatalog the data set. The displayed default is YES. If no volume serial is specified, and the data set does not have an expiration date, the data set is deleted and uncataloged.

Notes:
1. ISPF does not delete password-protected data sets or data sets allocated with an esoteric device type.
2. A volume serial is not allowed for multivolume data sets using Delete.
Data set utility (option 3.2)

- Press Enter to confirm the data set deletion.
- Enter the CANCEL or EXIT command to cancel. This action returns you to the previous panel.

If the data set has an expiration date that has not expired, ISPF displays a Confirm Purge panel (Figure 87) after the Confirm Delete panel.

Use a slash to select Purge Data Set if you want ISPF to purge the data set. The statement that is enclosed in parentheses on the Confirm Purge panel shows whether the data set to be purged will be uncataloged.

When you delete a data set, the volume name is compared to the volume name in the configuration table. If the names match, the command specified in the configuration table is used in place of the ISPF delete processing. This lets you delete migrated data sets without first causing them to be recalled.

**Delete processing with RACF:** If the data set is an SMS data set, it is deleted using SVC 29. The update of the catalog entry is handled by the operating system.

If the data set is not an SMS data set and either it is not cataloged or the user indicates on panel ISRUADC2 (panel ISRUADC2 is shown if the volume is supplied) that it is not to be uncataloged, it is deleted using SVC 29.

If the data set is not an SMS data set and it is cataloged and/or the user indicates on panel ISRUADC2 (panel ISRUADC2 is shown if the volume is supplied) that it is to be uncataloged, this process is followed:
1. The data set is deleted using SVC 29 (SCRATCH).
2. The data set is uncataloged using SVC 26.

This order of processing is intended to minimize the possibility that an uncataloged data set will result if an error is encountered during the delete process. Some combinations of RACF generic and discrete data set profiles and
user access to the groups under which those profiles fall can cause this process to fail. If an error is encountered in this process the user is notified via a message of the status of the data set and catalog entries.

See the z/OS Security Server RACF Security Administrator’s Guide or equivalent documentation for your security package, to determine the authorization levels required for each of these operations. The user will need authorization first to delete the data set and then to uncatalog the data set name. This will require adequate authorization to any discrete or generic data set profiles involved and to the catalogs involved. Be aware that a discrete data set profile is deleted when the data set is deleted.

**S — data set information (short)**

If you select option S, information about the selected data set is displayed. The information displayed by option S is the same information displayed by option S on the Library Utility panel (option 3.1). See “S — short data set information” on page 108 for more information and Figure 78 on page 109 for an example. To return to the previous panel, press Enter or enter the END command.

The space for data sets allocated in blocks is calculated as if all of the tracks, including the last one, contain only full blocks of data. Any partial “short” blocks are ignored.

**Notes:**

1. The information shown for current space utilization is the actual data that the data set contains, based on the number of allocation units (blocks, tracks, bytes, megabytes, and so on) that have been written. For a data set allocated in units other than tracks and cylinders, it does not include the unused portion of a track that is only partially filled.

   For example, if a data set allocated in bytes with block size of 600 has one block written to a device with a track size of 1000, 600 bytes of data are written and the remaining 400 bytes cannot be used by a different data set. A track is the smallest possible unit of physical allocation to a data set on DASD. ISPF reports 600 bytes used while other products (such as ISMF) report 1000 bytes used. ISPF reports the space occupied by data in the data set. ISMF reports the space used by this data set that is not available for use by another data set. The difference is a relative indication of the effectiveness of the block size used when the data set was created.

2. Space utilization values are not displayed for VSAM or BDAM data sets.

See “Short information for managed data sets” on page 109 to learn more about the data set information that is displayed for managed data sets.

**Blank — (data set information)**

If you leave the Option field blank, information about the selected data set is displayed. The information displayed is the same information displayed by option I on the Library Utility panel (option 3.1). See “I — data set information” on page 104 for more information and “U — uncatalog data set” on page 124 for an example. To return to the previous panel, press Enter or enter the END command.

**Notes:**

1. For multivolume data sets, options I and S display current allocation and utilization values that represent totals from all volumes used.

2. You can not enter a volume serial when you are requesting information on a multivolume data set.
3. The space for data sets allocated in blocks is calculated as if all of the tracks, including the last one, contain only full blocks of data. Any partial “short” blocks are ignored.

4. The information shown for current space utilization is the actual data that the data set contains, based on the number of allocation units (blocks, tracks, bytes, megabytes, and so on) that have been written. For a data set allocated in units other than tracks and cylinders, it does not include the unused portion of a track that is only partially filled.

For example, if a data set allocated in bytes with block size of 600 has one block written to a device with a track size of 1000, 600 bytes of data are written and the remaining 400 bytes cannot be used by a different data set. A track is the smallest possible unit of physical allocation to a data set on DASD. ISPF reports 600 bytes used while other products (such as ISMF) report 1000 bytes used. ISPF reports the space occupied by data in the data set. ISMF reports the space used by this data set that is not available for use by another data set. The difference is a relative indication of the effectiveness of the block size used when the data set was created.

5. Space utilization values are not displayed for VSAM or BDAM data sets.

See “Information for managed data sets” on page 107 for information about the data set information that is displayed for managed data sets.

V — VSAM utilities
Use option V to create the IDCAMS commands to define, delete, and list catalog information for VSAM data sets. Before the command is issued, you will be allowed to edit it in an ISPF Edit session. The command will process in the foreground.

Note: The VSAM utilities function builds a command that is syntactically correct; the utility does not do any compatibility checking of the fields used to build the command.

When you select option V, the panel shown in Figure 88 on page 128 is displayed.
Data set utility (option 3.2)

VSAM Utilities panel action bar: The VSAM Utilities panel action bar choices function as follows:

Menu For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Utilities For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Help The Help pull-down provides information on the VSAM utilities, including the VSAM profile data set and the GET, SAVE, and CHANGE commands.

VSAM Utilities panel fields: There are two fields on the VSAM Utilities panel:

Process Request
Required field. Indicates what is going to be done to the VSAM data set:
1 Define. Process an IDCAMS define request
2 Delete. Process an IDCAMS delete request against one or more data sets.
3 Listcat. Process an IDCAMS list catalog request.

VSAM Data Type
Required field. Indicates what kind of data set is to be defined, deleted or listed:
1 Alias. Define, delete, or list an alternate name for a non-VSAM data set or a user catalog
2 Alternate Index. Specify that an alternate index is to be defined, deleted, or listed or that an alternate index entry is to be recataloged
3 Cluster. Specify that a cluster is to be defined, deleted, or listed or that a cluster entry is to be recataloged
Data set utility (option 3.2)

4 Generation Data Group. Specify that a generation data group entry is to be defined, deleted, or listed.

5 Non-Vsam. Specify that a non-VSAM, non-SMS-managed data set is to be defined, deleted, or listed.

6 Page Space. Specify that a page space is to be defined, deleted, or listed.

7 Path. Specify that a path is to be defined, deleted, or listed or that a path entry is to be recataloged.

8 User Catalog. Specify that a catalog is to be defined, deleted, or listed.

9 Data. List data level information (Listcat request only).

10 Index. List index level information (Listcat request only).

11 NVR. Delete an SMS-managed non-VSAM volume record entry (Delete request only).

12 Truename. Delete the truename entry for a data or index component of a cluster or alternate index or the name of an alternate index (Delete request only).

13 VVR. Delete an unrelated VSAM volume record entry (Delete request only).

Example usage – defining a cluster: To define a cluster, on the VSAM Utilities panel, type 1 in the Process Request field and 3 in the VSAM Data Type field. The Define Cluster panel is displayed as shown in Figure 89.

Notes:

1. Select the Edit IDCAMS command option to edit the IDCAMS command that this process generates before the command is issued. If you do not select this option, the command will be issued when you press Enter.
Data set utility (option 3.2)

2. Select the Browse errors only option to browse the output from IDCAMS only when a nonzero return code is returned by IDCAMS.

Fill in the required fields or use a VSAM profile data set as described in "Building a VSAM profile data set" on page 131. When you press Enter, the screen shown in Figure 90 is displayed.

**Note:** If you try to use a profile that was defined for a different request type (for example, Generation Data Group), you will receive a “Type mismatch” error.

![Figure 90. Editing the IDCAMS command (ISRUVEDT)](image)

When you are ready to process the command, type EXEC on the Command line and press Enter. If the command processes with a nonzero return code, the panel shown in Figure 91 on page 131 is displayed.
Building a VSAM profile data set: You can build a VSAM profile data set, each member of which can be used to store input fields on a VSAM input panel for later retrieval to the same panel. If you try to use a profile that was defined for a different request type (for example, Generation Data Group), you will receive a "Type mismatch" error.

When you have filled in a VSAM input panel, select the Save to Profile choice from the Functions pull-down on the action bar. ISPF displays the Profile Member Name panel.

Type in a member name for the profile data set member. When you press Enter, the data set is created with the attributes RECFM=variable blocked, LRECL=203, Type=PDS.

Using a VSAM profile data set: When you have displayed a VSAM input panel, select the Get from Profile choice from the Functions pull-down on the input panel action bar to display the panel shown in [Figure 92 on page 132].
When you select a profile and press Enter, the fields on the entry panel will fill with the values stored in the profile data set member.

Changing the VSAM profile data set:

To change the name of the active VSAM profile data set, select the Change Profile Data Set choice from the Functions pull-down on an input panel action bar to display the panel shown in Figure 93.

You can type the name of a different profile data set. When you press Enter, the data set is created if it does not exist, and this data set becomes the active profile data set.

Figure 92. Using a VSAM profile data set (ISRVMLGT)

When you select a profile and press Enter, the fields on the entry panel will fill with the values stored in the profile data set member.

Changing the VSAM profile data set: To change the name of the active VSAM profile data set, select the Change Profile Data Set choice from the Functions pull-down on an input panel action bar to display the panel shown in Figure 93.

Figure 93. Panel for changing the name of the VSAM profile data set (ISRUVGET)

You can type the name of a different profile data set. When you press Enter, the data set is created if it does not exist, and this data set becomes the active profile data set.
Move/Copy utility (option 3.3)

When you select this option, a panel is displayed [Figure 94] that allows you to specify the “From” data set (and member if it is partitioned) and an option to be performed. The Move/Copy Utility prevents you from moving or copying a PDS member that you or another user is currently editing.

Move/Copy Utility panel action bar

The Move/Copy Utility panel action bar choices function as follows:

**Menu**
For more information, see the details about the [Menu Action Bar Choice in the ISPF User Interface topic](https://www.ibm.com) in the [z/OS ISPF User's Guide Vol I](https://www.ibm.com).

**RefList**
For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the [z/OS ISPF User's Guide Vol I](https://www.ibm.com).

**Utilities**
For more information, see the details about the [Utilities Action Bar Choice in the ISPF User Interface topic](https://www.ibm.com) in the [z/OS ISPF User's Guide Vol I](https://www.ibm.com).

**Help**
The Help pull-down provides information on how to specify the “From” and “To” data sets, how to select members to copied, and the rules relating to how different data types are moved or copied.

Move/Copy Utility panel fields

All the fields on the Move/Copy Utility panel are explained in the “ISPF Libraries and Data Sets chapter” of the [z/OS ISPF User's Guide Vol I](https://www.ibm.com). On this panel, you specify the data set that you want to copy, move, lock, or promote. This is called the “From” data set.
Move/Copy utility (option 3.3)

If you request a member list or specify an asterisk (*) in the Member field on the “From” panel, ISPF does not display a Member field on the “To” panel. See the Member Selection List Commands section of the “ISPF Libraries and Data Sets chapter” of the [z/OS ISPF User’s Guide Vol I](https://www.ibm.com) for information about primary and line commands that are available for the Move/Copy utility member list display.

You can copy or move load modules stored in partitioned data sets with undefined record formats, but you cannot print them.

The deletion of any member because of a move is recorded in your ISPF log data set, if allocated.

When you complete the panel and press Enter, ISPF displays another panel that is determined by the option you selected. This panel allows you to specify the “To” or “Target” data set or controlled library. The “From” data set must already exist. If the “Target” data set does not exist the user is prompted to see if the data set should be allocated. Choices are to allocate the “Target” data set using the characteristics of the "From" data set as a model, or to allocate the new data set by specifying the characteristics for it. If the user uses the “From” data set as a model, then that data set must be cataloged and the volume field is ignored. This function can be suppressed through the ISPF Configuration table. If it is suppressed, an allocate request for a nonexistent data set fails.

Move/Copy utility options
These topics describe the options shown on the Move/Copy Utility panel:

- "C and CP — copying data sets"
- "M and MP — moving data sets" on page 136
- "Using the move/copy utility with load modules" on page 137
- "Moving or copying alias entries" on page 138
- "Member list processing when using IEBCOPY" on page 139

C and CP — copying data sets
When you use the C and CP options, ISPF supports library concatenation. This allows you to specify up to four input libraries as the “From” data set. The libraries are searched from left to right as they are entered on the panel. The member to be copied, which is either specified in the Member field or selected from a member list, is copied from the first library in which it is found.

If you select C or CP, the panel shown in Figure 95 on page 135 is displayed. This panel allows you to specify the “To” data set—the library or data set name that you want the copied data to be stored under.

Note: The Move/Copy utility does not support:
- Supplying a volume serial when attempting to copy a multivolume data set
- Copying unmovable data sets (data set organization POU or PSU).

C — copy data set or member(s): Use option C to copy a data set. You can specify either a DASD-resident sequential or partitioned data set for both the “From” or “To” data sets. The “From” data set is not deleted.

CP — copy and print: Use this option as you would use option C, except that source listings are recorded in the ISPF list data set, as follows:
- If the “To” data set is partitioned, a listing of each new or replaced member is recorded.
If the “To” data set is sequential, a listing of its complete contents is recorded.

All the fields on the Move/Copy Utility “To” panels for copying data sets are explained in the Libraries and Data Sets topic in the z/OS ISPF User’s Guide Vol I, except these general Options and To Data Set Options:

Replace like-named PDS members
Select this option to allow replacement of a member in the “To” data set with a like-named member in the “From” data set.

Process member aliases
Select this option to allow the primary member and all alias members to be copied together.

Sequential Disposition
If the “To” data set is sequential, enter:

1. To add the “From” data set to the end of the “To” data set (Mod).
2. To replace the “To” data set's entire contents with the contents of the “From” data set (Old).

If the “From” data set consists of several members of an ISPF library or a partitioned data set to be moved or copied to a sequential data set, the members are written to the “To” data set one after another. The “To” data set disposition (Old or Mod) controls only the beginning location of the “To” data set after the copy or move is completed.

Pack Option
To indicate how the data is to be stored in the “To” data set, enter:

1. If you want the data in the “To” data set to be packed.
2. If you do not want the data in the “To” data set to be packed.
3. If you want the data to be stored in the same format in the “To” data set as it is in the “From” data set.
Move/Copy utility (option 3.3)

If you are copying data to a sequential data set with disposition of MOD, you cannot mix packed and unpacked data, nor can you copy multiple packed members.

The technique used to pack data is an internal algorithm used only by ISPF. If the data is packed, attempts to access or process the data outside ISPF can cause unwanted results. See the description of the PACK primary command in *z/OS ISPF Edit and Edit Macros* for more information.

SCLM Setting

The SCLM setting is a bit that ISPF uses to determine what type of edit the file last had performed upon it.

1 SCLM  This bit is ON to specify that the last edit of this file was under SCLM control.

2 Non-SCLM This bit is ON to specify that the last edit of this file was under control of something other than SCLM.

3 As-is  This bit is ON to specify that this operation leaves the current setting unchanged.

M and MP — moving data sets

When you use the M and MP options, ISPF does not provide library concatenation support. You can specify up to four input libraries as the “From” data set. However, only the first library in the sequence is searched. Therefore, the member to be moved, which is either specified in the Member field or selected from a member list, is moved only if it is found in the first library. However, the other three library names remain on the panel and can be used with the C and CP options.

If you select M or MP, the panel shown in Figure 96 on page 137 is displayed. This panel allows you to specify the “To” data set—the library or data set name that you want the moved data stored under.

Note: The Move/Copy utility does not support:

- Supplying a volume serial when attempting to copy a multivolume data set
- Copying unmovable data sets (data set organization POU or PSU).

M — move data set or member(s): Use option M to move a data set. You can specify either a DASD-resident sequential or partitioned data set for both the “From” or “To” data sets.

Option M causes data sets to be deleted after they have been successfully moved to the “To” data set, as follows:

- If the “From” data set is partitioned, the selected members are deleted from it.
- If the “From” data set is sequential, the complete “From” data set is deleted.

MP — move and print: Same as option M, except source listings are recorded in the ISPF list data set, as follows:

- If the “To” data set is partitioned, a listing of each new or replaced member is recorded.
- If the “To” data set is sequential, a listing of its complete contents is recorded.
All the fields on the Move/Copy Utility “To” panels for moving data sets are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I, except these general Options and To Data Set Options:

- Replace like-named PDS members.
- Process member aliases
- Sequential Disposition
- Pack Option
- SCLM Settings

See “C and CP — copying data sets” on page 134 for descriptions of these fields.

### Using the move/copy utility with load modules

For a move or copy of load modules, these rules apply:

- Both data sets must be partitioned and must have an undefined record format (RECFM=U).
- Load modules that were created for planned overlay cannot be moved or copied.
- The print option, if specified, is ignored.
- If the “To” library is LLA-managed, it must be in NOFREEZE mode.
- For Move or Copy, reblocking can be done for load modules only, and is done by using the IEBCOPY COPYMOD function. Whether the load module is reblocked depends on the block sizes for the “To” and “From” data sets, as well as the value of the USE_IEBCOPY_COPY_OR_COPYMOD_OPTION and WHEN_TO_USE_IEBCOPY keyword settings in the ISPF Configuration table (see z/OS ISPF Planning and Customizing for more information).
  - If the WHEN_TO_USE_IEBCOPY setting is 0, IEBCOPY is only used:
    - When copying from a data set with a larger block size to a data set with a smaller block size.
    - When a PDSE has been specified in the “From” data set concatenation or as the “To” data set.
Move/Copy utility (option 3.3)

- If the WHEN_TO_USE_IEBCOPY setting is 1, IEBCOPY is always used to copy load modules.
- If the WHEN_TO_USE_IEBCOPY setting is 2, IEBCOPY is only used when a PDSE has been specified in the “From” data set concatenation or as the “To” data set.
- If the WHEN_TO_USE_IEBCOPY setting indicates that IEBCOPY should be used, these rules apply when determining whether to reblock or not:
  - When the USE_IEBCOPY_COPY_OR_COPYMOD_OPTION setting is 1:
    - If the “To” and “From” block sizes are the same, no reblocking occurs. ISPF uses IEBCOPY COPY.
    - If the “To” block size is larger than the “From” block size, no reblocking occurs. ISPF uses IEBCOPY COPY.
    - If the “To” block size is smaller than the “From” block size, reblocking occurs. ISPF uses IEBCOPY COPYMOD.
  - When the USE_IEBCOPY_COPY_OR_COPYMOD_OPTION setting is 2:
    - If the “To” and “From” block sizes are the same, no reblocking occurs. ISPF uses IEBCOPY COPY.
    - If the “To” block size is larger than the “From” block size, reblocking occurs. ISPF uses IEBCOPY COPYMOD.
    - If the “To” block size is smaller than the “From” block size, reblocking occurs. ISPF uses IEBCOPY COPYMOD.
  - When the USE_IEBCOPY_COPY_OR_COPYMOD_OPTION setting is 3:
    - Reblocking occurs. ISPF uses IEBCOPY COPYMOD.
- If IEBCOPY is used to process the copy, ISPF allocates these data sets:
  - zprefix.zuser.SPFnnn.IEBCOPY IEBCOPY SYSPRINT data set
  - SYSIN IEBCOPY SYSPRINT data set
  - SYSUT3 and SYSUT4 IEBCOPY work data sets

The SYSPRINT data set is deleted when the copy ends successfully. If errors are encountered, it is kept to help you diagnose errors. SYSIN, SYSUT3, and SYSUT4 are temporary data sets that use VIO if available, and are freed upon completion of the copy. All allocations use the value of ISPF Configuration table keyword PDF_DEFAULT_UNIT as the unit. The sizes for the SYSUT3 and SYSUT4 data sets are calculated dynamically, based on the number of members to be copied. If this is not sufficient for your move/copy request, these DDNAMES can be preallocated. If they are preallocated, ISPF does not free them when the copy is finished.

Moving or copying alias entries
Alias entries can be moved or copied from one partitioned data set to another under these conditions:
  - If the “To” library is LLA-managed, it must be in NOFREEZE mode
  - If the “Process member aliases” option has been selected (ALIAS mode), these rules apply:
    - Either the Primary member or any alias member may be selected to copy the primary member and all of its aliases. This will occur even if a single member is specified or some of the members are not displayed in the current member selection list.
    - Alias members are copied for both load and non-load data sets, as well as for PDS and PDSE data sets.
    - Copying to the same data set is not supported when aliases are automatically selected, as this would result in the from and to member name being the same.
Move/Copy utility (option 3.3)

- If ISPF is not using IEBCOPY and the “Process member aliases” option has not been selected (NOALIAS mode):
  - After the move or copy is successfully completed for the main member or members, then the alias entry or entries can be copied.
  - From a member list:
    - When the main member or members are selected first, are not renamed, and are successfully moved or copied, then the alias entry or entries can be copied if they are selected without leaving the member list.
    - If the target data set is a PDSE, alias entries cannot be copied.
- If IEBCOPY is being used and NOALIAS is in effect:
  - The method described for copying when not using IEBCOPY will also work when using IEBCOPY. In addition, if all main members and aliases are selected at the same time they are processed by the same invocation of IEBCOPY and are copied correctly.
  - If the target data set is a PDSE, alias entries must be selected and processed together with the main member.

In all other cases for move and copy where NOALIAS is in effect, you can select alias names, but they are not preserved as aliases in the “To” data set. That is, the members to which they refer are moved or copied, and the alias entries are stored in the “To” data set with the alias flags turned off.

**Member list processing when using IEBCOPY**

When copying load modules using the IEBCOPY interface, all selected members are processed as a group. This means that the processing does not stop on the first failure but will attempt to process all selected members before the member list is redisplayed. The Prompt field will be updated to indicate the result for each individual member.

No error message is displayed if two or more members are not processed successfully because they may have failed for different reasons. Reselecting a member and processing it individually will display a specific error message if the processing for that member fails again. These values can appear in the Prompt field:

*COPIED Member was copied or copied/locked successfully
*MOVED Member was moved successfully
*REPL Member was replaced in the output library (Moved or Copied)
*NO DATA Member was not found in the input library or BLDL error
*INUSE-I ENQ failed on input member
*INUSE-O ENQ failed on output member
*NO-COPY Member was not copied successfully
*MIXED You are attempting to mix load and non-load data
*NO-DEL The delete step failed on a Move request
*NO-REPL Member exists in the output library and replace not requested
*NO-LOCK LMF lock failed on Copy/Lock request
*ALIAS Member is a PDSE Program Object alias and cannot be copied individually. It will be copied when the main member is copied.
Data set list utility (option 3.4)

When you select this option, the Data Set List Utility panel (Figure 97) is displayed. You can either display or print lists of ISPF libraries, data sets, or volume table of contents (VTOC) information.

### Data Set List Utility panel action bar

The Data Set List Utility Panel action bar choices function as follows:

- **Menu**
  - For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

- **RefList**
  - For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User's Guide Vol I.

- **RefMode**
  - For information about referral list modes, see the details about Personal List Modes in the Using Personal Data Set Lists and Library Lists topic in the z/OS ISPF User's Guide Vol I.

**Note:** When you use a referral list from within the Data Set List Utility, these functions are performed before the referral list is processed:

- The quotes are removed from the data set name.
- The value in ZPREFIX is added preceding the non-quoted data set name if the first qualifier is not ZPREFIX.
- The member name is removed.
Data set list utility (option 3.4)

Utilities
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Help
The Help pull-down provides information about displaying and printing data set lists and VTOC information.

Data Set List Utility panel fields
The fields on this panel are:

Dsname level
This field is used to specify the level or levels of any data set that you want ISPF to list or print for you. An optional installation exit, called the data set list (DSLIST) exit, can control whether a data set name should appear in the list. See z/OS ISPF Planning and Customizing for more information about this exit.

When you specify the Dsname Level, you are defining the level qualifiers for the data set names to be included in the list. Therefore, in Figure 97 on page 140, the value PDFTOOL.COMMON represents the first two levels of a data set name. An ISPF library typically has a three-level name: project, group, and type.

The Dsname Level field supports the inclusion of system symbols.

ISPF retains the information you put in this field and displays it the next time you use this panel.

Except for the first level, you can specify the level qualifiers fully, partially, or use defaults. Do not enclose the value in the Dsname Level field in quotes.

Asterisks and percent signs may be used to filter the list of data sets that is displayed. For ICF catalog lists and volume lists, asterisks and percent signs may be used in the high-level qualifier. Asterisks may be used anywhere in a qualifier, not just in the first and last positions. However, one qualifier must be at least partially qualified.

A single asterisk by itself indicates that at least one qualifier is needed to occupy that position. A single asterisk within a qualifier indicates that zero or more characters can occupy that position. A double asterisk by itself indicates that zero or more qualifiers can occupy that position. A double asterisk is invalid within a qualifier.

In this example, all data set names with SYS1 as the first qualifier and at least one other qualifier will be listed.

SYS1.

In this example, all data set names with SYS1 as the first qualifier will be listed.

SYS1 or SYS1.*

In this example, all data set names that have a qualifier of CLIST and are in catalogs that you have authority to will be listed. A VTOC list will contain all data set names that have a qualifier of CLIST.

**.CLIST

Notes:
1. If you enter a high-level qualifier of '*' or '**', ISPF displays a pop-up window to warn you that the search will be for all catalogs on the system and will take
Data set list utility (option 3.4)

time. If there are many catalogs, this search could take a considerable amount of time. You can press Enter to continue the search, or you can enter Cancel or End from the pop-up window to cancel the search. Be aware that if you have mount authority, a catalog search with '*' or '**' as the high-level qualifier can require that volumes be mounted for the catalogs to be searched.

2. The ISPF Configuration table contains a selectable option, named DISALLOW_WILDCARDS_IN_HLQ, to disallow the use of the '*' or '%' in the high-level qualifier.

A single percent sign indicates that any one single alphanumeric or national character can occupy that position. One to eight percent signs can be specified in each qualifier. This example is valid for Dsname Level:

`AAA%*.B*%%%B.C`

In this example, the list will contain all data sets that start with AAA and one or more other characters, have a second qualifier that starts and ends with B and has at least three other characters between the B’s, and have a third qualifier of ‘C’. The list will contain entries from catalogs that you have authority to. A VTOC list will contain entries that match these characteristics.

In this example, the list will contain all data sets that start with SYS and one other character, such as SYS1 or SYS2.

`SYS%`

If you enter a SYS% alias for a SYS1 data set as the Dsname Level (for example, SYSP as a single qualifier), you see SYSP as an ALIAS because this single qualifier is an alias for SYS1. The data set names pointed to by a SYS% alias can be displayed in a data set list by entering any of these:

- a Dsname Level of SYS1 and a volume
- a Dsname Level of SYS%
- a Dsname Level of the fully qualified data set name (such as SYSP:PARMLIB)

PRO**CT is not valid as a data set name level because a double asterisk (**) is not valid in the middle of a qualifier.

Alias names that match the specified Dsname Level will be displayed as the alias name itself. The volume field for all alias names will contain the characters '*ALIAS' to indicate this. Real names that match the Dsname Level will also be displayed.

If you enter ISPFTEST as a Dsname Level and you have real data set names that start with ISPFTEST and aliases for those real names that start with ISPFTEST, you would see a list of this format:

`ISPFTEST.BASE.CLIST`  `TSOPK1`
`ISPFTEST.BASE.CLIST.ALIAS`  `*ALIAS`
`ISPFTEST.BASE.SOURCE`  `TSOPK1`
`ISPFTEST.BASE.SOURCE.ALIAS`  `*ALIAS`

A VSAM cluster entry is flagged in the volume field as "VSAM". A VSAM path entry is flagged in the volume field as "PATH". A VSAM alternate index entry is flagged in the volume field as "AIX".

Notes:

1. A catalog search may result in the DLIST containing duplicate names. This can occur when the definition of user catalog aliases results in multiple catalogs
Data set list utility (option 3.4)

being searched when the data set list is built. Line commands against duplicate
data sets in the DSLIST are supported. Selecting the "Display Catalog Name"
option will display the name of the catalog associated with each data set on the
Total view. This can identify where duplicate data set names were found. The
existence of duplicates may be inconsistent when changing the DSLEVEL
qualifiers. For example, SYS1.PARM.* may have different results than
SYS1.PAR*. Duplicate entries may or may not display in a consistent manner,
however the DSLIST will always be complete, with no omissions.

2. If a VSAM cluster matches the Dsname Level, all parts of the cluster are listed
even if the data and index portions do not match the Dsname Level.

When a multicluster (key-range) data portion of a VSAM cluster is displayed
on a catalog list, no information is shown except for the volume and device.
The information comes from the VTOC and the catalog name does not match
the VTOC name. When using a VTOC list the information is displayed.

Volume serial
Use this field to specify the volume serial whose VTOC is to be used by ISPF to
display or print a list of data set names or VTOC information. ISPF retains the
information you put in this field and displays it the next time you use this panel.

If you want to display a list of only the data sets that reside on a particular
volume, leave the Dsname Level field blank and enter the volume serial in the
Volume field.

The Volume serial field supports the inclusion of system symbols.

You can enter a single volume name or a generic volume name to list data sets
from more than one volume. The volume name can be partially specified using
asterisks as global volume name characters and percent signs as placeholders in
the volume name. A single asterisk within a volume name indicates that zero or
more characters can occupy that position. A single percent sign indicates that any
one alphanumeric or national character can occupy that position. Examples follow.

*          Lists data set names matching the Dsname Level from all volumes
PRM*      Lists names from all volumes beginning with 'PRM'
M%C*      Lists names from volumes beginning with 'M', followed by any
           single character, a 'C', and any three other characters

Notes:
1. During pre-allocation verification processing for a data set list line command,
   ISPF issues a LOCATE (SVC 26) for the data set name. This occurs even when
   you specify a volume serial on the Data Set List Utility panel. If this LOCATE
   fails (for example, an SMS data set by the same name exists and the volume for
   the SMS data set is not available), ISPF issues an error message and the line
   command fails.
2. Specifying a single asterisk as a volume name will require more time to display
   or print the VTOC list.
3. A generic volume name can not be used to display VTOC information.

Initial view
Use this field to tell ISPF which view of the data set list you would like to see.
ISPF retains the information you put in this field and displays it the next time you
use this panel.
All the scroll commands function normally from these displays, except for the LEFT and RIGHT commands. These commands switch from one view to another, because the panels used to show the different views are connected as if they formed a ring. Each time you enter the LEFT or RIGHT command, another view is displayed in the sequence shown in Figure 98, starting from the current view.

If you enter the RIGHT command with the Total view in the sequence displayed, ISPF displays the Volume view. If you enter the LEFT command with the Volume view displayed, ISPF displays the Total view. The available views are:

1. **Volume**
   This view shows a data set list that contains data set names and the volumes on which they reside. Figure 99 on page 148 shows a typical data set list display using the Volume view.

2. **Space**
   The Space view shows a data set list that contains data set names, tracks, percentages used, extents, and devices. An additional header line, displayed above the column headings and showing the total tracks of all data sets, the total tracks of all non-excluded data sets, the number of data sets listed and the number of non-excluded data sets listed, is displayed if the Display Total Tracks option is selected. Figure 100 on page 150 shows a typical data set list display using the Space view with the Total Tracks header line.

3. **Attrib**
   This view shows a data set list that contains data set names, data set organizations, record formats, logical record lengths, and block sizes. Figure 101 on page 150 shows a typical data set list display using the Attributes view.

Note: For each of the views, the list is sorted by data set name. See the list under Figure 102 on page 151 for descriptions of the fields shown on this panel.

4. **Total**
   This view shows a data set list that contains all the information displayed by the Volume, Space, and Attributes views, plus the created and expired or referred dates. (The Display Expiration Date option on the DSLIST Settings of the options pull-down on
Data set list utility (option 3.4)

The Data Set List utility (option 3.4) allows you to display either the expiration date or the referred date of the data set. The list is sorted by data set name and has two lines per data set. Figure 102 on page 151 shows a typical data set list display using the Total view.

The catalog name can also be displayed if the Display Catalog Name option is selected and no value is entered into the Volume Serial field. If the Display Catalog Name option is selected, three lines per data set are displayed. Figure 103 on page 151 shows a typical data set list display using the Total view with the Catalog name. See the list under the figure for descriptions of the fields shown on this panel.

An additional header line, displayed above the column headings and showing the total tracks of all data sets, the total tracks of all non-excluded datasets, the number of data sets listed, and the number of non-excluded data sets listed, is displayed if the Display Total Tracks option is selected.

Confirm data set delete
This field controls whether the Confirm Delete panel appears when you use the D (delete data set) line command or the TSO DELETE command from the displayed data set list. Use a slash to select this option.

If you select this option, ISPF displays the Confirm Delete panel [Figure 86 on page 124], giving you an opportunity to change your mind and keep the data set. If you try to delete an unexpired data set, the Confirm Purge panel [Figure 87 on page 125] is displayed following the Confirm Delete panel. Follow the directions on the panel to either confirm or cancel the data set purge.

Attention:
If you deselect the option and the data set is deleted, it cannot be retrieved.

See “D — delete data set” on page 165 for more information about the D line command.

Confirm member delete
This field controls whether the Confirm Member Delete panel is displayed when you use the D (delete) command for a member in the displayed data set list. Use a slash to select this option.

If you select this option, ISPF displays the Confirm Member Delete panel. This panel gives you an opportunity to change your mind and keep the member.

Include additional qualifiers
This field is used to generate the data set list with all data sets matching the qualifiers in the Dsname Level field, including data sets with additional qualifiers.

If this field is not selected, the data set list will include only data sets that match the qualifiers entered in the Dsname Level field.

Examples: Assume that these data sets exist:

PDFTOOL.COMMON.ASM
PDFTOOL.COMMON.CLIST
PDFTOOL.COMMON.CLIST.OLD
### Data set list utility (option 3.4)

1. List data sets whose name starts with PDFTOOL.COMMON. The data set can include additional qualifiers:

<table>
<thead>
<tr>
<th>Dsname Level</th>
<th>Include Additional Qualifiers</th>
<th>Dsname</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDFTOOL.COMMON.CLIST.VB</td>
<td>/</td>
<td>PDFTOOL.COMMON.ASM</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL</td>
<td></td>
<td>PDFTOOL.COMMON.CLIST.OLD</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL.INPUT</td>
<td></td>
<td>PDFTOOL.COMMON.CLIST.VB</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.EXEC</td>
<td></td>
<td>PDFTOOL.COMMON.CNTL</td>
</tr>
</tbody>
</table>

2. List data sets whose name is PDFTOOL.COMMON, with no additional qualifiers:

<table>
<thead>
<tr>
<th>Dsname Level</th>
<th>Include Additional Qualifiers</th>
<th>Dsname</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDFTOOL.COMMON.CLIST</td>
<td>/</td>
<td>PDFTOOL.COMMON.CLIST.OLD</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL</td>
<td></td>
<td>PDFTOOL.COMMON.CLIST.VB</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL.INPUT</td>
<td></td>
<td>PDFTOOL.COMMON.CNTL</td>
</tr>
</tbody>
</table>

(No data set names found)

3. List data sets whose name starts with PDFTOOL.COMMON and whose third qualifier starts with “C”. The data set can include additional qualifiers:

<table>
<thead>
<tr>
<th>Dsname Level</th>
<th>Include Additional Qualifiers</th>
<th>Dsname</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDFTOOL.COMMON.CLIST</td>
<td>/</td>
<td>PDFTOOL.COMMON.CLIST.OLD</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL</td>
<td></td>
<td>PDFTOOL.COMMON.CNTL</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL.INPUT</td>
<td></td>
<td>PDFTOOL.COMMON.CNTL</td>
</tr>
</tbody>
</table>

4. List data sets whose name starts with PDFTOOL.COMMON and whose third qualifier starts with “C”. The data set must not have additional qualifiers after the third qualifier:

<table>
<thead>
<tr>
<th>Dsname Level</th>
<th>Include Additional Qualifiers</th>
<th>Dsname</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDFTOOL.COMMON.CLIST</td>
<td>/</td>
<td>PDFTOOL.COMMON.CLIST</td>
</tr>
<tr>
<td>PDFTOOL.COMMON.CNTL</td>
<td></td>
<td>PDFTOOL.COMMON.CNTL</td>
</tr>
</tbody>
</table>

### Display catalog name

Use this option to have the Total view display for each data set in the list the name of the catalog in which the data set was located.

The option is only applicable when a catalog search is used to build the Data Set List, therefore, it is ignored when a value is entered in the Volume Serial field.

### Display total tracks

Use this option to display an additional header line on the Space or the Total view, showing the total tracks of all data sets, the total tracks of all non-excluded data sets, the number of data sets listed, and the number of non-excluded data sets listed.

Depending on the size of the data set list, processing time increases because the tracks information for all data sets has to be collected before the list is displayed. When the list comprises 50 data sets or more, a pop-up panel is displayed, indicating the progress of the data collection.

### Prefix Dsname Level

Use this option to have ISPF automatically add your TSO user prefix as the first qualifier of the Dsname Level. When this option is selected and you have created a
Data set list utility (option 3.4)

TSO user prefix, that prefix is added to the beginning of the Dsname Level provided the Dsname Level is not enclosed in single quotes. If the Dsname Level is entered enclosed in quotes, ISPF will not add your TSO user prefix. When this option is not selected ISPF will not accept the Dsname Level enclosed in quotes.

Data set list utility options
Sub-sections describe the options shown on the Data Set List Utility panel.

Blank — display data set list
Leave the Option line blank to display a data set list. You can use these parameters to control what data set information is displayed and how delete requests are processed:

1. Enter one or more data set name level qualifiers in the Dsname Level field. See “Dsname level” on page 141 for more information.

2. Enter a volume serial in the Volume field if you want ISPF to create a data set list from the VTOC. If you leave this field blank, the list is created from the catalog. See “Volume serial” on page 143 for more information.

3. In the Initial View field, enter the view of the data set list (Volume, Space, Attributes, or Total) that you want to see first. Examples of these views are shown in Figure 99 on page 148, Figure 100 on page 150, Figure 101 on page 150, and Figure 102 on page 151, respectively.

4. Enter a slash (/) in the Confirm Data Set Delete field to tell ISPF to display a confirmation panel if you enter the D (delete data set) line command or the TSO DELETE command. See “Confirm data set delete” on page 145 for more information.

5. Enter a slash (/) in the Confirm Member Delete field to tell ISPF to display a confirmation panel if you enter the D (delete) command for a member in a data set list.

6. Enter a slash (/) in the Include Additional Qualifiers field to tell ISPF to list all data sets that match the qualifiers in the Dsname Level field, including data sets with additional qualifiers.

7. Enter a slash (/) in the Display Catalog Name field to tell ISPF to display the name of the catalog associated with each data set in the Total view.

8. Enter a slash (/) in the Display Total Tracks field to tell ISPF to display an additional header line above the column headings, showing the total tracks of all data sets, the total tracks of all non-excluded data sets, the number of data sets listed and the number of non-excluded data sets listed. Depending on the size of the data set list, processing time increases because the tracks information has to be collected for the whole list up front. When the list comprises 50 data sets or more, a pop-up panel is displayed, indicating the progress of the data collection.

9. Enter a slash (/) to prefix the data set name level qualifiers in the Dsname Level field.

10. Press Enter to display the data set list, as shown in Figure 99 on page 148.

Note: If a plus displays after the volume serial (for example, HSM020+) on a list obtained from the catalog, the data set spans multiple volumes. Information displayed about that data set by selecting Information or Short Information or by using the Space or Total view will represent the total amounts across all used volumes. For further information, see the description for Volume on page 153.
Data set list utility (option 3.4)

When a VTOC list is displayed and a multivolume data set is included on that volume, there will not be an indicator that this data set spans multiple volumes, and the information on a space or total view will be for that volume only. The information displayed on a VTOC list is only information obtained from the VTOC of that volume. When the multivolume data set is selected for information or for short information, the space information will be for all volumes that the data set spans.

Data set list panel action bar: The Data Set List panel action bar choices function as follows:

Menu

For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Options

The Options pull-down offers these choices:

DSLIST Settings

The settings to control the behavior of the data set list display.

Options are:

- Display Edit/View entry panel

  Note: If this field is selected and a workstation Edit request is initiated when no valid workstation connection exists, ISPF indicates on the Edit/View entry panel that no connection exists and treats the request as a host Edit request.

- Update ON (Reference lists)
- List pattern for MO,CO,RS,D actions
- Show status for MO,CO,RS,D actions
- Confirm Member delete
- Confirm Data Set delete

Figure 99. Data set list - volume view (ISRUDSLO)
Data set list utility (option 3.4)

- Do not show expanded command
- E,V,B enhanced member list
  Selecting this choice causes the enhanced member list to be used when the E,V, or B commands are used. De-selecting this choice causes traditional member list processing to occur.
- Display Total Tracks
- Execute Block Commands for excluded Data Sets
- Display Expiration Date

Refresh List
Refresh the display of the data set list.

Append to List
Select a Personal data set list to append to the existing DLIST. The DLIST is rebuilt, including the data sets or data set name levels from the personal list selected.

Note: The APPEND is based on the selected personal data set list. If an entry in the list is not quoted, your TSO prefix is added as the first level of the data set name. If the entry contains a member, the member is ignored. Duplicate personal list entries are ignored. If the entry contains a volume and “Include volume on retrieve” is selected on the Referral List Settings panel, a VTOC search is used instead of the catalog. A catalog search is recommended for best performance. A volume should be used only if the data set is not cataloged.

Enter the DLIST primary command REFRESH on the DLIST display panel to erase all appended personal lists.

Save List
Saves the data set list to a file.

Reset  Resets the data set list.

View  The View pull-down offers these choices:

Note: The current setting is shown as an unavailable choice; that is, it is displayed in blue (the default) with an asterisk as the first digit of the selection number (if you are running in GUI mode, the choice will be grayed).

1  Volume  Changes the display to the Volume view, as shown in Figure 99 on page 145
2  Space  Changes the display to the Space view.
3 Attributes
Changes the display to the Attributes view.

4 Total
Changes the display to the Total view.
Data set list utility (option 3.4)

5 Sort You can sort the data set list by any of these fields:
1. Name
2. Message
3. Volume
4. Tracks
5. Percent Used
6. Extents
Data set list utility (option 3.4)

- Dsorg
- Recfm
- Lrecl
- Blksz
- Creation date
- Expiration date
- Referenced date
- Device
- Volume indicator
- Catalog

You can also specify the sort sequence (ascending or descending) or accept the default sequence for the associated sort field. By default, character fields are sorted alphabetically and numeric fields are sorted in descending order.

Utilities
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Compilers
The Compilers pull-down offers you these choices:
- Foreground Compilers. Displays the Foreground Selection Panel.
- Background Compilers. Displays the Batch Selection Panel.
- ISPPREP Panel Utility Displays the Preprocessed Panel Utility panel.
- DTL Compiler Displays the ISPF Dialog Tag Language Conversion Utility panel.

Help
The Help pull-down provides general information about the data set list, including the format of the displayed list and the available line commands and primary commands.

Data set list panel fields: The fields listed here can appear on the data set list panels. The fields displayed will vary depending on the view that you select.

- Total Tracks: Total number of tracks of all data sets in the list.
- non-x: Total number of tracks of all data sets in the list, not including the tracks of all excluded data sets.

When the number of total tracks or total non-excluded tracks exceeds 10 digits (the maximum provided in the header line), the display changes as follows:

- Kilobyte. The total number is divided by 1000.
- Megabyte. The total number is divided by 1,000,000.
- Gigabyte. The total number is divided by 1,000,000,000.
- Terabyte. The total number is divided by 1,000,000,000,000.

The unchanged number of tracks and non-excluded tracks is available in the shared pool variables ZDLSIZET and ZDLSIZTX.

Data Sets
Total number of data sets in the list.
Data set list utility (option 3.4)

non-x

Total number of data sets in the list, not including excluded data sets.

Command

Field used to enter a line command, TSO command, CLIST, or REXX EXEC when displaying a data set list. See “Data set list utility line commands” on page 161 for more information.

Name

Data set name, as in the VTOC or catalog.

Message

This field is initially blank. After you perform an operation on a data set using one of the built-in line commands, one of these messages is displayed in this field:

<table>
<thead>
<tr>
<th>Line Command</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Browsed</td>
</tr>
<tr>
<td>C</td>
<td>Cataloged</td>
</tr>
<tr>
<td>E</td>
<td>Edited</td>
</tr>
<tr>
<td>U</td>
<td>Uncataloged</td>
</tr>
<tr>
<td>D</td>
<td>Deleted</td>
</tr>
<tr>
<td>P</td>
<td>Printed</td>
</tr>
<tr>
<td>PX</td>
<td>Index Printed</td>
</tr>
<tr>
<td>R</td>
<td>Renamed</td>
</tr>
<tr>
<td>I</td>
<td>Info - I</td>
</tr>
<tr>
<td>M</td>
<td>Member List</td>
</tr>
<tr>
<td>S</td>
<td>Info - S</td>
</tr>
<tr>
<td>Z</td>
<td>Compressed</td>
</tr>
<tr>
<td>F</td>
<td>Free Completed</td>
</tr>
<tr>
<td>=</td>
<td>(message shown for last command entered)</td>
</tr>
<tr>
<td>V</td>
<td>Viewed</td>
</tr>
<tr>
<td>RA</td>
<td>Refadd</td>
</tr>
<tr>
<td>CO</td>
<td>Copied</td>
</tr>
<tr>
<td>MO</td>
<td>Moved</td>
</tr>
<tr>
<td>RS</td>
<td>Reset</td>
</tr>
<tr>
<td>X</td>
<td>– 1 data set(s) not displayed</td>
</tr>
<tr>
<td>NX</td>
<td>(no message)</td>
</tr>
<tr>
<td>NXF</td>
<td>(no message)</td>
</tr>
<tr>
<td>NXL</td>
<td>(no message)</td>
</tr>
</tbody>
</table>

If you enter a TSO command, CLIST, or REXX exec on the Command line, a default message appears in the Message field. The message you see can be one of these:

- In this format, depending on the results of the TSO command, CLIST, or REXX exec:
  
  \[XXXXXXXX RC=#\]

  where:

  \[XXXXXXXX\]  The command entered

  \[#\]  The return code.

- "ERROR MSG LOGGED".
  This may occur with PDSE or HFS data sets. A fully formatted message appears in the ISPF log, provided one has been allocated.

Note: See “Data set list utility line commands” on page 161 for a description of the Data Set List Utility line commands.

Volume

Volume serial number.
Data set list utility (option 3.4)

An indicator may be displayed beside the Volume field:

**+ (plus sign)**

May be displayed beside the Volume serial field if the data set is a multiple volume data set. This is determined from the number of volume entries in the catalog. Depending on the system set-up, a "+" may not be displayed until the additional volumes have been accessed. For example, a data set with a non-zero dynamic volume count in the SMS dataclass will not show multiple volume entries in the catalog until the additional volumes have been accessed. Other vendor products which can dynamically expand the volume list will also not show multiple volume entries in the catalog until the additional volumes have been accessed.

1 Migrated to disk
2 Migrated to tape

**Tracks**
Number of tracks allocated to the data set.

**%Used**
Percentage of allocated tracks used, expressed in whole numbers, not rounded. If any track is used, the minimum percentage is 1. If the data set is a PDSE, the % refers to the percentage of allocated pages used.

See “F — free unused space” on page 167 for information about freeing track space manually.

**Note:** Space utilization values are not displayed for VSAM or BDAM data sets.

**XT**
Number of extents allocated to the data set.

**Device**
Device type on which the volume that contains the data set is mounted.

**Dsorg**
One of the data set organizations shown. In the definitions of these data set organizations, *unmovable* means the data set contains absolute addresses instead of relative addresses. These data sets are not moved to any other DASD storage location during read/write operations.

- **PS** Sequential
- **PS-E** Sequential Extended Format
- **PS-L** Large Format Sequential
- **PSU** Sequential unmovable
- **PO** Partitioned
- **POU** Partitioned unmovable
- **PO-E** Partitioned extended (PDSE)
- **DA** Direct
- **DAU** Direct unmovable
- **HSF** MVS Hierarchical File System
- **IS** Indexed sequential
- **ISU** Indexed sequential unmovable
- **VS** VSAM
- **VS-E** VSAM Extended Format
- **blank** None of the preceding data set organizations.

**Recfm**
Record format specified when the data set was allocated. See “A — allocate new data set” on page 114 for more information about record formats.
Data set list utility (option 3.4)

Lrecl  Logical record length, in bytes, specified when the data set was allocated.

Blksz  Block size, in bytes, specified when the data set was allocated.

Created  Creation date in the national format.

Expires  Expiration date in the national format, specified when the data set was allocated. If no expiration date was specified, "**None**" is displayed. If a "never expire" date (1999/12/31 or its equivalent) is specified, "**Perm**" is displayed. See "A — allocate new data set" on page 114 for more information about expiration dates.

**Note:** The expiration date is only available with the I and S line commands.

Referred  Date, in the national format, that this data set was last accessed.

Catalog  The name of the catalog in which the data set was located. Only displayed in the Total view when the Display Catalog Name option is selected and no value is entered in the Volume Serial field.

Actions you can take from the data set list panel: These topics describe actions you can take from the Data Set List panel:
- "Line commands"
- "TSO commands, CLISTS, and REXX EXECs"
- "Using the slash (/) character"
- "TSO command/CLIST/REXX exec variables" on page 157

**Line commands:** Line commands can be entered in the Command field to the left of the data set names. See "Data set list utility line commands" on page 161 for definitions of these line commands.

**TSO commands, CLISTS, and REXX EXECs:** Besides the ISPF-supplied line commands, you can also enter TSO commands, CLISTS, and REXX EXECs that use a fully qualified data set name as an operand. You can type over the field containing the data set name to enter commands that require more space than is provided in the Command field. ISPF determines the end of the command by scanning the Command field and the field containing the data set name from right to left. The first character found that differs from the original is considered to be the last character of the command. Therefore, it is best to enter a blank after the last character of your command if it extends into the field containing the data set name.

TSO commands, CLISTS, and REXX EXECs entered are invoked using the ISPF SELECT CMD service. Variable names starting with an ampersand (&) are evaluated by ISPF. If you want the underlying command processor to see the ampersand you must specify 2 ampersands. For example:

```
DEF NONVSAM(NAME(/) DEVT(0000) VOLUME(&&SYSR2))
```

**Note:** If the TSO command, CLIST, or REXX exec issues a return code greater than or equal to 8, processing stops and an error message is displayed.

**Using the slash (/) character:** If a command, CLIST, or REXX exec requires the data set name in a position other than the first operand or if other operands are needed, you can use the slash (/) character to represent the quoted data set name. If no operands are specified after the command, ISPF uses the name of the data set being acted on as the command's first operand.
Data set list utility (option 3.4)

To specify a member of a partitioned data set, enclose the member name or pattern in parentheses immediately following the / character. You can use this format with the V (view data set), B (browse data set), D (delete data set), E (edit data set), and M (display member list) line commands. For information about these line commands, see “Data set list utility line commands” on page 161.

You may find it helpful to call the SHOWCMD primary command before using the slash (/) for the first time. After you call SHOWCMD, a special Data Set List Utility panel appears each time you enter a line command, TSO command, CLIST, or REXX exec on a data set list display. The panel shows you the command you entered and how ISPF expanded, and thus interpreted, that command. See “SHOWCMD command” on page 175 for more information about and an example of the SHOWCMD primary command.

The rules shown apply to substituting the slash (/) character for a data set name. Each rule is followed by one or more examples that prove the rule by using either a CLIST or a line command.

In each example, the data set being acted on is USER.TEST.DATA, which always appears, either completely or partially, in uppercase. However, the CLIST or line command is typed in lowercase to differentiate between the CLIST or line command and USER.TEST.DATA when this data set name is either completely or partially typed over.

Each example also shows:

Original The line as it appears before the CLIST or line command is entered.

As typed The line as it appears after the CLIST or line command is typed.

After The line as it appears after the CLIST or line command is expanded to show the placement of quotes and data set name substitution for the slash (/) character.

1. You can type over the data set name. Expanded commands can contain a maximum of 255 characters and are converted to uppercase. This example shows how rule 1 would apply if you typed %clist1 da(/):

   (Original) USER.TEST.DATA
   (As typed) %clist1 da(/).TEST.DATA
   (After) %CLIST1 DA('USER.TEST.DATA')

2. The data set name substitution character (/) is replaced with the quoted, fully qualified data set name if the character following the / is not a number, letter, or national character. This example shows how rule 2 would apply if you typed %clist2 / newdate(1986/03/15):

   (Original) USER.TEST.DATA
   (As typed) %clist2 / newdate(1986/03/15)
   (After) %CLIST2 'USER.TEST.DATA' NEWDATE(1986/03/15)

3. If a slash (/) is followed immediately by a member name in parentheses, the ending quote for the data set is placed after the closing parenthesis that follows the member name. This example shows how rule 3 would apply if you typed %clist3 da(/(xyz)):

   (Original) USER.TEST.DATA
   (As typed) %clist3 da(/(xyz)).DATA
   (After) %CLIST3 DA('USER.TEST.DATA(XYZ)')

4. If the first operand is the unquoted data set name as it appears in the list, quotes are added around it or after a closing parenthesis following a member
Data set list utility (option 3.4)

name. This example shows how rule 4 on page 156 would apply if you typed (the B (browse) line command) and added member (abc):

(Original) USER.TEST.DATA
(As typed) b USER.TEST.DATA(abc)
(After) B 'USER.TEST.DATA(ABC)'

5. If the line command does not have any operands or if the data set name has not been substituted as specified by either rule 3 on page 156 or rule 4 on page 156, the quoted, fully qualified data set name is added to the end of the line command. This example shows how rule 5 would apply if you typed %clist4 user.test.fortran:

(Original) USER.TEST.DATA
(As typed) %clist4 user.test.fortran
(After) %CLIST4 USER.TEST.FORTRAN 'USER.TEST.DATA'

This example shows how rule 5 would apply if you typed %clist4 'user.test.fortran'. The purpose of this example is to show that if you enclose the CLIST operand in quotes, ISPF still puts quotes around the data set name being acted on. The results are the same.

(Original) USER.TEST.DATA
(As typed) %clist4 'user.test.fortran'
(After) %CLIST4 'USER.TEST.FORTRAN' 'USER.TEST.DATA'

This example shows how rule 5 would apply if you typed %clist5 member1(abc). The purpose of this example is to show that the results do not change if the CLIST operand contains a member name enclosed in parentheses.

(Original) USER.TEST.DATA
(As typed) %clist5 member1(abc)
(After) %CLIST5 MEMBER1(ABC) 'USER.TEST.DATA'

TSO command/CLIST/REXX exec variables: If you use a TSO command, CLIST, or REXX exec, ISPF puts the variables described in Table 9 in the shared pool for the TSO command, CLIST, or REXX exec to use.

Table 9. TSO command/CLIST/REXX exec variables (output)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Length in Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDLBLKSZ</td>
<td>Data set block size</td>
<td>5</td>
</tr>
<tr>
<td>ZDLCAT</td>
<td>Cataloged status; one of these:</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>0 Data set is cataloged on volume ZDLVOL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Data set is cataloged on a volume other than ZDLVOL and is either:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• on volume ZDLCAT but uncataloged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• on volume ZDLCAT and defined in a user catalog that is connected to the master catalog, but not in the normal catalog search path</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The name of the user catalog is in ZDLCATNM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 Data set is uncataloged on volume ZDLVOL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 Data set is not cataloged on any volume and is uncataloged on volume ZDLVOL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 Data set is not available on volume ZDLVOL.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This status is returned for data sets that have been either migrated or deleted.</td>
<td></td>
</tr>
<tr>
<td>ZDLCATNM</td>
<td>Name of the catalog in which the data set was located</td>
<td>44</td>
</tr>
<tr>
<td>ZDLCDATE</td>
<td>Creation date</td>
<td>10</td>
</tr>
</tbody>
</table>
Data set list utility (option 3.4)

Table 9. TSO command/CLIST/REXX exec variables (output) (continued)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Length in Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDLCMD</td>
<td>Line command</td>
<td>9</td>
</tr>
<tr>
<td>ZDLCONF</td>
<td>Delete confirmation (Y</td>
<td>N)</td>
</tr>
<tr>
<td>ZDLDEV</td>
<td>Device type</td>
<td>8</td>
</tr>
<tr>
<td>ZDLDSN</td>
<td>Data set name</td>
<td>44</td>
</tr>
<tr>
<td>ZDLDSNTP</td>
<td>Data set name type</td>
<td>8</td>
</tr>
<tr>
<td>ZDLDSORG</td>
<td>Data set organization</td>
<td>4</td>
</tr>
<tr>
<td>ZLEDATE</td>
<td>Expiration date</td>
<td>10</td>
</tr>
<tr>
<td>ZDLEXT</td>
<td>Number of extents used</td>
<td>3</td>
</tr>
<tr>
<td>ZDLEXTX</td>
<td>Number of extents used, long format</td>
<td>5</td>
</tr>
<tr>
<td>ZDLLCMD</td>
<td>Expanded line command</td>
<td>255</td>
</tr>
<tr>
<td>ZDLLRECL</td>
<td>Data set logical record length</td>
<td>5</td>
</tr>
<tr>
<td>ZDLMIGR</td>
<td>Whether the data set is migrated (YES or NO)</td>
<td>3</td>
</tr>
<tr>
<td>ZDLMVOL</td>
<td>Multivolume indicator</td>
<td>1</td>
</tr>
<tr>
<td>ZDLOVF</td>
<td>Space overflow indicator</td>
<td>3</td>
</tr>
<tr>
<td>ZDLRDATE</td>
<td>Date last referenced</td>
<td>10</td>
</tr>
<tr>
<td>ZDLRECFM</td>
<td>Data set record format</td>
<td>5</td>
</tr>
<tr>
<td>ZDLSIZE</td>
<td>Data set size in tracks</td>
<td>6</td>
</tr>
<tr>
<td>ZDLSIZEX</td>
<td>Data set size in tracks, long format</td>
<td>12</td>
</tr>
<tr>
<td>ZDLSPACU</td>
<td>Space units: either BLOCKS, TRACKS, CYLINDERS, BYTES, KILOBYTES, or MEGABYTES</td>
<td>10</td>
</tr>
<tr>
<td>ZDLUSED</td>
<td>Percentage of used tracks</td>
<td>3</td>
</tr>
<tr>
<td>ZDLVOL</td>
<td>Volume</td>
<td>6</td>
</tr>
<tr>
<td>ZDLXSTAT</td>
<td>Exclude status</td>
<td>1</td>
</tr>
</tbody>
</table>

When you select the Display Total Tracks option, and the data set list is displayed either in SPACE view or in TOTAL view, ISPF also puts the variables described in Table 9 in the shared pool for the TSO command, CLIST, or REXX exec to use.

Table 10. TSO command/CLIST/REXX exec additional variables (output)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Length in Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDLSIZET</td>
<td>Total tracks of all data sets in the list</td>
<td>19</td>
</tr>
<tr>
<td>ZDLSIZTX</td>
<td>Total tracks of all data sets in the list, not including the tracks of excluded data sets</td>
<td>19</td>
</tr>
<tr>
<td>ZDLDST</td>
<td>Total number of data sets in the list (available for all display views)</td>
<td>6</td>
</tr>
<tr>
<td>ZDLDSX</td>
<td>Total number of data sets in the list, not including the excluded data sets</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: ISPF cannot calculate reliable space utilization values for VSAM or BDAM data sets. Therefore, question marks (?) are returned in variables that report space utilization for these data sets.
A TSO command, CLIST, or REXX exec can set these variables and place them in the shared pool to communicate with the Data Set List utility (option 3.4).

Table 11. TSO command/CLIST/REXX exec variables (input)

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Length in Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDLNDSN</td>
<td>New data set name to appear in list</td>
<td>44</td>
</tr>
<tr>
<td>ZDLMSG</td>
<td>Message to appear in list</td>
<td>16</td>
</tr>
<tr>
<td>ZDLREF</td>
<td>Refresh data set information; Y</td>
<td>N</td>
</tr>
</tbody>
</table>

P — print data set list

Use option P to print a data set list. You must:

1. Enter one of these:
   - One or more data set name level qualifiers in the Dsname Level field and a volume serial in the Volume field. The list will contain all data sets for the specified levels and volume. Only the specified volume is searched. See "Dsname level" on page 141 and "Volume serial" on page 143 for more information.
   - One or more data set name level qualifiers in the Dsname Level field, but leave the Volume field blank. The list will contain all data sets for the specified levels that are cataloged.
   - A volume serial in the Volume field, but leave the Dsname Level field blank. The list will contain only the data sets on the specified volume. Only the specified volume is searched.

Note: All data set lists are formatted the same when they are printed. Therefore, values entered in the Initial View field have no effect when you use option P.

2. Press Enter to print the data set list. The data set list is stored in the ISPF list data set.

V — display VTOC information

Option V is used to display VTOC (volume table of contents) information. To use option V:

1. In the Volume field, specify the volume serial for which you want ISPF to display information.

   Note: VTOC information is formatted the same, whether displayed or printed. Therefore, values entered in the Initial Display View field have no effect when you use option V.

2. Press Enter to display the VTOC information.

   Note: The Dsname Level field is not applicable for the V or PV command. Only the Volume field is relevant.

Figure 104 on page 161 shows an example of a VTOC display.
Track values do not include the remaining alternate tracks for the volume. The free space track values are the number of tracks for the free cylinders plus any additional free tracks.

The fields shown on the VTOC Summary Information panel are:

**Unit**
- Shows the type of DASD device the volume is on, such as 3380 or 3390.

**Volume Data**
- Describes general information about the volume:
  - **Tracks**
    - Total tracks on the volume.
  - **%Used**
    - Percentage of total tracks or pages not available for allocation.
  - **Trks/Cyls**
    - Number of tracks per cylinder for this volume.

**VTOC Data**
- Describes general information about the VTOC on the volume:
  - **Tracks**
    - Total tracks allocated to the VTOC.
  - **%Used**
    - Percentage of allocated tracks or pages used by data set control blocks (DSCBs).
  - **Free DSCBS**
    - Number of unused DSCBs.

**Free Space**
- Describes the free space available for data set allocation on the volume under the headings Tracks and Cyls, showing:
  - **Size**
    - Total number of free tracks and cylinders.
  - **Largest**
    - The largest number of contiguous free tracks and cylinders.

**Free Extents**
- The number of free areas with free cylinders.
PV — print VTOC information

Option PV is used to print VTOC information. To use option PV:

1. Blank out the Dsname Level field.
2. In the Volume field, specify the volume serial for which you want ISPF to print information.

   Note: VTOC information is formatted the same, whether displayed or printed. Therefore, values entered in the Initial View field have no effect when using option PV.

3. Press Enter to print the VTOC information. The VTOC information is stored in the ISPF list data set.

   Note: The Dsname Level field is not applicable for the PV or V command. Only the Volume field is relevant.

Data set list utility line commands

After you display a data set list by leaving the Option field blank, you can enter a line command to the left of the data set name. You can also enter TSO commands, CLIST names, or REXX exec names. If a ‘>’ is used before the CLIST or REXX exec name, the parameters passed to the command are not translated to upper case. The z/OS UNIX commands OGET and OPUT can be entered and the parameters are also not translated to upper case.

The slash (/) character, which can be used with TSO commands, CLISTs, and REXX EXECs, can also be used with the V (view data set), B (browse data set), D (delete data set), E (edit data set), and M (display member list) line commands to specify a member name or a pattern. You can type over the field containing the data set name to enter commands that require more than the space provided. For more information about using this symbol, see “Using the slash (/) character” on page 155. For more information about member name patterns, see the details about Displaying Member Lists in the “ISPF Libraries and Data Sets chapter” in the z/OS [ISPF User’s Guide Vol ].

You can also enter line commands in block command format to execute the same line command for several data sets at once. You mark the block by typing a "//" at the beginning of a block of rows and another "//" at the end of the block of rows. You must type the line command either immediately after the // on the first row of the block, or immediately after the // on the last row of the block. You can enter several blocks of commands at the same time, but you cannot nest them. Single line commands are not allowed within a block command. You can execute all line commands, including TSO commands, Clists and REXX execs as block commands. If you have selected the DLIST settings option Execute Block Commands for excluded Data Sets, all applicable excluded rows are unexcluded before the block commands are executed.

Line commands that are valid for aliases may be used with any alias data sets that are listed. Uncatalog, delete, and rename commands are not valid for alias data sets. A line command such as ‘B’ for browse or ‘I’ for information will display the real name of the data set.

The Data Set List Utility always supports the U (uncatalog) line command for tape data sets. The Data Set List Utility can support additional line commands for data sets stored on tape and other removable media, by calling external commands such as DFSMSrmm. This interface is configured in the ISPF configuration table and enabled by setting the configuration table keyword DLIST_RM_ENABLED to YES.
Data set list utility (option 3.4)

Depending on the removable media interface, these line commands may be supported:

I  Information
S  Short Information
D  Delete
R  Rename
C  Catalog
M  Member List
P  Print
X  Print Index
C O  Copy
M O  Move

Which line commands are actually supported by a particular interface depends on the capabilities of the external command.

For more information about configuring the Data Set List Utility removable media interface, see z/OS ISPF Planning and Customizing.

If a CLIST, REXX exec, or program is issued against a data set, ISPF gathers information on the data set and makes it available through dialog variables. See Table 9 on page 157 for the list of those variables. If the data set being processed is on an unmounted file system, a temporary mount is issued, file system.

The Command field and the field containing the data set name fields make up a single point-and-shoot field. If you enter a slash in the Command field or if you select any part of the combined point-and-shoot field, the Data Set List Actions pop-up shown in Figure 105 is displayed so that you can select the command you want to use.

```
Figure 105. Data set list commands pop-up (ISRUDABC)
```

Menu | Options | View Options | Utilities | Compilers | Help
---|---|---|---|---|---
D | Data Set List Actions | More: |
C | Volume |
/ | DSLIST Action |
    | 1. Edit 15. Reset *ALIAS A$US05 |
    | 4. Member List 18. Refadd A$US07 |
    | 6. Rename 20. Unexclude 'NX' A$US02 |
    | 8. Short Info 22. Unexclude last 'NXL' A$US01 |
    | 11. Uncatalog 25. Search-For 'SF' A$US08 |
    | 13. Free 27. Allocate A$US01 |
    | 14. Print Index A$US08 |
Select a choice and press ENTER to process data set action.
F1=Help F2=Split F3=Exit F7=Backward
F8=Forward F9=Swap F12=Cancel
F10=Left F11=Right F12=Cancel ?? PAGE
E — edit data set
For the E command, the processing is similar to selecting the Edit option (2) and entering the library or data set name on the Edit Entry Panel, except that mixed mode is the assumed operation mode.

Note: Multivolume data sets do not support the Volume Serial field for the Edit command.

If you select a library or other partitioned data set, an Edit member list is displayed. For more information about using member selection lists, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.

The E line command uses the values from a prompt panel to specify items including the initial macro, profile name, panel name, format, mixed mode, and workstation editing. These values are stored in the profile and are used on subsequent edits.

To change these values, use the “DSLIST settings” panel on the data set list Options pull-down. Check both the “E,V,B enhanced member list” and the “Display Edit/View entry panel” options. The prompt panel is always shown when you edit a sequential file, or when you directly edit a member of a partitioned data set. When you are using a member list you can force the display of the panel by placing a slash mark (/) in the Prompt field next to the member you select.

If the editor appears to be invoking an unexpected initial macro, or it appears to be using an unexpected profile, follow the process described to check the values on the prompt panel.

V — view data set
For the V command, the processing is similar to selecting the View option (1) and entering the library or data set name on the View Entry Panel. If you have set your DLIST options to not show the edit/view entry panel:
• Mixed mode is the assumed operation mode.
• You cannot specify a data set format, an edit profile, or an initial macro.

Note: Multivolume data sets do not support the Volume Serial field for the View command.

If you select a library or other partitioned data set, an Edit member list is displayed. For more information about using member selection lists, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.

B — browse data set
For the B command, processing is the same as if you specify Browse Mode from View (option 1), except that mixed mode is the assumed operation mode and you cannot specify a data set format. To browse a data set with mixed mode off, you must use the View option; deselect Mixed Mode and select Browse Mode on the View Entry Panel. If you enter the B line command beside an ISPF library or other partitioned data set, a Browse member list is displayed. For more information about using member selection lists, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.
Data set list utility (option 3.4)

Note: From a catalog list, multivolume data sets do not support the Volume Serial field for the Browse command.

M — display member list
For the M command, a member selection list of a partitioned data set is displayed. This member list provides an expanded line command field in the area to the left of the list. The line command field in other member lists has room for only one character, unless the browse, view, or edit enhanced member list is selected.

From the member list, you can use the same primary commands and line commands that are valid for Library utility (option 3.1) member selection lists. See the information about Using Member Selection Lists and Library and Data Set List Utility Line Commands in the Libraries and Data Sets topic in the z/OS ISPF User’s Guide Vol I.

Notes:
1. From a VTOC list, you can browse a single volume of a multivolume non-SMS data set.
2. You can chain the line commands; that is, you can select multiple members from a member list for various processing tasks. Use the CANCEL command (from a View, Browse, or Edit session) to break the chain and return to the member list.

You can also enter TSO commands, CLISTs, or REXX EXECs in the Line Command field. If you enter a line command other than B (browse), D (delete), E (edit), R (rename), C (copy), M (move), G (reset), J (submit), or P (print), ISPF interprets it as a TSO command, CLIST, or REXX exec.

The command is selected with the quoted, fully qualified data set name and member added to it, such as:

```
COMMAND 'DSN(MEMBER)' 
```

See “TSO commands, CLISTs, and REXX EXECs” on page 155 for more information.

Note: If the TSO command, CLIST, or REXX exec issues a return code greater than or equal to 8, processing stops and an error message is displayed.

Figure 106 on page 165 shows an example of a member list with statistics and an expanded line command field.
Figure 107 shows load module library statistics with an expanded line command field.

D — delete data set

For the D command, the processing is the same as if you had selected option D from the Data Set utility (option 3.2) without specifying a volume serial. This command deletes and uncatalogs the entire data set. If a member name or pattern is supplied then a member delete will occur.

**Note:** Delete is not allowed for multivolume data sets from a VTOC list.

If you select the Confirm Delete option on the Data Set List Utility panel, the Confirm Delete panel (Figure 86 on page 124) is displayed to allow you to continue or cancel the operation. Note that Confirm Delete is forced on when deleting members by pattern. If you are trying to delete an unexpired data set, the Confirm Purge panel (Figure 87 on page 125) is also displayed.

When you delete a data set the volume name is compared to the volume name in the configuration table. If the names match, the command specified in the configuration table is used in place of the ISPF delete processing. This allows you to delete migrated data sets without first causing them to be recalled.
Data set list utility (option 3.4)

**R — rename data set**  
For the R command, the processing is the same as if you had selected option R from the Data Set utility (option 3.2). The Rename Data Set panel is displayed to allow you to specify the new name.

*Note:* Rename is not allowed for multivolume data sets from a VTOC list.

See “R — rename entire data set” on page 122 for more information.

**I — data set information**  
For the I command, the processing is the same as if you had selected option I from the Library utility (option 3.1) or left the Option field blank with the Data Set utility (option 3.2). See “I — data set information” on page 104 and “Information for managed data sets” on page 107 for more information.

*Notes:*
1. For multivolume data sets, options I and S display current allocation and utilization values that represent totals from all volumes used.
2. Space utilization values are not displayed for VSAM or BDAM data sets.

**S — information (short)**  
For the S command, the processing is the same as if you had selected option S from the Library utility (option 3.1) or the Data Set utility (option 3.2). See “S — short data set information” on page 108 and “Short information for managed data sets” on page 109 for more information.

*Notes:*
1. For multivolume data sets, options I and S display current allocation and utilization values that represent totals from all volumes used.
2. Space utilization values are not displayed for VSAM or BDAM data sets.

**P — print data set**  
For the P command, the processing is the same as if you had selected option L from the Library utility (option 3.1). This command formats the contents of a source data set for printing and records the output in the ISPF list data set. It also produces an index listing, which appears at the beginning of the output.

*Note:* The Print command is not allowed for multivolume data sets from a VTOC list.

**C — catalog data set**  
For the C command, the processing is the same as if you had selected option C from the Data Set utility (option 3.2). See “C — catalog data set” on page 122 for more information.

*Note:* Multivolume data sets are always cataloged.

**U — uncatalog data set**  
For the U command, the processing is the same as if you had selected option U from the Data Set utility (option 3.2). See “U — uncatalog data set” on page 124 for more information.

*Note:* The U command is not supported for multivolume data sets.
Z — compress data set
For the Z command, the processing is the same as if you had selected option C from the Library utility (option 3.1). This command recovers wasted space that was formerly occupied by deleted or updated members and is now available for use again. You do not need to compress a PDSE. If you use the Z command on a PDSE, the data is not reorganized.

The Z command calls either the IEBCOPY utility or the compress request exit routine. See [z/OS ISPF Planning and Customizing] for more information.

F — free unused space
For the F command, space that is not being used by the data set is released. For example, if a data set is allocated with 100 tracks but is only using 60 tracks, the F command releases the 40 tracks that are not being used.

Note: The F command is not supported for multivolume data sets.

However, if the data set has been allocated with CYLS (cylinders) specified as the space units, only the tracks beyond the last cylinder used are freed. For example, if a data set occupies 1.2 of 3 allocated cylinders, the F command frees all tracks beyond the last used cylinder, leaving 2 cylinders allocated.

PX — print index listing
For the PX command, the processing is the same as if you had selected option X from the Library utility (option 3.1). The index listing is recorded in the ISPF list data set. See [“X — print index listing” on page 104] for more information.

Note: The Print command is not allowed for multivolume data sets from a VTOC list.

RS — reset
For the RESET command, a panel is displayed that prompts you to reset or delete ISPF statistics, and to enter a new user ID, version number, or modification level.

MO — move
For the MOVE command, a panel is displayed that prompts you for a library or data set name for the to data set.

Note: How aliases are handled by the MO and CO line commands depends on how the Process member aliases option is set. For more information see [“Moving or copying alias entries” on page 138].

CO — copy
For the COPY command, a panel is displayed that prompts you for a library or data set name for the to data set.

Note: How aliases are handled by the MO and CO line commands depends on how the Process member aliases option is set. For more information see [“Moving or copying alias entries” on page 138].

RA — RefAdd
For the REFADD command, you are provided with an interface to referral lists, where you can add a data set and a volume to a Personal Data Set List.
Data set list utility (option 3.4)

X — exclude data set
For the EXCLUDE command, one data set from a data set list is excluded from the list.

NX — unexclude data set
For the Unexclude command, one data set, or a set of data sets that have been excluded from a data set list are re-shown.

NXF — unexclude first data set
For the UNEXCLUDE FIRST command, the first of a set of excluded data sets is re-shown.

NXL — unexclude last data set
For the UNEXCLUDE LAST command, the last of a set of excluded data sets is re-shown.

SC — SuperC
The SC command invokes the SuperC Compare Utility with the data set predefined in the "New" Data Set field. These keyword parameters can be entered after the SC command:
- NDSN(new data set)
- NVOL(volume for NDSN)
- ODSN(old data set)
- OVOL(volume for ODSN)
- M(member mask)
- PROMPT

By default no prompting for SuperC information happens.

See “SuperC utility (option 3.12)” on page 206 for more information.

SCE — SuperCE
The SCE command invokes the SuperCE Compare Utility with the data set predefined in the New DS Name field. These keyword parameters can be entered after the SCE command:
- NDSN(new data set)
- NVOL(volume for NDSN)
- ODSN(old data set)
- OVOL(volume for ODSN)
- M(member mask)
- PROMPT

By default no prompting for SuperC information happens.

See “SuperCE utility (option 3.13)” on page 216 for more information.

SF — Search-For
The SF line command invokes the Search-For Utility on the selected data set.

If the selected data set is a PDS or PDSE then the SRCHFOR Member List function is invoked. You can provide a single search string with the SF line command. (Example: SF string1). If no search string is provided the Srchfor Options popup window is displayed. Use this panel to enter multiple search strings, process options, and output options. You can use the process options “Set EDIT FIND string” and “Set BROWSE FIND string” to initialize the FIND string in Edit and Browse from the first SRCHFOR string. Use the output option “Filter list” to list only the subset of members that contain one of the search strings.
Data set list utility (option 3.4)

An option E, V, or B can be entered immediately after the SF command. This will set the default action (Edit, View, or Browse) for when the S line command is used to select a member in the enhanced member list. (Example: SF B sets the default action in the member list to Browse.)

See “Search-For utility (option 3.14)” on page 229 for more information.

**SFE — Search-ForE**
The SFE line command invokes the Extended Search-For Utility on the selected data set.

If the selected data set is a PDS or PDSE then the SRCHFOR Member List function is invoked. You can provide a single search string with the SFE line command. (Example: SFE string). If no search string is provided the Srchfor Options popup window is displayed. Use this panel to enter multiple search strings, process options, and output options. You can use the process options “Set EDIT FIND string” and “Set BROWSE FIND string” to initialize the FIND string in Edit and Browse from the first SRCHFOR string. Use the output option “Filter list” to list only the subset of members that contain one of the search strings.

An option E, V, or B can be entered immediately after the SFE command. This will set the default action (Edit, View, or Browse) for when the S line command is used to select a member in the enhanced member list. (Example: SFE B sets the default action in the member list to Browse.)

See “Search-ForE utility (option 3.15)” on page 235 for more information.

**AL — Allocate**
The AL line command uses a new data set name as a parameter. If no parameter is supplied, then the displayed data set must have been previously deleted by another command. When a new data set name is provided, then the displayed data set can be used as a model for allocation attributes.

**= — repeat last command**
For the = command, the most recently used line command is repeated. This command is most helpful when the same TSO command, CLIST, or REXX EXEC is to be called for more than one data set in a data set list. For example, suppose you have a CLIST named TESTABC and two data sets named USER.DATA1 and USER.DATA2. To run the CLIST with the two data sets consecutively from a data set list, you could:
1. Type TESTABC in the Command field beside USER.DATA1.
2. Type * in the Command field beside USER.DATA2.
3. Press Enter.

This procedure saves keystrokes because you type the CLIST name only once and you press Enter only once.

**Data set list utility primary commands**
Primary commands are available when you use the Data Set List utility. These commands, which you enter on the command line, are:
- APPEND
- CONFIRM
- EXCLUDE
- FIND and RFIND
- LC
- LOCATE
Data set list utility (option 3.4)

- MEMBER
- REFRESH
- RESET
- SAVE
- SHOWCMD
- SORT
- SRCHFOR
- VA, VS, VT, and VV

These topics describe these commands:
- “APPEND command”
- “CONFIRM command” on page 171
- “EXCLUDE command” on page 171
- “FIND and RFIND commands” on page 172
- “LC command” on page 172
- “LOCATE command” on page 173
- “MEMBER command” on page 173
- “REFRESH command” on page 174
- “RESET command” on page 174
- “SAVE command” on page 174
- “SHOWCMD command” on page 175
- “SORT command” on page 177
- “SRCHFOR command” on page 178
- “VA, VS, VT, and VV commands” on page 179

**APPEND command**
The APPEND primary command appends additional data sets to an existing displayed DLIST. Use this format:

```
Syntax

APPEND [list_name] [DSname_level]
```

You can use the APPEND command with no parameters to get a list of your personal data sets. Then select the one you want to append to the current list.

If you give a `list_name` with the command, the list given is appended.

By specifying `DSname_level` as a parameter, you can use the resulting list to select which list to append to the current one. For example, entering APPEND Userid.C* gives you a list of all personal lists that begin with C as the second-level identifier. Then you can select the one to append.

By specifying `DSname_level` in quotes, data sets beginning with `DSname_level` are appended to the data set list.

The APPEND primary command accepts system symbols. For example:

APPEND 'SYS2..*.&SYSPLEX'
CONFIRM command
The CONFIRM primary command controls display of the Confirm Delete panel. Use this format:

Syntax

```
CONFIRM ON
```

You can use these operands with the CONFIRM command:

**ON**  
Tells ISPF to display the Confirm Delete panel when you enter the D (delete data set) line command or TSO DELETE command. This is the default setting.

**OFF**  
Tells ISPF not to display the Confirm Delete panel.

For example, this command would tell ISPF not to display the Confirm Delete panel:

```
CONFIRM OFF
```

EXCLUDE command
The EXCLUDE primary command excludes data sets from a list based on a character string. Use this format:

Syntax

```
EXCLUDE character_string ALL PREFIX NEXT
```

You can use these operands with the EXCLUDE command:

**character_string**  
Tells ISPF which data set to exclude from the list.

**ALL**  
Tells ISPF to exclude every data set in the list.

**NEXT| FIRST | LAST | PREV**  
Operands that define the starting point, direction, and extent of the lines to exclude.

**PREFIX | CHAR$ | SUFFIX | LAST | WORD | PREV**  
Operands that set the conditions for a character string match.

For example, this command tells ISPF to exclude a data set that includes BILBO3 in the name from a list:

```
EXCLUDE BILBO3
```
**FIND and RFIND commands**

The FIND primary command finds and displays a character string within the data set name. Use this format:

```
/SM590000/SM590000
FIND string
NEXT
CHARS
ALL
PREFIX
X
/SM590000
/SM590000
FIND ELSE ALL
```

For example, this command would tell ISPF to find all occurrences of the character string ELSE:

```
FIND ELSE ALL
```

The operands X and NX can be used to limit your search to excluded (X) or unexcluded (NX) data sets.

For more information about the operands used with this command, see "FIND—find character strings" on page 85. NEXT and CHARS are the default operands.

ISPF automatically scrolls to bring the character string to the top of the list. To repeat the search without reentering the character string, use the RFIND command.

**Note:** RFIND search starts from the second data set in the list. It is not cursor-sensitive.

**LC command**

The LC primary command invokes the color change utility from the command line of a data set list display, as shown in Figure 108 on page 173.
**LOCATE command**

The LOCATE primary command scrolls the list of data sets based on the field on which the data set list is sorted, as described under “SORT command” on page 177. Use this format:

```
LOCATE lparm
```

You can use the `lparm` operand with the LOCATE command for either of these situations:
- If the list is sorted by data set name, specify a data set name.
- If the list is sorted by another field, specify a value for the field by which the list is sorted.

For example, for a data set list sorted by volume, you could enter:

```
LOCATE TSOPK1
```

This command locates the first data set in the list on volume TSOPK1. If the value is not found, the list is displayed starting with the entry before which the specified value would have occurred.

**MEMBER command**

The MEMBER primary command is used to search for a member name or pattern in all of the partitioned data sets in the data set list. It can be abbreviated as M or MEM. The parameters, `X`, `EX`, `NX`, `RECALL1`, and `RECALL2` are optional. `X` and `EX` limit the search to excluded data sets. `NX` limits the search to non-excluded data sets. `RECALL1` includes data sets migrated to DASD in the search. `RECALL2` includes all migrated data sets in the search. Use this format:
The data set list is scrolled so that the first data set containing the member or pattern is at the top of the list. The MEMBER command finds any occurrence of the specified member name or pattern within a partitioned data set.

**REFRESH command**
The REFRESH primary command updates the display of the data set list to whatever the list's current state is. For example, after deleting several items on the list, REFRESH causes the list to be displayed without the deleted items. If you have appended to the list, REFRESH restores the list to its status before the append operation.

**RESET command**
The RESET primary command unexcludes data sets that were excluded from a list, and removes any pending line commands and messages from the data set list.

**SAVE command**
The SAVE primary command writes the data set list to the ISPF list data set or to a sequential data set. ISPF writes the data set list in its current sort order. If the Display Catalog Name option is selected and Volume Serial was not entered, the catalog name associated with each data set is included in the Data Set List written to the sequential file. Use this format:

```
Syntax

//SM590000/SM590000
MEMBER string X EX NX RECALL1 RECALL2

//SM590000/SM630000
```

where `list-id` is an optional user-specified qualifier of the data set to which the member list will be written. ISPF names the data set:

`prefix.userid.list-id.DATASETS`

where:

- **prefix**
  Your data set prefix, as specified in your TSO user profile. If you have no prefix set, or if your prefix is the same as your user ID, the prefix is omitted and the data set name will be: `userid.list-id.DATASETS`.

- **userid**
  Your TSO user ID.

The data set is created if it does not exist, or written over if it exists, and has compatible attributes. If you omit the `list-id` operand, the list is written to the ISPF list data set and includes the list and column headings and this data set information:
Data set list utility (option 3.4)

- Data set name
- Volume
- Org
- Recfm
- Lrecl
- Blksz
- Trks
- %Used
- XT
- Created
- Catalog Name (depending on the setting of the Display Catalog Name option)

If you enter SAVE without a list-id and the Display Total Tracks option is selected, an additional header line with the accumulated tracks of all data sets and the number of all data sets in the list is written above the column headings. If you provide the list-id operand, the list does not include the column headings and contains all the data set information of the list without the listid provided, plus this information:
- Device
- Expires
- Referred

This command would tell ISPF to write the list to a sequential data set named either prefix.userid.MY.DATASETS or userid.MY.DATASETS.

SAVE MY

If the sequential data set already exists, ISPF writes over it; if not, ISPF creates it.

ISPF displays a progress status pop-up panel when the necessary information to perform a SAVE or SORT primary command has to be retrieved and the data set list comprises 50 or more data sets. The keyboard locks when this pop-up panel appears and stays locked until the SAVE or SORT command is completed.

SHOWCMD command

The SHOWCMD primary command controls the display of line commands and their operands as they are called. Use this format:

```
Syntax
SHOWCMD [ON] [OFF]
```

where:
- **ON** Tells ISPF to display line commands. This is the default setting.
- **OFF** Tells ISPF not to display line commands. Though the SHOWCMD default is ON, SHOWCMD is initially set to OFF.

After you enter SHOWCMD ON, a panel (Figure 109 on page 176) is displayed each time you enter a line command, TSO command, CLIST, or REXX exec on a data set list display.
**Data set list utility (option 3.4)**

On this panel, you see the command as you typed it and then, a few lines down, you see the command as ISPF interpreted it. Seeing these commands displayed can be especially useful when you use the slash (/) character to substitute for the data set name because the panel shows the line command after expansion occurs. Therefore, you can tell immediately whether you need to add operands to the command.

For example, suppose you have a data set list displayed on the screen and decide to browse member MEMB1 of data set USER.TEST.DATA. To see how ISPF interprets the B (browse) line command, type SHOWCMD ON on the Command line and press Enter. Then, enter this line command in the Line Command field to the left of USER.TEST.DATA:

B /(MEMB1)

When you press Enter, the panel shown in Figure 109 is displayed.

---

**Figure 109. Data Set List Utility - SHOWCMD panel (ISRUDSLS)**

**Notes:**

1. The data set name and commands shown in Figure 109 are for illustrative purposes only. These values are determined by the command you enter and the data set acted on by that command.
2. SHOWCMD must be entered from a data set list. It is invalid if you use a line command, such as M, to display a member list before calling it.

When the panel showing the commands is displayed, you can perform one of these actions:

- Press Enter to call the command displayed in the “Command after expansion” field.
- Change the command displayed in the “Command after expansion” field and then press Enter to call the changed command.
- Enter the END command to return to the data set list display.
Data set list utility (option 3.4)

For information about using line commands, TSO commands, CLISTs, REXX EXECs, and the / character on a data set list display, see “Blank — display data set list” on page 147.

SORT command
The SORT primary command sorts the data set list by the specified field. Use this format:

```
Syntax

SORT

field1

A

field2

D

```

where:

**field1**

The major sort field. If only one operand is used, ISPF treats it as field1. If both operands are used, ISPF sorts the list by field1 first, then by field2 within field1.

**field2**

The minor sort field.

A|D

The direction in which values are sorted for this field (A=ascending, D=descending).

For example, to sort a data set list by volume and block size within each volume, use this command:

SORT VOLUME BLKSZ

If you do not specify a field, ISPF sorts the list by data set name. The keywords described in |Table 12| tell ISPF by which fields to sort the data set list.

<table>
<thead>
<tr>
<th>Field</th>
<th>Default Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>Ascending</td>
<td>Data set name</td>
</tr>
<tr>
<td>MESSAGE</td>
<td>Ascending</td>
<td>Command completion message</td>
</tr>
<tr>
<td>VOLUME</td>
<td>Ascending</td>
<td>Volume serial</td>
</tr>
<tr>
<td>DEVICE</td>
<td>Ascending</td>
<td>Device type</td>
</tr>
<tr>
<td>DSORG</td>
<td>Ascending</td>
<td>Data set organization</td>
</tr>
<tr>
<td>RECFM</td>
<td>Ascending</td>
<td>Record format</td>
</tr>
<tr>
<td>LRECL</td>
<td>Descending</td>
<td>Logical record length</td>
</tr>
<tr>
<td>BLKSZ</td>
<td>Descending</td>
<td>Block size</td>
</tr>
<tr>
<td>TRACKS</td>
<td>Descending</td>
<td>Data set size</td>
</tr>
<tr>
<td>%USED</td>
<td>Descending</td>
<td>Percentage used</td>
</tr>
<tr>
<td>XT</td>
<td>Descending</td>
<td>Extents used</td>
</tr>
<tr>
<td>CREATED</td>
<td>Descending</td>
<td>Creation date</td>
</tr>
</tbody>
</table>
Table 12. Sort fields for source libraries (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Default Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPIRES</td>
<td>Ascending</td>
<td>Expiration date</td>
</tr>
<tr>
<td>REFERRED</td>
<td>Descending</td>
<td>Last accessed data</td>
</tr>
<tr>
<td>MVOL</td>
<td>Ascending</td>
<td>Multivolume or migration level</td>
</tr>
<tr>
<td>CATALOG</td>
<td>Ascending</td>
<td>Catalog Name</td>
</tr>
<tr>
<td>PROMPT</td>
<td>Descending</td>
<td>Data displayed in PROMPT field</td>
</tr>
</tbody>
</table>

Automatic scrolling is performed, if necessary, to bring the major sort field into view. ISPF displays a progress status pop-up panel when the necessary information to perform a SAVE or SORT primary command has to be retrieved and the data set list comprises 50 or more data sets. The keyboard locks when this pop-up panel appears and stays locked until the SAVE or SORT command is completed.

**SRCHFOR command**

Use the SRCHFOR primary command to search the data sets in the data set list for one or more strings of data using the SuperC Utility (see Option 3.14). You may limit the search to excluded or non-excluded data sets, and control whether migrated data sets are recalled and searched or not. Use this format:

SRCHFOR string

The string parameter is optional but always converted to uppercase. If specified it is used to prefill the first search string on the subsequent DSLIST Srchfor Options panel.

WORD, SUFFIX, and PREFIX are available operands for search string specification. Note that the search strings are case sensitive and must match exactly as specified. Consider the ‘Any case’ process option if you want to disregard case.

You can use the C (continuation) operand to specify that both the current and previous string must be found on the same line to constitute a match. Otherwise, lines with either string are treated as matching.

Table 13. SRCHFOR command search string examples

<table>
<thead>
<tr>
<th>Example Search strings:</th>
<th>Explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>====&gt; ABC</td>
<td>Either string ABC or EFG may be found in the search data set.</td>
</tr>
<tr>
<td>====&gt; EFG</td>
<td></td>
</tr>
<tr>
<td>====&gt; ABC WORD</td>
<td>The two strings (ABC and EFG) must be found on the same line. ABC must be a complete word, while EFG (a continuation definition) can be part of any word.</td>
</tr>
<tr>
<td>====&gt; EFG C</td>
<td></td>
</tr>
<tr>
<td>====&gt; ABcD prefix</td>
<td>The string (ABcD) is detected if the case of each letter matches and it is a prefix of a word.</td>
</tr>
<tr>
<td>====&gt; X'7b00'</td>
<td>The hex string is specified as the search string. The listing must be browsed with 'HEX ON'.</td>
</tr>
<tr>
<td>====&gt; 'AB C''D'</td>
<td>The string (AB C’D) is specified.</td>
</tr>
</tbody>
</table>

To start the search, press the Enter key from the DSLIST Srchfor Options panel. To cancel the request and return to the Data Set List, enter END or CANCEL.

Output is in the listing DSN you specify and in the MESSAGE field in the DSLIST. Sort on this field to consolidate results.
VA, VS, VT, and VV commands
The VA, VS, VT, and VV commands change the data set list display to the Attributes, Space, Total, and Volume views, respectively.

Reset ISPF statistics utility (option 3.5)

If you have set STATS mode on, the ISPF editor automatically generates statistics for each member of a partitioned data set. You might want to reset these statistics for these reasons:

- The program you are developing has been completed and you would like to reset all version numbers before starting on the next release.
- A person has left the project, and you wish to reassign some of the members to the user ID of the person who is taking over the work.
- You would like to create ISPF statistics for some members that were created or modified on a system other than ISPF.
- You want to delete existing statistics from a partitioned data set to save space in the directory.

This option allows you to create, update, or delete statistics and to reset sequence numbers.

The Reset ISPF Statistics utility handles only partitioned data sets whose record length is in this range:

- From 1 to 32 760, inclusive, for fixed-length records
- From 5 to 32 756, inclusive, for variable-length records.

For more information about ISPF Member Statistics, see the “ISPF Libraries and Data Sets chapter” in the z/OS ISPF User’s Guide Vol I.

Figure 110. Reset ISPF Statistics panel (ISRURSP)
Reset ISPF statistics utility (option 3.5)

Reset ISPF statistics panel action bar

The Reset ISPF Statistics panel action bar choices function as follows:

**Menu**

For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the "z/OS ISPF User’s Guide Vol I".

**RefList**

For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the "z/OS ISPF User’s Guide Vol I".

**Utilities**

For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the "z/OS ISPF User’s Guide Vol I".

**Help**

The Help pull-down offers these choices:
- 1 General
- 2 Why you might want to Reset ISPF statistics
- 3 Filling in the reset utility panel
- 4 Using the Member list
- 5 ISPFS statistics
- 6 Appendices
- 8 Index

Reset ISPF statistics panel fields

All the fields on this panel are described in the Libraries and Data Sets topic in the "z/OS ISPF User’s Guide Vol I" except these fields:

**New Userid**

This field is used to set the ID field in the statistics. Enter a new user ID here if you want to change the user ID the statistics are recorded under. It is required if you do not specify a new version number.

If you are updating the user ID but not resetting the sequence numbers, the statistics are updated but the data is not scanned or renumbered.

**New Version Number**

Enter a number here if you want to change the version number. This field is required if you do not specify a new user ID when resetting statistics. It is ignored if you are deleting statistics.

**Reset Mod Level**

Use a slash to select this option and reset the modification level. Deselect this option if you do not want to reset the modification level. A new version number is required to reset the modification level.

**Reset Sequence Numbers**

Use a slash to select this option and reset the sequence numbers. Deselect this option if you do not want to reset the sequence numbers. A new version number is required to reset the sequence numbers. Only standard (STD) sequence numbers are reset.

If the data is in packed format, there can be no sequence number processing. However, statistics for members in packed format can be created or updated if the sequence numbers are not being reset.

**SCLM Settings**

The SCLM setting is a bit that ISPF uses to determine what type of edit the file last had performed upon it.
Reset ISPF statistics utility (option 3.5)

**1 SCLM**  This bit is ON to specify that the last edit of this file was under SCLM control.

**2 Non-SCLM**  This bit is ON to specify that the last edit of this file was under control of something other than SCLM.

**3 As-is**  This bit is ON to specify that this copy operation transfers the current setting of this file as it already is.

*Reset Date/Time*

The setting of this option determines whether to reset the Last Modified Date or Time and the Creation Date of the file.

*Reset Number of Lines*

The setting of this option determines whether to reset the Current Number of Lines, the Initial Number of Lines, and the Number of Modified Lines settings. If this option is selected, the Current Number of Lines and Initial Number of Lines settings are set to the actual number of lines of the member.

The Number of Modified Lines setting is dependent on the Reset Mod Level and Reset Sequence Numbers options. If either of those are reset and the Reset Date/Time field is selected, then the value of the Number of Modified Lines is set to zero. Otherwise, the Number of Modified Lines remains as is.

*Generate extended statistics*

This option modifies the behavior of the Reset Number of Lines option.

When selected, line numbers greater than 65,535 are recorded in the PDS directory by Reset Number of Lines. More space is taken in the PDS directory by each member reset if this option is chosen.

When not selected, Reset Number of Lines records line number statistics up to a maximum of 65,535 lines and causes Extended Statistics to be cleared by Reset Number of Lines (if present).

**Reset ISPF statistics utility options**

These topics describe the options shown on the Reset ISPF Statistics panel:

- “R — reset (create/update) ISPF statistics”
- “D — delete ISPF statistics” on page 182
- “Results of resetting statistics” on page 182

**R — reset (create/update) ISPF statistics**

Use option R either to create statistics in a library that does not currently have them, or to update statistics in a library.

The New Userid field is optional for option R. If you specify a user ID, it is placed in the ID field of the statistics. If you leave the New Userid field blank and select a member without statistics, the ID field of the statistics is set to the current user ID.

Either a new user ID or a new version number is required when you use this option. When you specify a version number, the statistics are created or reset as follows:

- **Version Number**  Set to the specified value.
- **Modification Level**  Set to zero if requested; otherwise, unchanged.
- **Creation Date**  Set to current date in the national format.
**Reset ISPF statistics utility (option 3.5)**

<table>
<thead>
<tr>
<th>Change Date</th>
<th>Set to current date, in the national format, and time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current No. Lines</td>
<td>Set to the current number of data records.</td>
</tr>
<tr>
<td>Initial No. Lines</td>
<td>Set to the current number of data records.</td>
</tr>
<tr>
<td>No. Modified Lines</td>
<td>Set to zero if the Reset Sequence Numbers field is selected.</td>
</tr>
</tbody>
</table>

If you have requested updating of the modification level and resetting of the sequence numbers, the last two digits of each sequence number are set to zeros. Otherwise, they are not changed.

If you have requested updating of sequence numbers, the data is scanned to determine if valid, ascending sequence numbers are present in all records. If so, the data is renumbered. Otherwise, the data is assumed to be unnumbered and renumbering is not done.

**D — delete ISPF statistics**

Use option D to delete ISPF statistics for an ISPF library or other partitioned data set. The New Userid and New Version Number fields are ignored when you use option D.

**Results of resetting statistics**

What you specify for the New Version Number, Reset Mod Level, and Reset Sequence Numbers fields controls the resetting of the sequence numbers, the modification flags within the data, and the statistics. A new version number is required to reset the modification level and sequence numbers. Therefore, if a new version number is entered and the data is not in packed format, Table 14 shows the various combinations you can use for the Reset Mod Level and Reset Sequence Numbers fields and the results of those combinations.

<table>
<thead>
<tr>
<th>Table 14. Reset mod level and reset sequence numbers combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Mod Level</td>
</tr>
<tr>
<td>Reset Sequence Numbers Selected</td>
</tr>
<tr>
<td>Reset Sequence Numbers Deselected</td>
</tr>
</tbody>
</table>

**Processing of alias entries**

If statistics are updated or created for members of a data set by entering a wildcard as part of the member name and no member selection list is displayed, statistics for alias members are not created, thus leaving the alias bit untouched.

If alias members are selected from a member selection list, a confirmation pop-up panel is displayed for each alias selected, before creating ISPF statistics. If statistics are created for an alias member, the alias bit is turned off, effectively creating a non-alias member using the same TTR as the original member for which the alias was created.
Hardcopy utility (option 3.6)

The Hardcopy utility allows you to specify a sequential data set or a member of a partitioned data set to be printed, and the destination of the output. It also allows you to specify whether a sequential data set is to be kept or deleted after printing. Partitioned data set members are always kept.

You can use the Hardcopy utility to print any DASD-resident data set except ISPF list and log data sets; use the ISPF LIST command to print log and list data sets during an ISPF session.

An optional print utility exit can be specified by your installation. If this exit is installed, it may cause the Hardcopy utility's response to differ from the descriptions shown here. See z/OS ISPF Planning and Customizing for more information about the print utility exit.

Another factor that can affect the Hardcopy utility's performance is whether the TSO/E Information Center Facility is installed. If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to display a panel for submitting TSO/E Information Center Facility information with the print request. See "Using the TSO/E information center facility" on page 186 for more information.

If the TSO/E Information Center Facility is not installed, the Hardcopy utility first displays the panel shown in Figure 111.

![Hardcopy Utility panel - before JCL generation (ISRUHCP)](image)

**Figure 111. Hardcopy Utility panel - before JCL generation (ISRUHCP)**

**Hardcopy utility panel action bar**

The Reset ISPF Statistics panel action bar choices function as follows:

| Menu | For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol 1 |
Hardcopy utility (option 3.6)

RefList
For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User’s Guide Vol I.

Utilities
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

Help
The Help pull-down offers these choices:
1 General
2 Function of the hardcopy utility
3 Selecting a print mode
4 Submitting a background job to print a data set or member
5 Routing a data set to a printer local to your terminal group
6 Printing a data set using TSO/E Information Center Facility
7 Appendices
8 Index

Hardcopy utility panel fields
The Data Set Name, Volume Serial, Data Set Password, and Job statement information fields, shown in Figure 111 on page 183, are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I. The other fields on the panel are:

Print Mode
Lets you specify one of these print modes:

BATCH Submits your print request as a background job.
LOCAL Routes your data to a local printer, such as an IBM 328x printer that is connected to your terminal group.

Batch Sysout Class
Destination of printed data set. Used only if the data set is to be printed and Batch SYSOUT class is specified.

Local Printer ID or Writer name
Destination of printed data set. Used only if the data set is to be printed and Local Printer ID or external writer name is specified.

Note: If you specify a Local Printer ID or writer name and you have selected the Edit PRINTDS Command option on the ISPF Settings panel (option 0), ISPF displays the Local Print Command Edit panel to allow you to intercept and edit the PRINTDS command before it is processed. For more information on editing the PRINTDS command, see the “ISPF Libraries and Data Sets chapter” in the z/OS ISPF User’s Guide Vol I.

Local Sysout Class
Used in conjunction with the Local Printer ID or Writer Name. Specifies the output class to use for output processing.

Generating and submitting JCL
Follow these steps to generate and submit JCL for your print jobs:
1. Choose one of the options listed at the top of the panel and type its code, 1 (for PK) or 2 (for PD), in the Option field.
2. Specify a fully qualified data set name and member name.
This is a required field. If you are entering a fully qualified TSO data set name, you must enclose the name in quotes. If you omit the quotes, the data set prefix from your TSO user profile is automatically added to the beginning of the data set name.

3. If the data set is not cataloged, specify the volume serial.
4. If your data set is password protected, type the password in the Data Set Password field. For more information on data set passwords, see the "ISPF Libraries and Data Sets chapter" of the z/OS ISPF User’s Guide Vol I.
5. Specify either BATCH or LOCAL in the Print Mode field.
6. Specify one of these:
   - If you chose BATCH in the previous step, type a Batch SYSOUT class and any job statement information you need.
   - If you chose LOCAL in the previous step, type the name of a local printer or writer name in the Local Printer ID field. Job statement information is ignored.
7. Press Enter.

What happens next depends on your choice in step 5. If you chose BATCH, see step 7a. If you chose LOCAL, see step 7b on page 186.

a. If you chose BATCH, ISPF generates the JCL and displays the panel shown in Figure 112 with the message JCL generated in the upper-right corner.

At this point you can either:
   - Cancel the job by typing the CANCEL command in the Option field and pressing Enter.
   - Submit the job by typing the END command and pressing Enter. ISPF displays this message at the bottom of the panel:

   IKJ56250I JOB useridA(J0Bnnnnn) SUBMITTED

***
Press Enter. For more information about BATCH printing, see Additional batch printing information.

- Specify another data set name for printing.

b. If you chose LOCAL, ISPF calls the PRINTDS TSO command processor to print the data set on the specified local printer.
   A message is displayed in the short message area to show that PRINTDS has accepted the request. At this point, you can:
   - Specify another option and press Enter
   - Enter the END command
   - Enter the CANCEL command

8. If you entered CANCEL or END, ISPF determines the next panel you see as follows:
   - If you entered the Hardcopy utility from the ISPF Primary Option Menu or through the jump function (=), ISPF displays the ISPF Primary Option Menu.
   - If you entered the Hardcopy utility from the Utility Selection Panel, ISPF returns you to that panel.

Additional batch printing information
When you enter the desired information and press Enter, ISPF generates JCL that contains the job statement operands and a job step that prints the specified data set, using the IBM IEBGENER utility.

Notes:
1. IEBGENER does not support packed data. If you try to print packed data, you may get unwanted results. IEBGENER prints the data set one logical record per print line. If the logical record length is greater than the printer width, the logical record is truncated.

2. ISPF does not unpack data automatically before printing it. Therefore, if you need to unpack data before printing it, edit the data set and enter the PACK primary command with the OFF operand. See z/OS ISPF Edit and Edit Macros for more information about the PACK command.

Once the JCL for the first job step is generated, the job statement operands are shown for information about them. They are no longer highlighted and you cannot type over them, since the job statement has already been generated. You can then select another data set name to cause another job step to be generated.

Using the TSO/E information center facility
If the TSO/E Information Center Facility is installed, your installation can allow ISPF to display the panel shown in Figure 113 on page 187.
Follow these steps to use the TSO/E Information Center Facility to submit your print jobs:

1. Choose one of the options listed at the top of the panel and type its code, PK or PD, in the Option field.
2. Enter a fully qualified data set name and member name. You must specify at least the low-level qualifier, such as LIST. If you enter your user prefix as part of the data set name, you must enclose the complete data set name in quotes. However, if you omit the user prefix and quotes, your user prefix is automatically added to the beginning of the data set name.
3. If the data set is not cataloged, enter the volume serial.
4. If your data set is password-protected, enter the password in the Data Set Password field. For more information about data set passwords, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User's Guide Vol I.
5. You can either leave the Printer location field blank or enter the location ID of the printer to be used. The location ID is assigned by your installation. You can also enter a partial location name followed by an asterisk (*).
6. You can either leave the “Printer format” field blank or enter the format ID of the printer to be used. The format ID is assigned by your installation. You can also enter a partial format name followed by an asterisk (*). If your printer location and format entries do not identify a specific printer, a printer selection list is displayed. From this list, which is similar to a member selection list, you can select a printer.
7. Specify the number of copies you want.
8. Press Enter.

The values entered in the fields on this panel are passed directly to the TSO/E Information Center Facility for processing.
The Download Data Set to Workstation utility allows you to upload or download data sets from the host environment to your workstation. This utility is also used to download the WSA installation files needed to create a workstation connection.

Before you install the workstation utility
Review the information in the topic "Installing the Client/Server component" in the [z/OS ISPF User's Guide Vol I](https://www.ibm.com/servers/resourcelink) before you use this utility to install the WSA for the first time.

When you select option 7 from the Utility Selection Panel, ISPF displays the Download Data Set to Workstation panel (ISPUDL). This panel has two options:
1. Download the ISPF C/S component to your workstation
2. Download or upload an ISPF library, PDS or sequential data set

**Download ISPF C/S component**
This option enables you to download the ISPF Workstation Agent (WSA) component installation program to your desktop workstation. After downloading the WSA and installing it, you can use ISPF on a z/OS host through GUI windows on your workstation and use your workstation connection in distributed editing. See the topic "Installing the Client/Server component" in the [z/OS ISPF User’s Guide Vol I](https://www.ibm.com/servers/resourcelink) for a description of the download and installation processes.

When you select option 1 from the Download Data Set to Workstation panel, ISPF displays the ISPF Client/Server Component Download panel shown in Figure 114.

---

**Figure 114. ISPF Client/Server Component Download panel (ISPWSD01)**
Download data set to workstation utility (option 3.7)

The Client/Server Component Download panel enables you to choose the
download method and workstation type you want to use to put the WSA
installation program on your desktop.

Client/Server Component Download panel
The Client/Server Component Download panel contains these fields:

Download methods
You have three choices for downloading the WSA installation program.

**FTP (requires workstation FTP server)**
Download using FTP. ISPF invokes the host FTP client to connect
with the FTP server on your workstation and transfer the WSA
installation program. This option can be used to download the
WSA installation program for the first time. It is described in the
[topic "Installing the Client/Server component" in the z/OS ISPF
User's Guide Vol I](#).

**ISPF C/S (requires existing workstation connection)**
Download using ISPF Client/Server. If you already have a
workstation agent installed on your workstation, you can use the
built-in file transfer services to download a new or updated WSA
installation program. The file must be downloaded in binary
format.

**Manual**
ISPF tells you the name of the file you need to copy. You can copy
it with any method you prefer as long as you maintain the data
integrity of the WSA installation program. The file must be
downloaded in binary format. This option can be used to
download the WSA installation program for the first time. It is
described in the topic "Installing the Client/Server component" in the
[ z/OS ISPF User's Guide Vol I ](#).

Workstation type
The workstation agent runs on different workstation platforms and you
must indicate which platform you have, so that you receive the correct
version.
1. Windows 2000 or NT
2. Reserved
3. AIX®
4. Solaris
5. HP UX

Directory to copy file to
Specify a directory on your workstation where you want to store the WSA
installation program. You can specify a full path name or a relative
directory, or leave this field blank. If you leave it blank, the download is
made to your home directory (in the case of FTP downloads) or the current
directory (in the case of client/server downloads). If you specify a relative
directory (one that does not start with a drive letter or slash character) the
directory is relative to the FTP home directory or the client/server current
directory.

Data set to copy file from
The host data set that contains the WSA installation program. This value
varies depending on the naming convention that was used when ISPF was
installed.
Create directory to which the file is to be copied
If you want ISPF to create the directory on your workstation before copying the WSA installation program, enter a "/" in this field.

ISPF client/server (c/s) download
When you select choice 2 “ISPF C/S (requires workstation connection)” under Download methods on the ISPF Client/Server Component Download panel, you are choosing to use the ISPF Client/Server method of downloading. This method is used to obtain updated versions of the WSA and can only be used if you have already installed and initiated the WSA and established a workstation connection. If this is the first time you are downloading the WSA, use the FTP or Manual methods of downloading, instead.

If you do not already have a workstation connection (with or without GUI display) established, ISPF displays the ISPF Client/Server Installation Notice panel shown in Figure 115.

```
ISPWSO3 Client/Server Installation Notice
1 A workstation connection is required to download a new Client/Server component using workstation agent file transfer services.
2 Do you wish to start a workstation connection now?
   1. Yes, start workstation connection now and continue with download
   2. No, do not start workstation connection
```

Figure 115. ISPF Client/Server Installation Notice (ISPWSO3)

The field on this panel is:

**Do you wish to start a workstation connection now?**

This field enables you to start a workstation connection directly from the panel. This assumes, of course, that you have a previous copy of the WSA installed on your workstation.

1. **Yes, start workstation connection now and continue with download.**
   Select this option when you know you have a Workstation Agent installed and you have initiated it on your workstation.

2. **No, do not start workstation connection**
   Select this option when you know that a prerequisite for establishing a workstation connection has not been met and you want to return to the Client/Server Component Download panel.
Download data set to workstation utility (option 3.7)

If you have already established a workstation connection (see “Initiate the workstation connection” on page 60) and you select this download method, the Client/Server transfer service is immediately invoked to copy the WSA installation program to your workstation. A successful transfer results in the panel shown in Figure 116.

Running the installation program (ISPFINST)

After you have downloaded the Workstation Agent Installation program, resume the installation by running the program called ISPFINST.EXE (ispfinst on UNIX platforms). This is a self-extracting executable program that generates additional necessary files on your workstation. See the topic “Installing the Client/Server component” in the z/OS ISPF User’s Guide Vol I for a description of the Workstation Agent installation process.

Download/upload data set

The final option on the Download Data Set to Workstation (option 3.7) panel is called “Data Set — Download/upload ISPF library, partitioned, or seq data set”. This option provides a panel-driven interface to the ISPF FILEXFER service, enabling you to transfer data between the host and the workstation. This is a manually controlled alternative to using the Workstation Tool Integration (see “Workstation tool integration” on page 67).

Selecting option 2 displays the panel shown in Figure 117 on page 192.
Use the Download or Upload selections to indicate whether you want to download host data to the workstation, or upload workstation data to the host. Enter 1 for “download to workstation”. Enter 2 for “upload from workstation”.

You can transfer data from either PDS or sequential host data sets. The host data set must exist before attempting a transfer, but a PDS member is created if it does not already exist. Workstation files need not exist before downloading data from the host, but the specified directory must be there.

For downloading only, you can specify an asterisk (*) character in the workstation file name. ISPF substitutes the member name of the data being downloaded for the *. This enables you to select multiple members from the member list to be downloaded as separate files.

“Generate Statistics on Upload” indicates whether ISPF member statistics should be generated when a workstation file is uploaded to a member of a PDS. Statistics are only generated when the host data set is record format F or V.

The “Transfer in Text mode” field determines whether the file transfer is done in text mode (with ASCII to EBCDIC translation) or in binary mode (without any translation). When transferring in text mode, the ispf filexfer service provides a one-to-one mapping of all 256 code points between the host code page and the workstation code page. Most other file transfer utilities (for example, ftp) only provide a one-to-one mapping of displayable characters.

**Outlist utility (option 3.8)**

This utility gives you the ability to browse, print, delete, or requeue job output that is in a held SYSOUT queue. When you select this option, a panel is displayed that allows you to select an option and enter the appropriate operands.
Outlist utility (option 3.8)

The Outlist Utility panel action bar choices function as follows:

**Menu**
For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**Utilities**
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**Help**
The Help pull-down offers you these choices:
1. General
2. Listing the status of jobs
3. Deleting the output of a held job
4. Printing the output of a held job
5. Requeueing the output of a held job
6. Displaying the Output of a held job
7. Appendices
8. Index

Outlist Utility panel fields
The fields on this panel are:

**Jobname**
The held SYSOUT job. It is required for all options except option L.

**Class**
The SYSOUT hold queue. If you omit the CLASS operand, all SYSOUT queues are searched for the specified job.

**JobID**
Required only if more than one job exists with the same job name.
New Output class
When requeuing a job (option R), enter the new SYSOUT hold class here.

Printer Carriage Control
When printing a data set (option P), enter a value here that corresponds to the type of carriage control characters in the data set. Valid values are:

A If the data contains American National Standard Institute (ANSI) carriage control characters.
M If the data contains machine control characters.
Blank If the data contains no carriage control characters.

The record formats for the corresponding data sets are FBA, FBM, and FB, respectively.

Outlist utility options
These topics explain the options listed at the top of the Outlist Utility panel:

- “L — list job names/ID(s) via the TSO STATUS command”
- “D — delete job output from SYSOUT hold queue”
- “P — print job output and delete from SYSOUT hold queue”
- “R — requeue job output to a new output class” on page 195
- “Blank — display job output” on page 195

L — list job names/ID(s) via the TSO STATUS command
If you select option L, a list of job names and job IDs is displayed. If you leave the job name blank, or if the job name is your user ID plus one identifying character, the status is listed for all jobs having job names consisting of your user ID followed by that identifying character. If you supply any other job name, the status for that exact job is displayed.

The list of job names is displayed on the lower portion of the panel. If the list is too long to fit on the screen, three asterisks are displayed on the last line of the screen. You can display the remainder of the list by pressing Enter.

D — delete job output from SYSOUT hold queue
If you select option D, the held output for a specific job is deleted from the specified SYSOUT queue.

P — print job output and delete from SYSOUT hold queue
If you select option P, the held output for a specific job is removed from the SYSOUT queue and placed in an ISPF-defined data set for printing. You can choose the record format for this data set by putting an entry in the Printer Carriage Control field.

An optional print utility exit can be installed by your system programmer. If this exit is installed, it may cause the Outlist utility’s response to differ from the descriptions provided here. See z/OS ISPF Planning and Customizing for more information about the print utility exit.

Another factor that can affect the performance of the Outlist utility is whether the TSO/E Information Center Facility is installed. If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to display a panel for submitting the TSO/E Information Center Facility information with the print...
Outlist utility (option 3.8)

request. See Figure 185 on page 327 for an example of this panel and “Using the TSO/E information center facility” on page 186 for information about the fields on this panel.

If the TSO/E Information Center Facility is not installed, the Outlist utility displays the panel shown in Figure 184 on page 320 when you press Enter. Use this panel to tell ISPF how and where the job output is to be printed. This option does not honor multiple copies for output on hold queue. To print multiple copies use option R.

ISPF uses temporary data sets named prefix.userid.SPFINnn.OUTLIST (if your data set prefix in your TSO user profile is different from your TSO userid) or userid.SPFINnn.OUTLIST (if your prefix and userid are the same), where nnn is a number between 100 and 999.

Attention: If you keep or use all data sets through 999, ISPF resets to 100 and uses the existing data sets. Also, ISPF can use the data sets that you allocate using the temporary data set naming convention.

R — requeue job output to a new output class
If you select option R, the held output for a specific job is requeued to another SYSOUT class from the specified SYSOUT queue. You must enter the new SYSOUT class on the panel in the “New Output class” field. You can use this option to print output with multiple copies by requeuing to a SYSOUT class predefined to print multiple copies.

Blank — display job output
If you leave the Option field blank, the held output for the specified job is displayed in Browse mode. You can use all Browse commands. The data remains in the SYSOUT queue. When you enter the END or RETURN command to end Browse, the Outlist Utility panel is displayed again, and you can then choose to print, requeue, or delete the job output.

Command table utility (option 3.9)

The Command Table utility (option 3.9) enables you to create or change ISPF application command tables. When you select this option, a panel is displayed (Figure 119 on page 196) to prompt you for an application ID. The name of the command table is then derived by adding CMDS to the application ID. If the table exists in the table input library, ISPTLIB, it is displayed and can be modified. If the table does not exist in the table input library, a new table is generated.

The command table displays the search order of commands for a particular logical screen. The order is from top to bottom of those commands displayed. The “User table” and “Site table” fields are blank if no values are set for them in the ISPF Configuration table, or if values have been set but the tables do not exist in the “ISPTLIB” concatenation.

You cannot use this utility to change a command table that is currently in use. Command table ISPCMDS, the system command table, is always in use by the Dialog Manager component. If you enter ISP in the Application ID field, ISPF displays the ISPCMDS command table in read-only mode.

While you are using this utility to change a command table, the table cannot be used for other purposes. For example, you cannot use split screen and select a
function with NEWAPPL(XYZ) if you are changing command table XYZCMDS.

### Command Table Utility panel fields

The fields on the Command Table Utility panel function as follows:

**Application ID**

Contains the name of an application for which you want to define commands.

**Show description field**

Allows you to display the descriptions as well as the commands and definitions.

The command table for the named application is displayed on a Command Table editing panel (Figure 120 on page 197). This panel can be scrolled up and down using the scroll commands.
The column headings on the panel are:

**Verb**  The command verb, which is the name of the command you are defining in the command table. A command verb must be 2 to 8 characters long, inclusive, and must begin with an alphabetic character. The content of this column is assigned to the ZCTVERB system variable.

**T (truncation)**  The minimum number of characters that you must enter to find a match with the command verb. If this number is zero or equal to the length of the command verb, you must enter the complete command verb. For example, in Figure 120, the PREPARE command has a truncation value of 4. Therefore, for the TST application used as the example in the figure, only the first four letters, PREP, must be entered to call this command. The content of this column is assigned to the ZCTTRUNC system variable.

**Action**  The actual coding of the action to be carried out when you enter the command. The action length must not be greater than 240 characters. The content of this column is assigned to the ZCTACT system variable.

To enter or edit the coding for the action:

1. Enter the E command table line command to display the Extended Command Entry panel (ISPUCMX).
2. Type the required coding in the Action lines.
   Normally, any text you type in lowercase is translated to uppercase before it is saved.
   To define some of the parameters in lowercase select the **Allow mixed-case in Action field** option on the Extended Command Entry panel. The case of the text you type is not translated and is saved as you input it.
   Note that when you select the **Allow mixed-case in Action field** option:
Command table utility (option 3.9)

a. The first word must be input in uppercase.

b. If you use &ZPARM to obtain parameters from the command line, the parameters may be translated to uppercase (regardless of the setting of the Allow mixed-case in Action field option).

3. Optionally, type a brief description of the purpose of the command in the Description lines.

4. Press PF3 to return to the Command Table Editing panel.

Notes:
1. Do not use ACTIONS, CANCEL, CRETRIEV, CURSOR, EXIT, PRINT, PRINTG, PRINTH, PRINTL, PRINTLHI, RESIZE, RETF, RETP, RETRIEVE, SPLIT, SPLITV, SWAP, WINDOW, or WS as keywords in the Action column. These keywords are intended only for use in the system command table distributed with ISPF. They are not intended for use in application command tables.

2. Take care with ACTIONs that use ZPARM, as the ISPF parser will add a matching parenthesis if one appears to be missing. Consider an entry of "SELECT CMD(%CMD &ZPARM) NEWAPPL(ISR)". If "(XYZ" is passed then the command will receive "(XYZ) NEWAPPL(ISR)" as a parameter.

The valid actions are:

SELECT Causes the selected dialog (command, program, or selection panel) to be given control immediately. See z/OS ISPF Dialog Developer's Guide and Reference for more information about the SELECT statement and its keywords.

ALIAS Allows one command verb to carry out the action defined for another. For example, in Figure 120 on page 197 QUIT is an alias for END. Therefore, for the TST application used as the example in the figure, entering QUIT causes the same action to occur as entering END.

An ALIAS command must be defined before the command for which it is an ALIAS.

PASSTHRU Causes the command to be passed through to the dialog as if it had not been found in the command table.

SETVERB Causes the command to be passed through to the dialog, with the command verb stored separately from the operands.

NOP Causes the command to be inoperative. An inactive command message is displayed.

Blank Causes the command table entry to be ignored. ISPF continues to search for additional entries for the same command verb. If the command is not found in either the application command table or the system command table, an invalid command message is displayed.

xxxxx A variable name, beginning with an ampersand (&), allows dynamic specification of the command action.

DESCRIPTION An optional, brief description of the action the command verb is to perform. Since this column is offset three spaces under the Action column, the description length must not
be greater than 80 characters. The content of this column is assigned to the ZCTDESC system variable.

For a new table, this panel initially contains dummy entries with all fields shown as underscores. The underscores are pad characters and need not be blanked out. However, any null entries where at least the verb contains all underscores are automatically deleted when the table is saved.

**Scrolling a command table**
You can scroll the table entries, using the ISPF UP and DOWN scroll commands, and change one or more entries simply by typing over them.

**Saving a command table**
The END command causes the table to be saved in the table output library, ISPTABL, and ends the utility.

**Canceling a command table**
The CANCEL command ends the command table display without saving the table.

**Using command table line commands**
The line commands you can enter at the left of any entry (by typing over the four quotation marks) are described in these topics:

- “D — deleting lines”
- “E — editing lines”
- “I — inserting lines” on page 200
- “R — repeating lines” on page 200
- “V — viewing lines” on page 200

Multiple line commands or changes can be entered in a single interaction. Line commands followed by a number, such as D3, are repeated that number of times. The lines are processed in the order in which they appear on the screen. Any line commands or changes that are entered concurrently with the END command are processed before the table is saved.

**D — deleting lines**
The D command deletes one or \( n \) lines

```
 Syntax

```

**E — editing lines**
The E command displays the Extended Command Entry panel (ISPUCEMX) where you can edit the action and description fields for a line.

```
 Syntax

```
**I — inserting lines**
The I command inserts one or \( n \) lines.

```
Syntax
I \[ 1 \] \[ n \]
```

The inserted lines contain underscores (pad characters) in all field positions.

**R — repeating lines**
The R command repeats a line one or \( n \) times. The repeated lines contain underscores (pad characters) in the Verb and T (truncation) fields, but the Action and Description fields are copied from the line on which the R command was entered.

```
Syntax
R \[ 1 \] \[ n \]
```

**V — viewing lines**
The V command views one or \( n \) lines. You can look at the entire command entry including the command action and description fields, but you cannot change them.

```
Syntax
V \[ 1 \] \[ n \]
```

---

**Format specifications utility (option 3.11)**

The Format Specifications utility (option 3.11) is provided to support the IBM 5550 terminal using the Double-Byte Character Set (DBCS). It is used to maintain formats that are used when viewing, browsing, and editing to display data sets that contain predefined formatted records.

The purpose of a format is to structure data from a record into fields, and to define the order these fields are to be physically displayed on the screen when you are viewing, browsing, and editing.

When you select this option, a panel is displayed that allows you to add, copy, delete, or update a format. You can also display the format list.
Format specifications utility (option 3.11)

Format Specifications panel action bar
The Format Specifications panel action bar choices function as follows:

**Menu**
- Add a new format
- Copy formats
- Delete a format
- Update format
- Display format list

**Utilities**
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**Help**
The Help pull-down introduces formats and provides information about how to add, copy, delete, update, and display formats.

Format Specifications panel fields
The fields on this panel are:

**Format Name**
The name of the format that you want to add, delete, or update. When copying a format (option C), this is the name you want the copied format stored under.

**From Format**
When copying a format (option C), you can:
- Enter the name of a format you want to copy
- Enter an asterisk (*) to copy all formats
- Leave the field blank to display a copy format selection list.

See Figure 123 on page 204 for an example of a Copy Format Selection List display.

**From Table**
When copying a format (option C), you can:
- Enter the name of a table from which you want to copy a format

Note: The Format Utility is provided for support of the IBM 5550 terminal.
Format specifications utility (option 3.11)

- Leave the field blank if you want to copy a format from the ISRFORM table.

Note: The ISRFORM table is the default location in which all of your user-defined formats are stored. If you have not yet defined any formats, this table will be empty.

Format Specifications panel options
These topics describe the options shown at the top of the Format Specifications panel:
- “A — add a new format”
- “C — copy formats” on page 203
- “D — delete a format” on page 204
- “U — update a format” on page 204
- “L or BLANK — display format list” on page 204

A — add a new format
If you specify option A and a format name, the Format Definition panel (Figure 122) is displayed.

<table>
<thead>
<tr>
<th>Field Number</th>
<th>Start Column</th>
<th>Field Length</th>
<th>Field Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>00000</td>
<td>00</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>00000</td>
<td>00</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>00000</td>
<td>00</td>
<td>M</td>
</tr>
</tbody>
</table>

Format Definition (FORM01)

Field Number: Identifies the field position on the screen.
Start Column: From 1 to 32760; Specifies column position in the record.
Field Length: From 1 to 71; Fields must not overlap.
Field Type: E - single-byte, D - double-byte, M - mixed data

Enter the END command to exit and save the format.
Command ===>
F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel

Figure 122. Format Definition panel (ISRFM02)

A field definition includes:

Field Number The number of the field for which you are defining a format. You can define up to 20 fields.

Start Column Starting column position in the record.

Field Length Field length in bytes; the maximum is 71 bytes.

Field Type The type of data that can be entered in the field. Valid types are:
E EBCDIC (single-byte)
D DBCS (double-byte)
M Mixed data
Note: All three of these field types can contain extended graphics characters. CAPS ON processing is not possible because of context dependencies. Therefore, it is ignored when you are editing formatted data.

The format definition information applies to both existing records and inserted records in a data set.

Note: It is recommended that you avoid using STD or COBOL formats with numbered data. The results can be different from using formats with unnumbered data. If you must use numbered data, do not define the columns the sequence numbers will appear in, or define an EBCDIC or mixed data field for them.

C — copy formats
If you specify option C on the Format Specifications panel:

- If you specify both an asterisk (*) in the From Format field and a table name other than ISRFORM in the From Table field, all formats stored in the “From” table are copied to ISRFORM.

Note: If you specify a table name in the From Table field, and that table does not have the same format as ISRFORM, a severe error occurs.

- If you specify both a format name and a “From” format, the format is copied. If you specified a “From” table (other than ISRFORM), the format is copied from that table. Otherwise, the format is copied from ISRFORM. The Format Definition panel for the newly created format, containing the currently defined fields, is displayed. You can add, delete, and update field definitions. When you enter the END command, the format definition is stored in ISRFORM under the format name you specified.

- If you specify a format name but no “From” format, the Copy Format Selection List panel is displayed. If you did not specify a “From” table, the formats listed are those stored in ISRFORM, the default format table. Otherwise, the formats listed are those stored in the table you specified.

Note: The ISRFORM table is the default location in which all of your user-defined formats are stored. If you have not yet defined any formats, the table will be empty and you will receive a "No formats found" message.

You can select a format to copy by entering the S line command to the left of that format name. Other commands you can enter are U (Update), R (Rename), D (Delete), SELECT (which is similar to S), SORT, and LOCATE. See "Format selection list commands" on page 204 for a description of these commands.

The format is copied, and the Format Definition panel for the newly created format, containing the currently defined fields, is displayed. You can add, delete, and update field definitions. When you enter the END command, the format definition is stored in ISRFORM under the format name you specified on the Format Specifications panel.

- If you specify neither a format name nor a “From” format, but you do specify a “From” table (other than ISRFORM), the Copy Format Selection List panel is displayed. You can select one or more formats to copy by entering the S line command to the left of each format names. Each of these formats is copied under the same name from the specified “From” table to the ISRFORM table.
Note: If you do not specify option C but specify a name in the From Format field, the From Format field is ignored.

D — delete a format
If you specify option D and a format name on the Format Specifications panel, the format is deleted.

U — update a format
If you specify option U and a format name on the Format Specification panel, the Format Definition panel containing the currently defined fields is displayed. You can add, delete, and update field definitions.

L or BLANK — display format list
If you specify option L or leave the Option line blank on the Format Specifications panel, the Format Selection List panel (Figure 124) is displayed.

Format selection list commands
These topics describe the commands you can use on a Format Selection List panel:

- "Locating format names" on page 205
Renaming a format
If you specify the R line command beside a format name, you must also specify its new name in the Rename field before you press Enter. If you do not, the Enter required field message appears in the upper-right corner of the screen and the cursor moves to the Rename field.

Sorting format names
You can sort the name list on this panel by entering the SORT command on the Command line. The syntax of the SORT command is:

```
Syntax

   SORT
   | NAME
   | TIME
```

where:

- **NAME** Sort by name.
- **TIME** Sort by time last modified.

For example, this command would sort a format selection list by time:

```
SORT TIME
```
Format specifications utility (option 3.11)

Updating or selecting a format

If you specify the U or S line command beside a format name, the Format
Definition panel containing the currently defined fields is displayed. You can add,
delete, and update field definitions.

You can specify that multiple operations be done at the same time. However, if
you specify U or S with other line commands, any commands after the first U or S
are ignored.

The SELECT command provides you with another way to specify a format. This
command is entered on the Command line.

The syntax of the SELECT command is:

```
Syntax

SELECT name
```

where:

name  The name of the format you want to select.

If the format exists, the Format Definition panel containing the currently defined
fields is displayed. You can add, delete, and update field definitions.

If no format exists for that name, a new format is created, and the Format
Definition panel is displayed to allow you to define fields.

SuperC utility (option 3.12)

Note: For an introduction to the SuperC and SuperCE utilities (options 3.12 and
3.13), see Appendix A, “SuperC reference.”

The SuperC utility (option 3.12) is a dialog that uses the SuperC program to
compare data sets of unlimited size and record length at the file, line, word, or
byte level. The panel shown in Figure 125 on page 207 is used to specify the name
of a new data set.

Note: In this context, a new data set is an updated version of a previously created
data set, such as a data set in your private library that has been modified
but has not yet been promoted.
This panel requires only the names of the input data sets and a foreground or batch mode setting.

**Note:** For DBCS searches and compares to function properly, ISPF must be invoked with the JAPANESE keyword, on a terminal that supports DBCS, and the MIXED process option must be supplied to SuperC.

### SuperC Compare Utility panel action bar

The SuperC Utility panel action bar choices function as follows:

**Menu**
For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**RefList**
For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User’s Guide Vol I.

**Utilities**
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**Help**
The Help pull-down provides general information about SuperC topics, as well as information about specifying the data sets and options and interpreting listings.

### SuperC Compare Utility panel fields

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except:

**Profile DSN**
The name of an optional data set that can contain a compare type, listing type, sequence numbers setting, Browse setting, process options, and
process statements. All these elements, when combined in one data set or
member, are called a profile. See "Profiles and defaults - activate profiles
and defaults" on page 225 for information about using the SuperCE utility
(option 3.13) to create a profile data set.

The listing type and sequence numbers setting of the profile are copied
onto the panel used to specify the old data set name (Figure 126 on page
209), but can be typed over or blanked out. However, other elements of the
profile are in effect, even though they are not shown on the panel.

Mixed Mode
Select this field to have SuperC scan and parse the input data set lines for
DBCS text strings.

Note: Mixed Mode is not valid for the File or Byte compare.

Bypass Selection List
When a member pattern is entered in the PDS Member List field or the
member name portion of the data set field (such as
MY.DATA.SET(pattern)), selecting this field causes SuperC to process all
members matching that pattern without displaying a member selection list.
Leaving this field blank causes the member list to be displayed.

Execution Mode
The processing mode you want to use when comparing the data sets.
Choose one of these:

1 Foreground. After the old data set panel and member selection, if
any, are completed, foreground mode compares the new and old
data sets and stores the results in the data set specified in the
Listing DS Name field, which you can browse at the terminal.

2 Batch. After the old data set panel and the member list, if any, are
completed, batch mode causes the display of the SuperC Utility -
Submit Batch Jobs panel, so you can specify job card and print
disposition information or edit the JCL. Then, the batch job is
submitted to compare the new and old data sets. See "Submitting a
SuperC job in batch mode" on page 213 for more information.

Note: You cannot specify a data set password in batch mode. If
your data sets are password protected, use foreground
mode.

Output Mode
The output mode you want to use when displaying the listing file. Choose
one of these:

1 View. This enables the listing file to be displayed in view mode. All
View functions are enabled in this mode.

2 Browse. This enables the listing file to be displayed in the browse
mode. All Browse functions are enabled in this mode.
Also, if you request a member list or specify an asterisk (*) in the Member field on
the new data set panel, ISPF does not display a Member field on the old data set
panel.

**Note:** In this context, an *old* data set is a base version of a data set, such as a data
set in a production library.

SuperC utility (option 3.12)

Specify "Old" Data Set to be compared, then press the ENTER key to compare to
"New" data set . . : MYPROJ.DEV.SOURCE

More: +

- Project . . MYPROJ
- Group . . TEST
- Type . . SOURCE
- Member . .

"Old" other Partitioned, Sequential or VSAM Data Set:
- Data Set Name . .
- Volume Serial . . (If not cataloged)

Listing DS Name . . SUPERC.LIST


Command ==> F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

Figure 126. SuperC Utility - Old Data Set panel (ISRSSOLD)

Specify the name of an old data set. The type of old data set that you can specify
depends on the type of new data set you specified on the previous panel. For
example, you can compare:
- A complete new PDS to a complete old PDS
- A new sequential data set to:
  - An old sequential data set
  - An old membered PDS
- A new membered PDS to an old sequential data set.

In this context, the term *membered PDS* refers to a PDS for which a single member
has been specified, such as:

'USERID.TEST.SCRIPT(NEDATA)'

SuperC treats a membered PDS as a sequential data set because the comparison is
done on a one-to-one basis. However, SuperC cannot compare a sequential data set
to a complete PDS because it cannot compare one data set to more than one
member of another data set.

When you press Enter, ISPF either displays a member selection list or begins the
comparison. All the fields on this panel are explained in the “ISPF Libraries and
Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except:

**Update DS Name**

Tells SuperC the name of the data set that will contain column-oriented
results of the comparison.
**SuperC utility (option 3.12)**

**Note:** This field is not displayed unless your profile data set contains an update (UPDxxxx) process option.

This data set is normally used as input to post processing programs and can be specified in addition to the normal listing data set. See the Process Options selection in “Process options - select process options” on page 223 for information about the SuperC process options.

If you leave this field blank, SuperC uses this default name:

```
prefix.userid.SUPERC.UPDATE
```

where *prefix* is your TSO prefix and *userid* is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

**Note:** If the ISPF configuration table field

```
USE_ADDITIONAL_QUAL_FOR PDF_DATA_SETS
```

is set to YES, an additional qualifier defined with the

```
ISPF_TEMPORARY_DATA_SET_QUALIFIER
```

field is included before the SUPERC qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.

If you enter the name of a data set that already exists, the contents of that data set are replaced by the new update output.

If you enter the name of a data set that does not exist, SuperC allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a partitioned data set.

**Note:** For the UPDMVS8, UPDCMS8, UPDSEQ0, and UPDPDEL process options, the update data set contains valid data but only after a successful compare when differences are detected. The data set is always empty after a comparison that shows the data sets or members being compared have no differences.

**Listing Type**

The type of listing you want SuperC to create when it compares the data sets. This is a required field, so you must choose one of the listing types shown here. See Appendix B, “Understanding the listings” for sample listings.

- **DELTA** Lists the differences between the source data sets, followed by the overall summary.
- **CHNG** Lists the differences between the source data sets, plus up to 10 matching lines before and after the differences. This listing is a variation of the DELTA listing; the matching lines before and after help you recognize changed areas of the source data sets.
- **LONG** Lists all the new data set source lines, plus old data set deleted lines. Both inserted and deleted lines are flagged.
- **OVSUM** Lists only the overall summary of the comparison.
However, a PDS comparison generates an individual summary line for each PDS member.

**NOLIST**

Produces no listing output. In foreground mode, only a message is returned to show the outcome of the compare.

**Listing DS Name**

The name of the list data set to which SuperC writes the results of the comparison. However, if you enter NOLIST in the Listing Type field, SuperC does not create an output listing, so this name is ignored. Also, if you chose batch mode, this field does not appear on the panel. The SuperC Utility - Submit Batch Jobs panel is used instead.

If you leave this field blank, SuperC allocates a list data set, using default data set attributes and this data set name:

\[ \text{prefix.userid.SUPERC.LIST} \]

where `prefix` is your TSO prefix and `userid` is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

**Note:** If the ISPF configuration table field `USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS` is set to YES, an additional qualifier defined with the `ISPF_TEMPORARY_DATA_SET_QUALIFIER` field is included before the `SUPERC` qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.

If you enter the name of a data set that already exists, the contents of that data set are replaced by the new output listing. However, if the data set is sequential, you can add this listing to the data set instead of replacing it by including the APNDLST process option in your profile data set.

If you enter the name of a data set that does not exist, SuperC allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a partitioned data set.

**Sequence Numbers**

A value that tells SuperC whether to exclude sequence number fields from its comparison of your data sets. This field is not displayed if the compare type is FILE or BYTE. You can choose one of these:

**blank**

Exclude Sequence Number fields from the comparison if the data set is F 80 or V 255 and the compare type is Line

Otherwise, treat as data.

**SEQ**

Exclude Sequence Number fields from the comparison. Sequence numbers are assumed in columns 73-80 in F 80 and in columns 1-8 in V 255 data sets.

**NOSEQ**

Treat F 80/V 255 standard sequence number columns as data.
SuperC utility (option 3.12)

COBOL _ignore columns 1-6 in F 80 data sets. Data in columns 1-6 is assumed to be sequence numbers.

SuperC member lists

The panel shown in Figure 127 is displayed after you specify the old data set name, but only if all these statements are true:

- The new data set is partitioned.
- The Member field, shown on the SuperC Utility panel (see Figure 125 on page 207), or the PDS Member List field, shown on the SuperCE Utility panel (see Figure 130 on page 217) was left blank or a pattern was used, and Bypass Selection List was not selected. For more information on Displaying Member Lists, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.
- The profile data set or statements data set being used does not contain any SELECT process statements.

The members displayed in this list are members in the new data set. If the OLDMEM column is blank, SuperC assumes each member in the new data set is to be compared with a member of the same name in the old data set.

If you enter a member name in the OLDMEM column, SuperC compares this member to the one listed beside it in the NEWMEM column.

To compare your selections, enter the END command. If you have not selected any members, ISPF returns you to the previous panel.

To cancel your selections, enter either:
- The RESET command to remove all unprocessed selections without ending the member list display.
• The CANCEL command to end the member list display without processing
selections that are still on the screen.

Note: Both the jump function (=) and the RETURN command cause an implied
cancellation of selections before they are carried out.

For more information about member lists, see the Using Member Selection Lists
section of the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide
Vol I.

Submitting a SuperC job in batch mode

If you selected Batch Mode (2) on the SuperC Utility panel, the panel shown in
Figure 128 is displayed before the job is submitted. This panel allows you to
specify one of these:

• The SYSOUT class, which determines the printer to which your job is sent and
the format used for the printed output.

• The name of a listing data set.

• Output data definitions that you can use to give the printer additional
instructions, such as an output destination that is not defined by a SYSOUT
class.

The “Job statement information” field is explained in the Job Statement
Information section of the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF
User’s Guide Vol I. The other fields on the panel shown in Figure 128 are:

SYSOUT class

A system output classification defined by your installation, which defines
certain print characteristics, such as the printer and the format that is used
to produce the output. You can enter any valid SYSOUT parameters. This
field is required if you leave the Option field blank.
SuperC utility (option 3.12)

If you enter either option 1 or option 2, the “SYSOUT class” field is ignored. However, for option 2, you can include the SYSOUT= operand in an OUTDD DD field.

Data Set Name
The name of the listing data set that you want ISPF to store your compare results in. This data set can be either partitioned or sequential.

The Data Set Name field is required if you use option 1 on this panel. This field serves the same purpose as the Listing DS Name field, which is used when running the SuperC utility in foreground mode.

The logical record length (LRECL) of the listing data set is displayed under the blank OUTDD lines on the SuperC Utility - Submit Batch Jobs panel. SuperC creates listings with one of four LRECLs:

- 132 Standard listing for the NOPRTCC process option; printer control characters are omitted.
- 133 Standard listing.
- 202 Wide listing for the NOPRTCC process option; printer control characters are omitted.
- 203 Wide listing.

If you specify an existing sequential data set with an incorrect LRECL, SuperC overrides the data set specifications. This applies to any listing and update data sets in both foreground and batch.

A separate operation, such as using the Hardcopy utility (option 3.6), is needed to print the listing data set.

If you leave the Option field blank or enter option 2, the Data Set Name field is ignored. Therefore, to specify an output data set in either of these two situations, you must include the DSN= operand in an OUTDD DD field.

Specifying Existing Data Sets
These rules apply when specifying the name of an existing data set:

- When you submit JCL for processing, the output listing produced by that JCL usually replaces the contents of the specified data set, if any exist. Therefore, be careful when specifying the name of an existing data set.

You can keep a history of changes by using the APNDLST compare option when you run the comparison. This compare option adds the new output listing to the contents of the specified sequential data set instead of replacing it.

Note: Using the APNDLST process option with a packed output listing file may cause unpredictable results in the output listing file.

- Use standard TSO data set naming conventions.

Specifying Nonexistent Data Sets
These rules apply when specifying the name of a data set that does not exist:

- If you include a member name in the data set specification, ISPF allocates a partitioned data set with suitable attributes for the listing.
- If you do not specify a member name, ISPF allocates a sequential data set.
//OUTDD DD
Output data definitions that are used to specify additional printer instructions in job control language (JCL). This field is required if you use this panel. Otherwise, it is ignored.

The OUTDD DD fields are provided so you can pass to your printer all the JCL needed to format special types of output that may not be supported by your installation’s SYSOUT class definitions. The example shown in Figure 128 on page 213 specifies a wide format for printing on 14 3/4-inch forms.

The “SYSOUT class” and Data Set Name fields are ignored. If you need to specify this information, be sure to include it in your OUTDD DD job card. If you specify a data set name in your OUTDD DD job card, the output data set is printed and kept. Otherwise, it is printed and deleted. Here are some examples:

• To specify a SYSOUT class, enter:
  //OUTDD DD SYSOUT=X
  where X is the SYSOUT class, such as A, B, or C.

• To specify a data set name, enter:
  //OUTDD DD DSN=fully.qualified.name
  // DISP=XXXXX...
  where XXXX... is one of these:
  – For an old data set:
    OLD
  – For a new sequential data set:
    (NEW,CATLG),SPACE=(3325,(50,100),RLSE),UNIT=SYSDA
  – For a new partitioned data set
    (NEW,CATLG),SPACE=(3325,(50,100,25)),UNIT=SYSDA
  – For a sequential data set that will be modified by, instead of replaced by, the comparison results:
    MOD

Note: These three fields are independent of one another. Also, none of them requires you to provide an OUTDD card in the “Job statement information” field.

Using the NOLIST listing type in batch mode

If you enter the NOLIST listing type and choose batch mode, the options on the SuperC Utility - Submit Batch Jobs panel shown in Figure 128 on page 213 are not valid because no listing is produced. Therefore, an alternate panel is displayed, which blanks out the fields that are not valid but still allows you to submit job statement JCL. This panel is shown in Figure 129 on page 216.
SuperC utility (option 3.12)

When this panel is displayed, you can either:
- Type the job statement JCL and press Enter to submit the job
- Enter the END command to cancel the job.

SuperCE utility (option 3.13)

The SuperCE utility (option 3.13) is a dialog that uses the SuperC program to compare data sets of unlimited size and record length at the file, line, word, or byte level. It is appropriate if you need more flexibility than the standard SuperC utility (option 3.12) provides.

**Note:** For an introduction to the SuperC and SuperCE utilities (options 3.12 and 3.13), see [Appendix A, “SuperC reference,” on page 455](#).

The panel shown in [Figure 130 on page 217](#) is the first panel of the SuperCE utility. It requires only the names of the input data sets, which are entered using standard TSO naming conventions, such as:

New DS Name .... 'USERID.TEST2.SCRIPT'

**Note:** In this context, a *new* data set is an updated version of a previously created data set, such as a data set in your private library that has not yet been promoted.
SuperCE utility (option 3.13)

SuperCE Utility panel action bar

The SuperCE Utility panel action bar choices function as follows:

**Menu**
For more information, see the details about the **Menu Action Bar Choice** in the ISPF User Interface topic in the [z/OS ISPF User’s Guide Vol I](#).

**Utilities**
For more information, see the details about the **Utilities Action Bar Choice** in the ISPF User Interface topic in the [z/OS ISPF User’s Guide Vol I](#).

**Options**
The Options pull-down offers you these choices:
1. Edit Statements
2. Process Options
3. Profiles and Defaults

**Help**
The Help pull-down provides general information about SuperCE topics, including how to specify the input data sets and options.

SuperCE Utility panel fields

A default compare type, listing type, listing data set name, and Browse option are provided if you choose not to specify your own. The fields on the SuperCE Utility panel are:

**New DS Name and Old DS Name**
Specify the name of a sequential data set, PDS, or membered PDS. Use standard TSO naming conventions, including quotes for fully qualified names. Leave either or both of these fields blank to display a panel on which you can specify concatenated, uncataloged, and password-protected
SuperCE utility (option 3.13)

data sets. These panels are shown in Figure 131 on page 222 (foreground compare) and Figure 132 on page 223 (batch compare).

PDS Member List

Leave this field blank to display a member selection list for the new data set. Otherwise, enter either a pattern or an asterisk (*). See “SuperC member lists” on page 212 for more information.

**Pattern**

Entering a pattern causes ISPF to display a list of the members in the new data set that match the pattern, unless Bypass Selection List has been specified. For more information about using patterns, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I For example:

PDS Member List . . ISR*

* Entering an asterisk causes all the members in the new data set to be compared to any like-named members in the old data set. A member list is not displayed. For example:

PDS Member List . . *

Members in either data set not having like-named members in the other data set are not compared, but are listed in the output list data set.

When entire data sets are compared by using an asterisk for a member name pattern, each real member that appears in both the old and new data sets is compared once. Alias entries are processed but only to determine if they have matching alias and/or real entries.

**Note:** You can also use SELECT process statements in the statements data set to specify an optional set of PDS members to be searched. However, the SELECT statement turns off the PDS member list function.

**Compare Type**

The type of comparison you want SuperC to perform. Choose one of these:

**File**

Compares source data sets for differences, but does not show what the differences are. This is the simplest and fastest method with the least amount of processing overhead. For this compare type, SuperC prepares summary information only and causes all listing types to produce the same output, except NOLIST, which does not produce any output listing. A message is returned to notify you of the compare results.

**Line**

Compares source data sets for line differences. Reformatted lines (that is, lines with blanks inserted or deleted) are automatically detected for lines ≤ 256 characters. This compare type is the default. It is most useful for comparisons of program source code because it is record-oriented and points out inserted or deleted lines of code. Lines can be of unlimited size.

**Word**

Compares source data sets for word differences. In this context, a word is a group of characters that begins and ends with a blank or other line delimiter. If you use the XWDCMP process option, all non-alphanumeric characters are considered to be delimiters. Also, a word cannot be longer than 256 characters.
SuperCE utility (option 3.13)

The Word compare type is most useful for comparing text data sets. If two data sets contain the same words in the same order, SuperC considers them to be identical, even if those words are not on the same lines.

**Byte**
Compared source data sets for byte differences. The output listing data set consists of a hexadecimal printout with character equivalents listed on the right. A BYTE compare with a LONG listing of a data set against itself results in a hexadecimal dump of that data set. This compare type is most useful for comparing machine readable data.

**Listing Type**
The type of listing you want SuperC to create when it compares the data sets. Listing Type is not a required field in SuperCE. If you do not specify a listing type, the default is DELTA. See the topic about Listing Formats in the [z/OS ISPF User’s Guide Vol I](#) for sample listings.

- **OVSUM**
  Lists only the general summary of the comparison. However, a PDS comparison generates an individual summary line for each PDS member.

- **Delta**
  Lists the differences between the source data sets, followed by the general summary.

- **CHNG**
  Lists the differences between the source data sets, plus up to 10 matching lines before and after the differences. This listing is a variation of the DELTA listing; the matching lines before and after help you recognize changed areas of the source data sets.

- **Long**
  Lists all the new data set source lines, plus old data set deleted lines. Both inserted and deleted lines are flagged.

- **Nolist**
  Produces no listing output. In foreground mode, a message is returned to show the outcome of the comparison.

**Listing Dsn**
The name of the list data set to which SuperC writes the results of the comparison. However, if you enter NOLIST in the Listing Type field, SuperC does not create an output listing, so this name is ignored.

If you leave this field blank, SuperC allocates a list data set, using default data set attributes and this data set name:

```
prefix.userid.SUPERC.LIST
```

where `prefix` is your TSO prefix and `userid` is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

**Note:** If the ISPF configuration table field

```
USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS
```

is set to YES, an additional qualifier defined with the

```
ISPF_TEMPORARY_DATA_SET_QUALIFIER
```

keyword is included before the SUPERC qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.
SuperCE utility (option 3.13)

If you enter the name of a data set that already exists, the contents of that data set are replaced by the new output listing. However, if the data set is sequential, you can add this listing to the data set instead of replacing it by using the APNDLST process option.

If you enter the name of a data set that does not exist, SuperC allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a member of a partitioned data set.

Process Options
Keywords that tell SuperC how to process the compare operation. You can type these keywords in the Process Options fields or select them from a panel. See the Process Options selection in “Process options - select process options” on page 223 for a table of keywords.

Statements Dsn
The name of the data set that contains your process statements. All statements data sets must be fixed block with 80-byte records (FB 80). See the Edit Statements selection in “Process options - select process options” on page 223 for more information.

Update Dsn
Tells SuperC the name of the data set that will contain column-oriented results of the comparison. This data set is normally used as input to post processing programs and can be specified besides the normal listing data set.

If you leave this field blank and use an update (UPDxxxx) option, SuperC uses this default name:

```
prefix.userid.SUPERC.UPDATE
```

where `prefix` is your TSO prefix and `userid` is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

Note: If the ISPF configuration table field USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS is set to YES, an additional qualifier defined with the ISPF_TEMPORARY_DATA_SET_QUALIFIER field is included before the SUPERC qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.

If you enter the name of a data set that already exists, the contents of that data set are replaced by the new update output. However, if the data set is sequential, you can add this listing to the data set instead of replacing it by using the APNDUPD process option.

If you enter the name of a data set that does not exist, SuperC allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a partitioned data set.

Note: For the UPDMVS8, UPDCMS8, UPDSEQ0, and UPDPDEL process options, the update data set contains valid data, but only after a
Successful compare when differences are detected. The data set is always empty after a comparison that shows the data sets or members being compared have no differences.

**Display Output**
Tells ISPF whether you want to display the output listing in Browse mode. Enter one of these:

**Note:** The NOLIST listing type overrides Yes, No, and Cond.

**Yes**
Call Browse to display the listing data set after processing the comparison. This is the default.

**No**
Do not call Browse to display the SuperC listing data set.

**Cond**
Do not call Browse unless SuperC finds differences between the data sets.

**UPD**
Browse the update data set instead of the list data set. This parameter is not valid unless you create an update data set by using one or more of the SuperC process options that begin with UPD (UPDxxxx).

**Bypass Selection List**
When a member pattern is entered in the PDS Member List field, selecting this field causes SuperC to process all members matching that pattern without displaying a member selection list. Leaving this field blank causes the member list to be displayed.

**Output Mode**
The output mode for displaying the listing file. Choose one of these:

1. **View**. This enables the listing file to be displayed in view mode. All View functions are enabled in this mode.

2. **Browse**. This enables the listing file to be displayed in the browse mode. All Browse functions are enabled in this mode.

**SuperCE utility options**
These topics describe the Execution Mode options shown on the SuperCE Utility panel:

- “Foreground compare data sets”
- “Batch submit batch data set compare” on page 222
- “Process options - select process options” on page 223
- “Edit statements - edit statements data set” on page 224
- “Profiles and defaults - activate profiles and defaults” on page 225

**Foreground compare data sets**
If you choose **Foreground**, SuperC processes the data sets in foreground mode, so you can browse the results of the compare. This choice locks your keyboard until SuperC processing is complete.

The panel shown in **Figure 131 on page 222** is displayed if you leave the Option field and the New DS Name or Old DS Name field blank on the SuperCE Utility panel.
For fields DS1 through DS4, both new and old, use normal TSO naming conventions. You can specify a series of concatenated data sets, an uncataloged or password-protected data set, or a cataloged data set.

Up to four data sets can be concatenated for both the new and old input data sets. Make sure the data sets are concatenated in the proper sequence, as follows:

1. If two or more sequential data sets are concatenated as one input data set, the data set attributes, such as block size, must be identical.
2. PDS concatenations must have the data set with the largest block size as the first in any concatenation.
3. The SuperCE dialog uses only the first occurrence of a member in the concatenated series of PDSs as source input for a compare. Any other occurrences of the member are ignored.

Other partitioned or sequential data sets, volume serials, and data set passwords are specified as on any other data entry panel. See the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for more information.

Note: The Password fields apply only to the other partitioned or sequential data sets. TSO prompts you if any concatenated data sets are password-protected. The Password field is only enabled in foreground mode.

**Batch submit batch data set compare**

Option B causes SuperC to process the data sets in batch mode. This choice frees the keyboard, allowing you to continue using ISPF while waiting for SuperC to compare the data sets. The output listing is sent to the destination specified on the SuperC Utility - Submit Batch Jobs panel (Figure 128 on page 213).

The panel shown in Figure 132 on page 223 is displayed if you select option B and leave the New DS Name or Old DS Name field blank on the SuperCE Utility.
SuperCE utility (option 3.13)

You can concatenate up to four data sets that have like attributes. For example, all must be either sequential or partitioned.

This panel is the same as the panel shown in Figure 131 on page 222, except the Password field is omitted. If your data sets are password protected, compare the data sets in foreground mode by leaving the Option field on the SuperCE Utility panel blank.

**Printing a SuperCE listing in batch mode:** If you selected option B on the SuperCE Utility panel, the panel shown in Figure 128 on page 213 is displayed before the job is submitted. This panel allows you to determine whether to print your SuperC listing or write it to a list data set.

**Process options - select process options**
The compare type that you select determines the available process options, which are listed in Table 15 on page 224.
To select one or more SuperCE process options, perform either of these actions:

- Type any nonblank character to the left of the process options you want to select. If move + or move - is shown, use the Backward and Forward keys to move through the panel. Press Enter when you have finished. This causes the options you chose to be displayed in the Process Options fields on the SuperCE Utility panel. If you select two options that cannot be chosen together, or if you enter an option name incorrectly, an error message is displayed.
- Use the CANCEL command to return to the SuperCE Utility panel without processing selections.

SuperC process options can affect how the input data is processed, and determine the format and content of the output listing data set. They can also help you save processing time by avoiding comments and blank lines. A separate group of options, called update data set options (UPDxxxx), allow you to create update data sets, examples of which are shown in Appendix C, “Update files,” on page 523.

All these options can be chosen from the XXXX Compare Process Options panels, where XXXX is the compare type (FILE, LINE, WORD, or BYTE) that you are using. The only exception is that the DPxxxx (do not process) options are not available from a selection panel when you are conducting a WORD comparison. However, you can type any of them in the Process Options field on the SuperCE Utility panel. Errors caused by mistyping process options are detected when you call the SuperCE utility.

For definitions of the SuperC process options, see “Process options” on page 459.

**Edit statements - edit statements data set**

A statements data set consists of process statements that contain instructions for the SuperC program. They are similar to the process options, but are composed of a keyword and one or more operands. See “Process options - select process options” on page 223 for information about SuperCE process options.
When you select the Edit Statements option from the SuperCE Utility Options pull-down menu, the SuperCE utility displays the statements data set you specified in the Statements Dsn field. This data set is always displayed in Edit mode, allowing you to add, change, or delete SuperC process statements as needed. Only one process statement can appear on each line of the statements data set.

The size of the Edit window depends on the number of lines your terminal can display. The sample panel shown in Figure 133 shows how the Edit window appears on a 24-line display. Examples of some common process statements are listed below the Edit window so you can easily compose the proper input line.

```
USERID.SUPERC.STMTS    Columns 00001 00072

Enter or change Process Statements in the EDIT window below:

****** ******************************** Top of Data ********************************

      
      
      
      

****** ******************************** Bottom of Data ********************************

Examples                        Explanation
CMPCOLM 5:60 75:90              Compare using two column compare ranges
LSTCOLM 25:90                   List columns 25:90 from input
DPLINE 'PAGE'                   Exclude line if "PAGE " found anywhere on line
SELECT MEM1,NMEM2:OMEM2         Compare MEM1 with MEM1 and NMEM2 with OMEM2
CMPLINE NTOP 'MACRO'            Start comparing after string found in new DSN
LNCT 66                         Set lines per page to 66

Others: CHNGV CMPBOFS CPMPCOLM CPMPCOLM CMPSECT DPLINEC NCHGT
Command ====> Scroll ====> PAGE
F1=Help  F2=Split  F3=Exit  F4=Rfind  F6=Rchange  F7=Up
F8=Down  F9=Swap  F10=Left  F11=Right  F12=Cancel

Figure 133. SuperC process statements panel (ISRSEPRS)

The SuperC program validates process statements at run time. Invalid process statements are not used and are noted at the bottom of the listing. Unless a higher return code is required by some other condition, a return code of 4 is generated.

See "Process statements” on page 469 for process statement syntax, definitions, and examples.

Profiles and defaults - activate profiles and defaults

A SuperC profile is a data set that can contain a compare type, a listing type, a Browse setting, and various combinations of process options and process statements that you select.

SuperC profiles are useful for a wide range of users. Beginners can use profiles created by others as a simple method of running SuperC. Experienced SuperC users can create profiles for the groups of options they use often so that they do not have to remember individual process options and statements. Also, profiles give system programmers a mechanism for setting up complex compare tools that others can simply call by profile name.

Some other characteristics of profiles are:
SuperCE utility (option 3.13)

- A profile can be either a sequential data set or a member of a PDS.
- Data set names are not represented in a profile.
- Profiles can be created only with the SuperCE utility (option 3.13). However, once they are created, they can be used in the standard SuperC utility (option 3.12).
- To change a profile, activate it and make the necessary changes to the information in the fields on the SuperCE Utility panel. Then select option C and create a profile, entering in the Activate/Create Profile DS Name field the name of the profile data set that you want to modify.
- You can modify the SuperC default settings by selecting the Defaults option on the Profile Manager screen. See Figure 136 on page 229 for an example of the SuperC - Defaults panel.
- You can display the contents of a profile data set using View, Browse, or Edit. Figure 134 shows a Browse display of a profile data set.

![Figure 134. Browse a SuperCE profile](image)

Selecting option A on the SuperCE Utility panel displays the panel shown in Figure 135. This panel is used to activate and create profiles.
The only field on this panel is:

**Activate/Create Profile DS Name**

The name of the profile data set that you want to either activate or create. This field is required.

If you choose option A (Activate), SuperCE copies the compare type, listing type, Browse setting, and any process options this data set contains. If the profile also contains process statements, SuperCE displays the name of the profile data set in the Statements Dsn field on the SuperCE Utility panel.

If you choose option C (Create), SuperCE copies the information that is saved into one output data set or member.

These topics describe the options shown at the top of the SuperCE - Profile Manager panel:

- "A — activate"
- "C — create"
- "D — defaults" on page 228

**A — activate:** Option A (Activate) restores the contents of the profile data set specified in the Activate/Create Profile DS Name field. This data set must be cataloged. When you press Enter, information that was stored in the profile data set when it was created is displayed in the corresponding fields on the SuperCE Utility panel. For example, process options stored in the profile appear in the Process Options fields. At this point, you can make additional changes or choose another option.

**C — create:** Option C (Create) causes SuperCE to copy data entered on the SuperCE Utility panel and place it in the profile data set specified in the Activate/Create Profile DS Name field. Be sure the correct information is displayed on that panel and that the statements data set, if you specify one, contains the correct process statements before you create the profile.
If the profile data set that you specify does not already exist, SuperCE allocates it for you. Data stored in the profile data set can include:

- These values taken from the fields on the SuperCE Utility panel. The abbreviations in parentheses show how these values are identified in a profile data set:
  - Compare type (CTYP)
  - Listing type (LTPY)
  - Browse setting (BRW)
  - Process options (PROC1 and PROC2).

- Process statements copied from the statements data set that was specified in the Statements Dsn field. This data set name is displayed and highlighted on the SuperCE - Profile Manager panel. For example, the sample panel shown in Figure 135 on page 227 displays the name SUPERC.STMTS.

If you leave the Statements Dsn field blank, the data set name and the words preceding it are not displayed on the SuperCE - Profile Manager panel and SuperCE does not include any process statements in your profile. See these topics about process options and process statements, respectively:
  - “Process options - select process options” on page 223
  - “Edit statements - edit statements data set” on page 224

D — defaults: Option D (Defaults) brings up an additional panel, shown in Figure 136 on page 229 that allows you to:

- Specify SuperC output data set default allocation parameters
  The first extent and secondary space values are used whenever Options 3.12, 3.13, or 3.14 create a new output data set such as a listing or statements data set. If you specify a new data set with a member name, the directory space value is used to create a PDS. If you blank out any of the values, SuperC will supply defaults.

Space values are applicable only if you select “Invoke SuperC via PROGRAM interface”.

Note: New data set allocation block size parameters are controlled by the PDF Configuration Table. See z/OS ISPF Planning and Customizing for details.

- Specify your own Statements data set initial edit macro name
- Enable or disable a new high performance program interface to SuperC. If you select “Invoke SuperC via PROGRAM interface”, ISPF invokes SuperC directly. Otherwise, ISPF invokes SuperC via a CLIST named ISRSFORG (ISRSSRCH for Search-For). The CLIST interface may be useful if you need to customize the allocations or wish to post-process the result. The PROGRAM interface is more efficient and is the default.
Search-For utility (option 3.14)

Note: For an introduction to the Search-For and Extended Search-For utilities (options 3.14 and 3.15), see Appendix A, “SuperC reference,” on page 455.

The Search-For utility (option 3.14) is a dialog that uses the SuperC program to search your data sets or PDS members for one or more character strings. The Search-For Utility panel, shown in Figure 137 on page 230 is the first panel of the Search-For utility. The only requirements for this panel are:

- A string to be searched for, unless you select “Specify additional search strings”
- A data set to search, along with a volume serial and password if necessary.

A default listing data set name is provided if you choose not to enter your own.
Search-For utility (option 3.14)

Search-For Utility panel action bar

The Search-For Utility panel action bar choices function as follows:

Menu
For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

RefList
For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User's Guide Vol I.

Utilities
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Help
The Help pull-down provides general information about Search-For topics, including how to specify the input data sets, search string, and options.

Search-For Utility panel fields

All the fields on this panel are explained in the Libraries and Data Sets topic in the z/OS ISPF User's Guide Vol I, except these:

Search String
A string to be searched for. No distinction is made between uppercase and lowercase characters. Use the Extended Search-For utility (option 3.15) to specify case-sensitive searches.
Search-For utility (option 3.14)

Four keywords—C, PREFIX, SUFFIX, and WORD—can help you narrow the scope of a search. See “Search-For strings and keywords” on page 233 for information about these keywords and the rules that govern search string entry.

Specify additional search strings
Select this field to have the Search-For utility search for more than one string. The Search-For utility displays the panel shown in Figure 138 on page 232 on which you can specify additional search strings. This panel precedes a member list request.

If you do not select this option, the Search-For utility searches only for the string entered in the Search String field.

Mixed Mode
Select this field to have the Search-For utility scan and parse the input data set lines for DBCS text strings.

Note: The Word, Prefix, and Suffix Search-For qualifiers have no effect on DBCS strings.

Bypass Selection List
When a member pattern is entered in the PDS Member List field or the member name portion of the data set field (such as MY.DATA.SET(pattern)), selecting this field causes SuperC to process all members matching that pattern without displaying a member selection list. Leaving this field blank causes the member list to be displayed.

Execution Mode
The processing mode you want to use when searching the data sets.
Specify one of these:
1 Foreground. Searches the data sets and stores the results in the data set specified in the Listing Data Set Name field. You can browse the listing data set at the terminal.

2 Batch. Causes the display of the Search-For Utility - Submit Batch Jobs panel so that you can specify job card and print disposition information or edit the JCL statements. Then, Search-For submits the batch job to search the data sets. See “Submitting a Search-For job in batch mode” on page 235 for more information.

Note: You cannot specify a data set password in batch mode. If your data sets are password protected, use foreground mode.

Output Mode
The output mode you want to use when displaying the listing file. Choose one of these:
1 View. This enables the listing file to be displayed in view mode. All View functions are enabled in this mode.

2 Browse. This enables the listing file to be displayed in the browse mode. All Browse functions are enabled in this mode.

Listing Data Set
The name of the listing data set to which the SuperC program writes the results of the search. If you leave this field blank, the Search-For utility allocates a listing data set, using default data set attributes and this data set name:
prefix.userid.SRCHFOR.LIST

where prefix is your TSO prefix and userid is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

Note: If the ISPF configuration table field USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS is set to YES, an additional qualifier defined with the ISPF_TEMPORARY_DATA_SET_QUALIFIER field is included before the SRCHFOR qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.

If you enter the name of a data set that does not exist, the Search-For utility allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a partitioned data set.

Specifying additional search strings

The panel shown in Figure 138 is displayed if you select “Specify additional search strings” on the Search-For Utility panel. You can specify:

• Additional strings to be searched for
• Optional scan-type and continuation keywords.

From this panel, pressing Enter either:

• Displays a member list, if requested
• Runs the search if no member list is needed.
Entering the END command returns you to the Search-For Utility panel.

**Search-For strings and keywords**

Enter the strings that you want SuperC to find. When you press Enter, SuperC looks for the strings without regard to whether they appear in uppercase or lowercase in the original data set. If you are searching a partitioned data set concatenation, SuperC will inform you (in the CONCAT# field in the listing) in which group it first found the string. If you want SuperC to search all the groups for each member, you can use the SDUPM process option of Extended Search-For (option 3.15). If you want the search to distinguish between uppercase and lowercase, you must use Extended Search-For (option 3.15). If any of the strings are found (string-1 OR string-2 OR string-3) on the line, SuperC considers the condition met. You can restrict SuperC searches further by using one of the SuperC Search-for keywords discussed in "Using keywords."

**Entering search strings**

Enclose the string in single quotation marks if it contains embedded blanks or apostrophes. Two consecutive apostrophes must be entered to specify a single apostrophe within a search string.

If you need to specify a DBCS string that contains a hexadecimal '7D' (x'7D', the hexadecimal representation of a single quotation mark) as half of a DBCS pair, you must use the Enhanced SearchFor option (option 3.15) with the MIXED process option.

This example searches for the string IT'S A LIVING.

```plaintext
==> 'IT'S A LIVING'
```

**Using keywords**

These keywords can help you narrow the range of the search. If you do not use a keyword, SuperC will find the string wherever it exists, even if that happens to be in the middle of a word.

- **PREFIX**  
  Shows the string is preceded by a non-alphanumeric character, such as a blank space. It cannot be used on the same line with SUFFIX or WORD. For example, you can do this:
  ```plaintext
  ==> ELSE PREFIX
  ==> ELSE SUFFIX
  ```
  
  but not this:
  ```plaintext
  ==> ELSE PREFIX SUFFIX
  ```

- **SUFFIX**  
  Shows the string is followed by a non-alphanumeric character. It cannot be used on the same line with PREFIX or WORD. See the examples under PREFIX.

- **WORD**  
  Shows the string is both preceded and followed by a non-alphanumeric character. It cannot be used on the same line as PREFIX or SUFFIX. See the examples under PREFIX.

- **C**  
  Continuation. Shows continuation of the previous line(s). Continuation lines generate additional strings, all of which must be found in the same line of an input data set.

  Also, the C keyword can be entered on the same line as one of the other keywords. This example tells SuperC to find ELSE and to also find IF, but only when IF is on the same line as ELSE.
Search-For utility (option 3.14)

Search-For member lists

A panel similar to the one shown in Figure 139 is displayed only if:

- The search data set is partitioned.
- The Member field on the Search-For Utility panel (Figure 137 on page 230) or the PDS Member List field on the Extended Search-For Utility panel (Figure 141 on page 236) was left blank or a pattern was used and Bypass Selection List was not selected. For more information on Displaying Member Lists, see the “ISPF Libraries and Data Sets chapter” of the
  z/OS ISPF User’s Guide Vol I
- For the Extended Search-For utility (option 3.15), the statements data set being used does not contain any SELECT process statements.

To start the search, enter the END command.

To cancel your selections, enter either:

- The RESET command to remove all unprocessed selections without ending the member list display.
- The CANCEL command to end the member list display without processing selections still on the screen.

Note: Both the jump function (=) and the RETURN command cause an implied cancellation of selections before they are carried out.

For more information about member lists, see the Using Member Selection Lists section of the “ISPF Libraries and Data Sets chapter” of the
  z/OS ISPF User’s Guide Vol I

---

Figure 139. Search member list panel (ISRSSLML)
Submitting a Search-For job in batch mode

If you selected Batch Mode (2) on the Search-For Utility panel, the panel shown in Figure 140 is displayed before the job is submitted.

This panel allows you to specify one of these Generate Output types:
- The SYSOUT class, which determines the printer to which your job is sent and the format used for the printed output
- The name of a listing data set
- Output data definitions that you can use to give the printer additional instructions, such as an output destination that is not defined by a SYSOUT class.

The Job Statement information field is explained in the details about Job Statement Information in the Libraries and Data Sets topic of the z/OS ISPF User’s Guide Vol I.

The other fields on this panel, as well as the options listed at the top of the panel, are described in “Submitting a SuperC job in batch mode” on page 213.

Search-ForE utility (option 3.15)

Note: For an introduction to the Search-For and Extended Search-For utilities, see Appendix A, “SuperC reference.”

If you select option 3.15, the Extended Search-For Utility panel, shown in Figure 141 on page 236 is displayed. This utility is a dialog that uses the SuperC program to search your data sets or PDS members for one or more character strings. It is appropriate if you need more flexibility than the standard Search-For utility (option 3.14) provides.
Search-ForE Utility panel action bar

The Search-ForE Utility panel action bar choices function as follows:

**Menu**

For more information, see the details about the Menu Action Bar Choice in the z/OS ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**Utilities**

For more information, see the details about the Utilities Action Bar Choice in the z/OS ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**Options**

1. Edit statements
2. Process options

**Help**

The Help pull-down provides general information about Extended Search-For topics, including how to specify data sets, search strings, process options and process statements.

Search-ForE Utility panel fields

The panel requires only the entry of character string(s). The fields on this panel are:

**Search DS Name**

Specify the name of a sequential data set, PDS, or membered PDS. Use standard TSO naming conventions, including quotes for fully qualified names. Leave this field blank to display a panel on which you can specify concatenated, uncataloged, and password-protected data sets. This panel is shown in [Figure 142 on page 239](#).
PDS Member List
Leave this field blank to display a list of all the members in the search data set. Otherwise, enter a pattern or an asterisk (*). See "Search-For member lists" on page 234 for more information.

Pattern
Entering a pattern causes ISPF to display a list of the members in the search data set that match the pattern unless Bypass Selection List was selected. See the topic about Displaying Member Lists in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for more information about using patterns. For example:

PDS Member List . . . ISR*

* Entering an asterisk causes all the members in the search data set to be searched.

You can also use SELECT process statements in the statements data set to specify an optional set of PDS members to be searched. However, the SELECT statement turns off the PDS member list function.

CAPS
A search string that you want the Extended Search-For utility to find. This search string is converted to uppercase before the search begins and is found only if it exists in the search data set in uppercase.

The ANYC process option causes the string to be found in any case, (uppercase, lowercase, or mixed case) even if you enter the string in the CAPS field.

You can enter up to three uppercase search strings, one in each CAPS field. Here are some examples:

Example 1
Either of these strings may be found in the search data set:

CAPS . . . THEN
CAPS . . . IF

Example 2
The two strings shown must be found on the same line because of the continuation (C) keyword. THEN must be a complete word, while ISR must be the prefix of a word.

CAPS . . . THEN WORD
CAPS . . . ISR PREFIX C

Example 3
In the next example, a hexadecimal string is specified as the search string. Use this to find unprintable characters.

CAPS . . . X'7B00'

Example 4
This example searches for the string JOE'S CLIST. Notice that the string is enclosed in single quotation marks and the apostrophe following Joe's name has been doubled.

CAPS . . . 'JOE'S CLIST'

ASIS
A search string that you want the Extended Search-For utility to find. This search string is searched for as it is when you enter it in the ASIS field. Therefore, the Extended Search-For utility does not
find the string unless it exists in the data set exactly as you enter it in an ASIS field. You can enter one search string in each ASIS field.

The examples following the CAPS field definition apply to the ASIS field as well.

See “Search-For strings and keywords” on page 233 for a list of rules that determine the format required for entering search strings and for definitions of the keywords that are shown in the examples.

The SRCHFOR and SRCHFORC process statements override any strings entered in the CAPS and ASIS fields.

Listing DS Name
The name of the list data set to which the Extended Search-For utility writes the listing information. If you leave this field blank, Extended Search-For allocates a list data set, using default data set attributes and this data set name:

prefix.userid.SRCHFOR.LIST

where prefix is your TSO prefix and userid is your user ID. If your prefix and user ID are identical, only your prefix is used. Also, if you do not have a prefix, only your user ID is used.

Note: If the ISPF configuration table field
USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS is set to YES, an additional qualifier defined with the ISPF_TEMPORARY_DATA_SET_QUALIFIER field is included before the SRCHFOR qualifier.

If you enter a fully qualified data set name SuperC uses it as specified. Otherwise, SuperC only appends your TSO prefix to the front of the data set name specified. If you run with TSO PROFILE NOPREFIX, SuperC uses the name as you entered it, which can result in an attempt to catalog the name in the master catalog.

If you enter the name of a data set that already exists, the contents of that data set are replaced by the new listing output. However, if the data set is sequential, you can add this listing to the data set instead of replacing it by using the APNDLST process option.

If you enter the name of a data set that does not exist, Search-For allocates it for you. The data set is allocated as a sequential data set unless you enter a member name after it, in which case it is allocated as a partitioned data set.

Process Options
Keywords that tell SuperC how to process the search-for operation. You can type these keywords in the Process Options field or select them from a panel. See “Process options” on page 459 for tables of keywords.

Bypass Selection List
When a member pattern is entered in the PDS Member List field, selecting this field causes SuperC to process all members matching that pattern without displaying a member selection list. Leaving this field blank causes the member list to be displayed.

Statements Dsn
The name of the data set that contains your search-for process statements, which you can create or change by using option E on the Extended
Search-For Utility panel. SuperC reads these process statements before conducting the search. All statements data sets must be fixed block with 80-byte records (FB 80).

Execution Mode

Foreground

If you choose option 1, Foreground, and you leave the Search DS Name field blank, the Extended Search-For - Concatenation Data Set Entry panel, shown in Figure 142, is displayed.

For fields DS1 through DS4, use normal TSO naming conventions. You can specify a series of concatenated data sets, an uncataloged or password-protected data set, or a cataloged data set name.

Up to four data sets can be concatenated. Make sure the data sets are concatenated in the proper sequence, as follows:

1. If two or more sequential data sets are concatenated as one input data set, the data set attributes, such as block size, must be identical.

2. PDS concatenations must have the data set with the largest block size as the first in any concatenation.

3. Search-For uses only the first occurrence of a member in the concatenated series of PDSs as source input for a search. Any other occurrences of the member are ignored. You may specify the SDUPM process option to cause SuperC to search for and report all occurrences of the string for the entire concatenated series of PDS members.

Other partitioned or sequential data sets, volume serials, and data set passwords are specified as on any other data entry panel. For more information, see the “ISPF Libraries and Data Sets chapter” in the z/OS ISPF User’s Guide Vol 1.
Search-ForE utility (option 3.15)

**Note:** The Password field applies only to the other partitioned or sequential data set. TSO prompts you if any concatenated data sets are password-protected.

**Batch** Option 2 causes SuperC to process the data sets in batch mode. This choice frees the keyboard, allowing you to continue using ISPF while waiting for SuperC to search the data sets. The output listing is sent to the destination specified on the Search-For Utility - Submit Batch jobs panel. [Figure 140 on page 235](#).

The panel shown in [Figure 143](#) is displayed if you select option 2 and leave the Search DS Name field blank on the Extended Search-For Utility panel. You can concatenate up to four data sets that have like attributes. For example, all must be either sequential or partitioned.

![Extended Search-For Concatenation Batch Entry](image)

This panel is the same as the panel shown in [Figure 142 on page 239](#), except the Password field is omitted. If your data sets are password-protected, search the data sets in foreground mode by leaving the Option field on the Extended Search-For Utility panel blank.

**Printing an Extended Search-For Listing in Batch Mode**

If you selected the Batch option on the Extended Search-For Utility panel, the panel shown in [Figure 140 on page 235](#) is displayed before the job is submitted. Use this panel to specify whether your Search-For listing is to be printed or written to a list data set.

**Output Mode**

The output mode you want to use when displaying the listing file. Choose one of these:

- **View** This enables the listing file to be displayed in `view` mode. All View functions are enabled in this mode.
Search-ForE utility (option 3.15)

Browse
This enables the listing file to be displayed in the browse mode. All Browse functions are enabled in this mode.

Select Search-For process options
Table 16 lists all of the process options for Search-For.

<table>
<thead>
<tr>
<th>ALLMEMS</th>
<th>ANYC</th>
<th>APNDLST</th>
<th>CKPACKL</th>
<th>COBOL</th>
<th>DPACMT</th>
<th>DPADCMT</th>
<th>DPBLKCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPCBCMT</td>
<td>DPCPCMT</td>
<td>DPFTCMT</td>
<td>DPMACMT</td>
<td>DPPLCM</td>
<td>DPSCMT</td>
<td>DPMFLCM</td>
<td>DPXCM</td>
</tr>
<tr>
<td>IDPFX</td>
<td>LMTO</td>
<td>LNFMTO</td>
<td>LONGLN</td>
<td>LPSF</td>
<td>LTO</td>
<td>MIXED</td>
<td>NOPRTCC</td>
</tr>
</tbody>
</table>

These rules govern the selection of Search-For process options:
- Type any nonblank character to the left of one or more process options. Then press Enter. This causes the options you specify to be displayed in the Process Options field on the Extended Search-For Utility panel. If you select two options that cannot be specified together, or if you enter an option name incorrectly, an error message is displayed. If more + or more -> is shown, use your Backward and Forward keys to move through the panel.
- Use the CANCEL command to return to the Extended Search-For Utility panel without processing selections.

Search-For process options can affect how the input data is processed, and determine the format and content of the output listing data set. They can also help you save processing time by avoiding comments and blank lines.

All these options except the DPxxxx (do not process) options can be chosen from the Search-For Process Options panel. However, you can type any of them in the Process Options field on the Extended Search-For Utility panel. Errors caused by mistyping process options are detected when you call the Extended Search-For utility.

For definitions of the Search-For process options, see "Process options” on page 459.

Edit Search-For statements data set
A statements data set consists of process statements that contain instructions for the SuperC program. They are similar to the process options, but are composed of a keyword and one or more operands. See "Select Search-For process options” for information about Search-For process options.

When you select 1 from the Options menu on the Extended Search-For Utility panel, the Extended Search-For utility displays the statements data set you specified in the Statements Dsn field. This data set is always displayed in Edit mode, allowing you to add, change, or delete search-for process statements as needed.

The size of the Edit window depends on the number of lines your terminal can display. The sample panel shown in Figure 144 on page 242 shows how the Edit window appears on a 24-line display. Examples of some common process statements are listed below the Edit window so you can easily compose the proper input line.
The SuperC program validates the process statements at run time. Invalid process statements are not used and are noted at the bottom of the listing. Unless a higher return code is required by some other condition, a return code of 4 is returned.

For the syntax and examples of the Search-For process statements, see "Process statements" on page 469.

---

**ISPF table utility (option 3.16)**

The ISPF Table Utility (Option 3.16) provides functions for processing ISPF tables. When you select this option, the ISPF Table Utility entry panel is displayed. This panel allows you to specify a table data set or DD, a table name, and an option to be performed.

The Edit and Browse functions allow you to view the data in the rows of an ISPF table in full-screen mode (that is, multiple rows are displayed on a screen). Line commands allow you to work with individual or multiple table rows. Primary commands are provided to support processing against the entire table, including changing the format of the displayed data. Table data can be scrolled in any direction (up, down, left, or right). All table column values are displayed in scrollable fields, allowing columns to be scrolled left or right, and individual column values to be expanded and displayed in a popup window. The values for any extension variables associated with a particular table row can be displayed.

The Edit function allows you to change the data in a table simply by overtyping the displayed value. Edit function line commands are available to insert new table rows, repeat rows, and delete rows. Extension variables for a table row can be created, modified, or deleted.

The Export function writes the data in an ISPF table to a sequential file so that it can be browsed or edited. You can customize the format of the data written to the sequential file.
ISPF table utility (option 3.16)

The Import function uses the data in a sequential file to either create a new ISPF table or replace an existing table. The data in the sequential file is required to be in a special format generated by the ISPF Table Utility Export function.

<table>
<thead>
<tr>
<th>Menu</th>
<th>RefList</th>
<th>Utilities</th>
<th>Options</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>blank</td>
<td>blank</td>
<td>blank</td>
<td>blank</td>
<td>blank</td>
</tr>
<tr>
<td>Display table list</td>
<td>Edit table</td>
<td>Browse table</td>
<td>Import table data</td>
<td>ISPF Table Utility</td>
</tr>
</tbody>
</table>

Option ==> ISPF Table Utility

blank Display table list E Edit table
B Browse table I Import table data

Enter one of the parameters below:
Table Data Set . . TBUTIL.TABLES (Default is ISPTLIB)
or Table DD . . . . . . .
Table Name . . . . . . (Blank or pattern for table selection list)
Import Data Set

Enter "/" to select option
- Open table in SHARE mode

F1=Help F3=Exit F12=Cancel F15=End F16=Return
F17=Rfind F18=Rchange F22=Left F23=Right F24=Retrieval

Figure 145. ISPF Table Utility panel (ISRUTBP0)

Table Utility panel action bar

The Table Utility Panel action bar choices function as follows:

Menu For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I

RefList For information about referral lists, see the topic about Using Personal Data Set Lists and Library Lists in the z/OS ISPF User’s Guide Vol I

Utilities For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I

Options The Options pull-down offers these choices:

1 Table Utilities Options
2 Export Report Options
3 Export Data Set Attributes

Help The Help pull-down provides general information about Table Utility topics as well as information about each of the main panels and options.

Table Utility panel fields

The fields on the ISPF Table Utility panel are:

Table Data Set
The name of the data set containing the table you wish to process.
**ISPF table utility (option 3.16)**

**Table DD**
The name of the DD allocated to your ISPF session which contains the table you wish to process.

The default is the ISPTLIB DD if you do not enter data for either the Table Data Set or Table DD. If you enter data in both the Table Data Set and Table DD fields, the Table Data Set takes precedence.

**Table Name**
The name of the table you wish to process.

If you leave this field blank or supply a pattern the table selection list will be displayed showing the matching tables in the table data set or DD.

**Import Data Set**
The name of the sequential data set containing the data used to create or replace a table through the Import function.

**Open table in SHARE mode**
Select this option if the table you choose to process is already open on another logical screen, or if you might need to share the table with another logical screen.

**Table utility entry panel options**
These are the options shown on the ISPF Table Utility entry panel:

**Blank - (Display Table List)**
If you leave the Option field blank, a list of tables for the Table Data Set or Table DD is displayed when the Table Name is either blank or contains a pattern. If a valid Table Name is entered, the table list is bypassed and the Edit/Browse panel is displayed.

**B - (Browse Table)**
If a valid Table Name for the Table Data Set or Table DD is entered, the Browse Table panel is displayed. If the Table Name is either blank or contains a pattern, the table list is displayed allowing you to select the table to be browsed.

**E - (Edit Table)**
If a valid Table Name for the Table Data Set or Table DD is entered, the Edit Table Display panel is displayed. If the Table Name is either blank or contains a pattern, the table list is displayed allowing you to select the table to be edited.

**I - (Import Table Data)**
The Import function uses data from a sequential data set to create a new ISPF table or update an existing ISPF table. You must supply a Table Data Set and Table Name for the new or updated table. The sequential data set containing the data that will be used to create or update the table must be specified in the Import Data Set field.

**Table data set selection list**
This selection list is displayed when you enter a table data set name and either no table name or a table name pattern on the table utility entry panel.
If no table name is supplied, all members in the table data set are shown in the selection list. If a table name pattern is supplied, all members in the table data set that have a name matching the pattern are shown in the selection list.

These line commands are available on the table data set selection list panel:

E  The Edit line command displays the EDIT table panel. It is available if you did not enter an option on the table utility entry panel.

B  The Browse line command displays the BROWSE table panel. It is available if you did not enter an option on the table utility entry panel.

S  When you use the Select line command against a table, either the BROWSE table or EDIT table panel is displayed:
   • BROWSE table is displayed if you entered option B on the entry panel.
   • EDIT table is displayed if you entered option E on the entry panel.
   • If you did not enter option B or E on the entry panel, the panel is determined by how the option “Use EDIT as default to process selected table” is set. To set this option, select Table Utility Options panel from the Options pull-down.

These primary commands are available on the table data set selection list panel:

L string  The Locate command scrolls the selection list and positions at the top of the display the entry which either matches or precedes (in alphabetic sequence) the value of string.

S tblname  The Select command searches the selection list for an entry that matches tblname. If a matching entry is found the table is displayed in either the BROWSE table or EDIT table panel, following the same rules as for the Select line command.

E tblname  The Edit command is available if you did not enter an option on the table utility entry panel. The selection list is searched for an entry that matches tblname. If a matching entry is found the EDIT table panel is displayed.

B tblname  The Browse command is available if you did not enter an option...
ISPF table utility (option 3.16)

on the table utility entry panel. The selection list is searched for an
entry that matches tblname. If a matching entry is found the
BROWSE table panel is displayed.

Table DD selection list

This selection list is displayed when you enter a table DD and either no table name
or a table name pattern on the table utility entry panel.

If no table name was supplied, all members in the data sets allocated to the table
DD are shown in the selection list. If a table name pattern was supplied, all
members in the data sets allocated to the table DD which have a name matching
the pattern are shown in the selection list.

The table DD selection list is sorted in member name order. Along with the
member name, the selection list displays the name of the table data set where the
member was found, and the concatenation number for that data set within the
table DD.

These line commands are available on the table DD selection list panel:

E   The Edit line command displays the EDIT table panel. It is available if you
did not enter an option on the table utility entry panel.

B   The Browse line command displays the BROWSE table panel. It is available if
you did not enter an option on the table utility entry panel.

S   When you use the Select line command against a table, either the BROWSE
table or EDIT table panel is displayed:
   - BROWSE table is displayed if you entered option B on the entry panel.
   - EDIT table is displayed if you entered option E on the entry panel.
   - If you did not enter option B or E on the entry panel, the panel is
determined by how the option “Use EDIT as default to process selected
table” is set. To set this option, select Table Utility Options panel from the
Options pull-down.
These primary commands are available on the table data set selection list panel:

**L string** The Locate command scrolls the selection list and positions at the top of the display the entry which either matches or precedes (in alphabetic sequence) the value of `string`.

**S tblname** The Select command searches the selection list for an entry that matches `tblname`. If a matching entry is found the table is displayed in either the BROWSE table or EDIT table panel, following the same rules as for the Select line command.

**E tblname** The Edit command is available if you did not enter an option on the table utility entry panel. The selection list is searched for an entry that matches `tblname`. If a matching entry is found the EDIT table panel is displayed.

**B tblname** The Browse command is available if you did not enter an option on the table utility entry panel. The selection list is searched for an entry that matches `tblname`. If a matching entry is found the BROWSE table panel is displayed.

**Edit/browse table panel**

The table display panel used for the Edit and Browse functions of the table utility shows multiple rows on the one screen. Each row occupies one line on the screen. The UP and DOWN primary commands allow you to scroll through the rows in a table.

![Figure 148. Table display panel, edit mode (ISRUTBP3)](image)

The dialog variables for the table rows are displayed in columns across the screen, with the dialog variable names shown as column headings. The RIGHT and LEFT primary commands allow you to view any columns that are not currently visible.

Two options on the Table Utility Options panel control how key values are displayed:

- **Color used to display table key values** specifies the color (BLUE, RED, PINK, GREEN, TURQ, YELLOW, or WHITE).
**ISPF table utility (option 3.16)**

- **Intensity used to display table key values** specifies the intensity (HIGH or LOW).

  The default color is GREEN and the default intensity is HIGH. For the Edit function, key values are always underscored. For the Browse function, key values are not underscored.

To determine the width required for each column field, the table utility must scan the table rows and check the length of the table variable values. While the utility uses an efficient method to scan a table, this process can be time consuming for a table with an extremely large number of rows. You can limit the number of rows scanned through the “Maximum rows searched to determine column width” option on the Table Utility Options panel.

All table variables are displayed in scrollable fields, with a scale indicator displayed below each column heading. Using scrollable fields allows the EXPAND primary command to be used to display the value of a table variable in a popup window. This popup window can display and edit data in HEX mode. The scrollable fields also allow you to use the RIGHT and LEFT primary commands to horizontally scroll column values.

For the Browse function, all the fields displaying table variable values are protected. For the Edit function, all these fields are unprotected and you can make changes to the table variable values by overtyping the displayed data.

For the Edit function, when you press Exit (F3) the changes are saved to a table output library. Normally the changes would be saved to the originating data set.

If you specified the table name and a Table DD on the ISPF Table Utility panel, and the “Always save table in originating data set” check box on the Table Utility Options panel is not selected, ISPF prompts you to specify the output data set. See “Table output data set selection” on page 258 for more information.

**Line commands**

This topic describes the line commands available on the Edit/Browse panel.

- **E** Extension Variables. Use this command to display the extension variables for the table row. When using the Edit function, the values of the extension variables can be changed, new extension variables can be created, and existing extension variables can be deleted. See “Extension Variables panel” on page 249.

- **In** Insert Row After. Use this command to insert one or more rows after the row where the line command was entered. The table variable values for an inserted row are initialized with blanks.

- **Bn** Insert Row Before. Use this command to insert one or more rows before the row where the line command was entered. The table variable values for an inserted row are initialized with blanks.

- **Rn** Repeat Row. Use this command to create one or more copies of the table row. The copied rows are inserted after the row where the line command was entered. For the copied rows, all variables excluding keys are initialized using the values from the corresponding variables in the row where the line command was entered. Key variables are initialized with blanks.

- **Dn** Delete Row. Use this command to delete one or more table rows.
Notes:
1. The E command is available in both the Edit and Browse functions. The I, B, R, and D commands are only available in the Edit function.
2. For all line commands except E, an optional number from 1 to 9 can be entered as a suffix to the line command character. This causes the command to operate on multiple rows starting with the row on which the command was entered.
3. When processing a keyed table, the optional number is ignored for the line commands I, B, and R.

Extension Variables panel: The Extension Variables panel shows the names and values of the extension variables defined for a table row. To display the extension variables panel, enter the E line command against a table row on the table display screen.

Figure 149. Extension Variables Panel (ISRUTBP4)

When you edit a table, the extension variable names and their values and the “Extension variable values scrollable width” are displayed in unprotected fields. You can change the extension variable names and values by overtyping the displayed data. You can use the selection field to enter a line command against an extension variable. When you browse a table, the extension variable names and values are protected, and the selection field is unavailable.

The extension variable values are displayed in scrollable fields with a scale indicator displayed below the column heading. You can use the RIGHT and LEFT primary commands to horizontally scroll through one of the values. You can enter the EXPAND primary command to display the value of an extension variable in a popup window. This popup window also enables you to display and edit data in HEX mode.

The “Extension variable values scrollable width” field initially displays the length of the scrollable width of the field that displays the extension variable values. This length will be the maximum of either:
- The length of the field displaying the values. This length depends on the width of the screen. For example, if the screen has a width of 80 characters the field...
The length of the largest value for the extension variables displayed.

If you need to lengthen the value for an extension variable beyond the scrollable limit, you can use this field to enter a numeric value to increase the scrollable width of the field. You can then use the EXPAND primary command (F4) to update the value of the extension variable.

**Line commands:** This topic describes the line commands available on the Extension Variables panel.

- **Insert Extension Variable After.** Use this command to insert one or more extension variables after the row where the line command was entered. The name and value for the inserted extension variable are initialized with blanks.

- **Insert Extension Variable Before.** Use this command to insert one or more extension variables before the row where the line command was entered. The name and value for an inserted extension variable are initialized with blanks.

- **Repeat Extension Variable.** Use this command to create one or more copies of the extension variable. The extension variables are inserted after the row where the line command was entered. For the new extension variables, the names and values are copied from the extension variable where the line command was entered.

- **Delete Extension Variable.** Use this command to delete one or more extension variables.

**Notes:**

1. Line commands on the extension variables panel are only available when using the Edit function.

2. For all line commands, an optional number from 1 to 9 can be entered as a suffix to the line command character. This causes the command to operate on multiple extension variables starting with the extension variable against which the command was entered.

**Primary commands**

This topic describes the primary commands available on the Table Utility Edit/Browse panel:

- Navigating through the table: **UP**, **DOWN**, **LEFT**, **RIGHT**, **FIND**, **RFIND**
- Changing the data or how it is displayed: **INSERT**, **EXPAND**, **SORT**, **STATS**, **STRUCT**
- Saving or exporting table data: **SAVE**, **CANCEL**, **EXPORT**, **FEXPORT**

Browse and Edit primary commands are entered in the Command field. All the primary commands except SAVE are available in both the Edit and Browse functions. The SAVE command is only available in Edit.

**CANCEL**

Terminate Edit without Saving Changes. The CANCEL command (F12) terminates table editing without saving the table data to the output data set.

CAN can be used as an abbreviation for the CANCEL command.
ISPF table utility (option 3.16)

DOWN
Scroll Down. The standard ISPF DOWN command (F8|F20) can be used to vertically scroll the table display towards the bottom of the table.

ISPF supported scroll amount values used for the DOWN command can be entered in the Scroll field. You can also enter a valid scroll amount in the Command field.

EXPAND
Expand Display of Scrollable Field. The standard ISPF EXPAND command (F4) can be used to display a table variable value in a popup window containing a scrollable dynamic area. To do this, enter EXPAND while the cursor is placed on the field displaying a table variable value.

EXPORT
Display Table Export Layout. The Export Layout panel is displayed when the EXPORT primary command is entered on the Edit/Browse panel. This panel shows the structure used to format the table data written to the export output data set. You can make changes to the structure to alter the format of the data written to the output data set.

The screen shows the current structure used to format the table data written to the export data set. The list contains these fields:

- **Order**: This input field allows you to enter a number which defines the sequence in which the table variables for each row are placed in the export data set. For example, assigning an Order of 001 to a table variable makes it the first to be written to each table data record in the export data set.

  **Note**: Only table variables that have an Order value less than 999 are written to the export data set.

- **Name**: The name of the table variable.

- **Field Heading**: This input field allows you to define a heading for each table

Figure 150. Table Export Layout panel (ISRUTBP7)

The screen shows the current structure used to format the table data written to the export data set. The list contains these fields:

**Order**

<table>
<thead>
<tr>
<th>Order</th>
<th>Name</th>
<th>Field Heading</th>
<th>Width</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>ZEDPTYPE</td>
<td>ZEDPTYPE</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>002</td>
<td>ZEDPLRCL</td>
<td>ZEDPLRCL</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>003</td>
<td>ZEDPRCFM</td>
<td>ZEDPRCFM</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>004</td>
<td>ZEDPTAG</td>
<td>ZEDPTAG</td>
<td>24</td>
<td>52</td>
</tr>
<tr>
<td>005</td>
<td>ZEDPBNDL</td>
<td>ZEDPBNDL</td>
<td>8</td>
<td>61</td>
</tr>
<tr>
<td>006</td>
<td>ZEDPBNDR</td>
<td>ZEDPBNDR</td>
<td>8</td>
<td>70</td>
</tr>
<tr>
<td>007</td>
<td>ZEDPTABC</td>
<td>ZEDPTABC</td>
<td>8</td>
<td>79</td>
</tr>
<tr>
<td>008</td>
<td>ZEDPMASK</td>
<td>ZEDPMASK</td>
<td>8</td>
<td>88</td>
</tr>
<tr>
<td>009</td>
<td>ZEDPTABS</td>
<td>ZEDPTABS</td>
<td>8</td>
<td>97</td>
</tr>
</tbody>
</table>

**Field Heading**: This input field allows you to define a heading for each table

Chapter 5. Utilities (option 3) 251
variable written to the export data set. It is initialized with the
name of the associated table variable.

**Width**
This input field allows you to define the number of characters
allocated to the column used to print a table variable value. This
field is initialized to the display length of the table variable value
on the table display screen.

**Cumulative Width**
This field shows the total number of characters required in the
export data set record to accommodate this variable and all the
preceding table variables.

When you are happy you have the correct format defined, use the `FILE`
primary command to write the table data to the export data set.

These abbreviations can be used for the EXPORT command:

- **EX**
- **EXP**
- **EXPO**
- **EXPOR**

**FILE**
The FILE command causes the table data to be written to the
export data set in the format defined on the export layout panel.

The name of the export output data set can be specified as a
parameter to the FILE command. You can enter any fully qualified
data set name by enclosing it in apostrophes. If you omit the
apostrophes, your TSO prefix or user ID (if no TSO prefix is
defined in your TSO user profile) is added to the beginning of the
data set name. For example, if a user whose TSO prefix is LSACKV
issues the command `FILE TAB1.DATA`, the table data report is
written to the export data set LSACKV.TAB1.DATA.

If you do not specify an export data set name on the FILE
command, a default name is generated according to these rules:

- If no TSO prefix is defined in your TSO user profile:
  `userid.tblname.TBLDUMP`
- If your TSO prefix and user ID are the same:
  `tsopref.tblname.TBLDUMP`
- If your TSO prefix and user ID are not the same:
  `tsopref.userid.tblname.TBLDUMP`

`tsopref` is your TSO prefix. `userid` is your TSO user ID. `tblname` is the
name of the table you are processing.

**Note:** If the ISPF configuration table field
`USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS` is set to
`YES`, an additional qualifier defined with the
`ISPF_TEMPORARY_DATA_SET_QUALIFIER` field is
included before the `tblname` qualifier.

A warning message might be displayed if the export data set
already exists. You then have the option of terminating the
command to avoid overwriting the data set. If you don't want to
receive these warnings in future, clear the “Warn if export data set
exists” check box on the Table Utility Options panel.

When the FILE command has finished, the export data set is
displayed. The “Display mode for export data set” option on the
Table Utility Options panel allows you to choose either the ISPF Browse, View, or Edit functions to display the export data set.

These abbreviations can be used for the FILE command:

FI
FIL

FEXPORT

Fast EXPORT Command. The FEXPORT command writes the table data to the export output data set without displaying the export layout panel.

The name of the export output data set can be specified as a parameter to the FEXPORT command. You can enter any fully qualified data set name by enclosing it in apostrophes. If you omit the apostrophes, your TSO prefix or user ID (if no TSO prefix is defined in your TSO user profile) is added to the beginning of the data set name. For example, if a user whose TSO prefix is LSACKV issues the command FEXPORT TAB1.DATA, the table data report is written to the export data set LSACKV.TAB1.DATA.

If you do not specify an export data set name on the FEXPORT command, a default name is generated according to these rules:

- If no TSO prefix is defined in your TSO user profile:
  `userid.tblname.TBLDUMP`
- If your TSO prefix and user ID are the same: `tsopref.tblname.TBLDUMP`
- If your TSO prefix and user ID are not the same:
  `tsopref.userid.tblname.TBLDUMP`

`tsopref` is your TSO prefix. `userid` is your TSO user ID. `tblname` is the name of the table you are processing.

Note: If the ISPF configuration table field
`USE_ADDITIONAL_QUAL_FOR_PDF_DATA_SETS` is set to YES, an additional qualifier defined with the
`ISPF_TEMPORARY_DATA_SET_QUALIFIER` field is included before the `tblname` qualifier.

If the export data set exists when the FEXPORT command is issued and you have selected "Warn if export data set exists" on the Table Utility Options panel, a warning popup panel is displayed. You then have the option of terminating the command to avoid overwriting the data set.

When the FEXPORT command has finished, the export data set is displayed. The "Display mode for export data set" option on the Table Utility Options panel allows you to choose either the ISPF Browse, View, or Edit functions to display the export data set.

These abbreviations can be used for the FEXPORT command:

FE
FEX
FEXP
FEXPO
FEXPOR

FIND

Search for String in Table. The FIND command can be used to search for the occurrence of a character string in a specified column in the table. If the string is found, the row in which it is found is positioned at the top of the display.

The FIND command has these formats:

FIND varname string
FIND n string
where:

varname  The name of any of the table variables.

n        The ordinal number of any column displayed on the current screen.

string   The character string to be searched for. The search is not case sensitive.

These abbreviations can be used for the FIND command:

F  
FI 
FIN

INSERT
Insert a Blank Row at the Top of the Table. Use the INSERT command to create a new blank row as the first row in the table. This command allows you to create a row in an empty table.

LEFT  Scroll Left. The LEFT command (F10|F22) can be used to scroll the table display horizontally towards the first table column.

The scroll amount values used for the LEFT command can be entered in the Shift field. You can also enter one of these valid scroll amounts in the Command field:

PAGE  Causes the display to scroll left by the width of the screen.

MAX   Causes the display to scroll left so that the first column for the table is the leftmost displayed.

0 to 9999 Causes the display to scroll left the specified number of columns.

Note: Table variable values are displayed in scrollable fields. Therefore if the cursor is placed in a field displaying a table variable value, the LEFT command operates on that field, not on the whole table display.

RFIND
Repeat Last FIND Command. The RFIND command (F5|F17) is used to repeat the last FIND command. It is most useful when assigned to a function key.

R can be used as an abbreviation for the RFIND command.

RIGHT
Scroll Right. The RIGHT command (F11|F23) can be used to scroll the table display horizontally towards the last table column.

The scroll amount values used for the RIGHT command can be entered in the Shift field. You can also enter one of these valid scroll amounts in the Command field:

PAGE  Causes the display to scroll right by the width of the screen.

MAX   Causes the display to scroll right so that the last column for the table is the rightmost displayed.

0 to 9999 Causes the display to scroll right the specified number of columns.
**ISPF table utility (option 3.16)**

**Note:** Table variable values are displayed in scrollable fields. Therefore if the cursor is placed in a field displaying a table variable value, the RIGHT command operates on that field, not on the whole table display.

**SAVE**  
Save Table Changes. The SAVE command causes the changes to the table data to be written to the table output library. Normally the changes would be saved to the originating data set.

If you specified the table name and a Table DD on the ISPF Table Utility panel, and the “Always save table in originating data set” check box on the Table Utility Options panel is not selected, ISPF prompts you to specify the output data set. See "Table output data set selection" on page 258 for more information.

SAV can be used as an abbreviation for the SAVE command.

**SORT**  
Display Table Sort Definition. The Sort Specification panel is displayed when the SORT primary command is entered on the Edit/Browse panel. This panel allows you to sort the table according to the values of one or more table variables.

The screen displays a list of the table variables and contains these fields:

- **Order**  
  This input field allows you to enter a number which defines the sort priority for the associated table variable. For example, assigning an Order of 001 makes the associated table variable the primary sort key.

  **Note:** The table will only be sorted on those variables that have an Order value less than 999.

- **Name**  
  The name of the table variable.

- **Sequence (A/D)**  
  This input field allows you to define whether to sort in ascending (A) or descending (D) sequence for the associated table variable.

---

**Figure 151. Table Sort Specification panel (ISRUTBP8)**

The screen displays a list of the table variables and contains these fields:

- **Order**  
  This input field allows you to enter a number which defines the sort priority for the associated table variable. For example, assigning an Order of 001 makes the associated table variable the primary sort key.

  **Note:** The table will only be sorted on those variables that have an Order value less than 999.

- **Name**  
  The name of the table variable.

- **Sequence (A/D)**  
  This input field allows you to define whether to sort in ascending (A) or descending (D) sequence for the associated table variable.
When you press Exit (F3) to return to the Edit/Browse panel it is sorted based on changes made on the table sort display.

Note: If you are using Edit, the sort criteria entered on this screen are saved with the table.

These abbreviations can be used for the SORT command:

- SO
- SOR

**STATS**

Display Table Statistics. The table statistics display is invoked when the STATS primary command is entered on the browse/edit table display. This screen shows the statistical information that ISPF maintains for the table.

The screen shows these fields:

- **Created on**
  The date and time the table was originally created.

- **Last updated on**
  The date and time the table was last modified.

- **by**
  User ID of the last user who modified the table.

- **Initial number of rows when created**
  Number of rows that were added during the session when the table was first created and then closed.

- **Current number of rows**
  Number of rows currently in the table.

- **Number of existing rows which have been updated**
  Number of rows that have been modified in the table at least once. A row that is added to an existing table is considered a modified row.

- **Number of times table has been updated**
  Number of editing sessions during which the table has been updated.
modified. Opening a table, then making one or more updates, then closing and saving the table increments this count by one.

**Virtual storage size (bytes)**
Number of bytes of virtual storage required by the table.

**Last TABLE SERVICES command**
The name of the last table service called.

**Return code from above service**
The return code issued by the last table service called.

**Status 1**
The status of the table in the table input library chain.

**Status 2**
The status of the table in this logical screen.

**Status 3**
The availability of the table to be used in WRITE mode.

**STRUCT**
Display Table Structure. The table structure panel is invoked when the STRUCT primary command is entered on the Edit/Browse panel. This panel shows the structure used to format the browse/edit table display. You can change the data displayed on this screen to alter the format of the table display.

![Table Structure Panel](ISRUTBP5)

The top area of this screen shows this information about the table:
- Number of Rows
- Number of Keys
- Number of Names
- Rows scanned to produce structure

**Note:** This value is controlled by the “Maximum rows searched to determine column width” option on the Table Utility Options panel.
The next area of the screen shows the current column headings for the table display.

The bottom area of the screen shows the current structure used to format the table display. This is a list containing these fields:

**Column**
This input field shows a number representing the relative position of the associated table variable in the table display. You can change the position of a variable in the table display by altering this number.

**Name**
The name of the table variable.

**Type**
Shows a value of Key if the associated variable is defined as a key for the table. Otherwise shows a value of Name.

**Length**
This input field shows the number of characters used to display the table variable value. The table utility calculates this number by scanning the table rows and finding the largest length value for each table variable.

**Note:** If you have specified a value for the “Maximum rows searched to determine column width” option on the Table Utility Options panel, the table utility might not scan all the table rows and therefore the calculated length value might not be large enough for all variable values.

**Display Area**
Identifies the table variables currently shown on the table display screen.

When you press Exit (F3) to return to the Edit/Browse panel it is reformatted based on changes made on the table structure display.

These abbreviations can be used for the STRUCT command:

- STR
- STRU
- STRUC

**UP**
Scroll Up. The standard ISPF UP command (F7|F19) can be used to vertically scroll the table display towards the top of the table.

ISPF supported scroll amount values used for the UP command can be entered in the Scroll field. You can also enter a valid scroll amount in the Command field.

**Table output data set selection**
This panel is displayed when either the first SAVE command is issued or the EXIT command (F3) is issued, and these conditions are all true:
- The table you have modified was specified on the Table Utility Entry panel
- you did not select “Always save table in originating data set” on the Table Utility Options panel
- you specified a Table DD rather than a Table Data Set on the Table Utility Entry panel
This panel lists the data sets allocated to the table DD specified on the table utility entry panel. Enter an S in the selection field for the data set in which you would like the updated table to be saved. If you press Enter without selecting a data set, the table update is canceled.

Table utility options

To display the Table Utility Options panel, select Table Utility Options from the Options menu on the action bar. This panel allows you to set options that control certain behaviors within the ISPF Table Utility.

These options on the first section of the panel affect the Edit and Browse functions:

Open table in SHARE mode
Select this option if the table you are to process is already open on another logical screen or if you might need to share the table with another logical screen.

Use EDIT as default to process selected table
When you select this option, you will default to Edit mode if you do not specify either the Edit or Browse functions on the table utility entry panel or the table selection panel. You will default to browse mode when this option is not selected.

Always save table in originating data set
When this option is selected: If the table you are editing was specified on the table utility entry panel but the Table data set was not specified, the table is automatically saved in the original data set.

When this option is cleared: When you first attempt to save the table, the table output data set selection panel will be displayed. This panel allows you to choose within the table DD the data set where the table will be saved.

Maximum rows searched to determine column width
To determine the width required to display each column field, the table utility scans the table rows and checks the length of the table variable.
values. This option allows you to specify a number which acts as the limit for the number of rows scanned in this process. If you leave this value blank, all rows will be scanned.

**Note:** Because the table utility uses an efficient method to scan a table, you can leave this option blank for all but extremely large tables.

**Color used to display table key values**
Use this option to specify the color (BLUE, RED, PINK, GREEN, TURQ, YELLOW, or WHITE) used to display the values for the key variable in the table. The default is GREEN.

**Intensity used to display table key values**
Use this option to specify the intensity (HIGH or LOW) used to display the values for the key variables in the table. The default is HIGH.

These options on the second section of the panel affect the Import function:

**Warn if table exists in the output library**
When this option is selected, a warning message will be displayed if you try to import data into a table that already exists in the specified output data set. You can then choose either to overwrite the existing table or to cancel the import process. If you don't want to receive warning messages in this situation, clear this option.

**Use Edit to view the imported table**
When this option is selected, the table utility uses the Edit function to display the table that was created or updated by the Import function. If this option is not set, the Browse function will be used to display the table.

These options on the final section of the panel affect the Export function:

**Warn if export data set exists**
When this option is selected, a warning message will be displayed if the data set you are exporting table data into already exists. You can then choose either to overwrite the data set or to cancel the export process. If you don't want to receive warning messages in this situation, clear this option.

**Display mode for export data set**
This option allows you to choose whether to use either the ISPF Browse, View, or Edit function to display the export data set after the export process has completed.

**Table export report options**
To display the Table Export Reports Options panel, select Export Report Options from the Options menu on the action bar. This panel allows you to set options which control the format of the report written to the output data set by the table utility Export function.
The panel provides these options:

**Set options for IMPORT format report**
Select this option if you want to write the export report in the same format that is used by the table utility Import function. Selecting this option causes other options on the panel to be set so as to produce the export report in the appropriate format.

**Generate headings**
Select this option if you want the export report to have headings for the columns showing the table variable values.

**Underline headings (in export report)**
Select this option if you want the column headings to be underlined. Column headings for key variables are underlined with plus signs (++++++++). Column headings for non-key variables are underlined with dashes (--------).

**Blank lines after heading**
This option allows you to specify the number of blank lines printed after the column headings. The number must be between 0 and 9.

**Number of spaces between columns**
This option allows you to specify the number of spaces printed between the columns showing the table variable values. The number must be between 0 and 99.

**Number of lines per page**
This option allows you to specify the maximum number of lines printed on each page of the report. The number must be between 0 and 99. If you specify 0, no page breaks will be generated.

**Number of blank lines between pages**
This option allows you to specify the number of blank lines printed at the
Export data set attributes

To display the Export Data Set Attributes panel, select Export Data Set Attributes from the Options menu on the action bar. This panel allows you to set various attributes for the output data set created by the table utility Export function.

The panel provides these options:

**Management class**
Specify the SMS management class for the data set. The management class is used to obtain data management-related information for the data set, such as migration, backup, and retention criteria.

**Storage class**
Specify the SMS storage class for the data set. The storage class is used to obtain storage-related information (volume serial) for the data set.

**Volume serial**
For a non-SMS data set, specify the volume serial of the direct-access volume you wish to contain the data set.

**Device type**
For a non-SMS data set, specify the generic unit address for the direct access volume you wish to contain the data set.

**Data class**
Specify the SMS data class for the data set. The data class is used to obtain data-related information (space units, primary quantity, secondary quantity, directory block, record format, record length, and data set name type) for the data set.

**Space units**
Specify the disk space units (TRACK, CYLINDER, or BLOCK).
Primary quantity
Enter a number for the primary allocation in space units.

Secondary quantity
Enter a number for the secondary allocation in space units.

Importing data into a table
The ISPF Table Utility supports an Import function, where data in a sequential data set is used to load an ISPF table. The import function is invoked by entering option I (Import table data) on the ISPF Table Utility entry panel.

When you use the Import function, enter these fields on the table utility entry panel:

Table Data Set
This identifies the data set where the table that will be created or updated by the Import function is saved.

Table Name
The name of the table that will be created or updated by the Import function.

Import Data Set
The name of the data set containing the data used as input to the Import function.

The Import function requires the Import Data Set to contain a report in a specific format. This format is generated by the ISPF table utility Export function and has these features:

- The variable name is used as a heading for each column showing the values for the table variables.
- The headings are underlined. Column headings for key variables are underlined with plus signs (++++++++). Column headings for non-key variables are underlined with dashes (--------).
- There are no blank lines after headings.
- There is only 1 space between columns.
- There is no paging.

A warning message might be displayed if the table you specify already exists in the Table Data Set. You then have the option of terminating the command to avoid overwriting the table. If you don’t want to receive these warnings in future, clear the “Warn if table exists in the output library” check box on the Table Utility Options panel.

When the import process has finished, the table that was created or updated is displayed. The “Use Edit to view the imported table” option on the Table Utility Options panel allows you to choose either the table utility Edit or Browse function to display the imported table. The default is Browse.

Exporting data from a table
The ISPF Table Utility supports an Export function, where data in an ISPF table is used to write a customizable report to a sequential file. The Export function is invoked by using either the EXPORT or FEXPORT primary commands from the table display screen for the table utility Edit and Browse functions.
**ISPF table utility (option 3.16)**

**Note:** The report does not show the values for extension variables defined for table rows.

The EXPORT primary command displays the Export Layout panel, where you can control the layout of the table data in these ways:
- Exclude table variables from the report
- Change the order in which the table variables appear in the report
- Change the column headings

The Table Export Report Options panel allows you to change the format of the report. Selecting the “Set options for IMPORT format report” option ensures the generated report is in a format that can be processed by the table utility Import function. The Export Data Set Attributes panel allows you to define the allocation attributes for the export data set.

![Figure 157](image-url) shows an example of the export report in a format suitable for the Import function:

```
+---------------------------------------------+-----------+---------+-----------+-------+-------+---+
<table>
<thead>
<tr>
<th>SUBSYS</th>
<th>SERVER</th>
<th>DESCRIP</th>
<th>BSECEXIT</th>
<th>BCATOWN</th>
<th>BJCLASS</th>
<th>BSJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2D</td>
<td>DB2</td>
<td>Version</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB26</td>
<td></td>
<td>Version 6 - Subsystem 1</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DB62</td>
<td></td>
<td>Version 6 - Subsystem 2</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DB27</td>
<td></td>
<td>Version 7</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DBT5</td>
<td></td>
<td>Version 5.1 for FM/DB2 FVT only</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DBT6</td>
<td></td>
<td>Version 6.1 for FM/DB2 FVT only</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>DBT7</td>
<td></td>
<td>Version 6.1 for FM/DB2 FVT only</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>
```

*Figure 157. Export report example*

**Processing tables that are currently open**

Normally, ISPF does not allow a table to be opened and processed if that table is currently open. However, if the table currently open has been opened with the SHARE option, a subsequent open of the table is allowed if:
- The SHARE option is used, and
- The WRITE/NOWRITE option is the same as specified when the table was initially opened

The ISPF Table Utility provides support which allows you to process a table even when that table is currently open.

If a table is currently open in SHARE mode, the ISPF Table Utility can be used to process that table provided you select the "Open table in SHARE mode" option on the ISPF Table Utility panel and the Edit (WRITE) or Browse (NOWRITE) option specified matches the WRITE/NOWRITE setting when the table was originally opened.

If a table data set (rather than a table DD) is specified on the entry panel, the ISPF Table Utility also allows you to process a table that is open but not in SHARE mode, or a table that is open in SHARE mode but the WRITE/NOWRITE (edit/browse) setting does not match that of the open table. When this situation is detected, one of the popup windows shown here is displayed allowing you to specify the way in which to process the table:
The panel shown in Figure 158 is displayed when the selected table from the table data set (TSTTABA) is currently open but not in SHARE mode.

The panel shown in Figure 158 is displayed when the selected table from the table data set (TSTTABA) is currently open but not in SHARE mode.

The panel shown in Figure 159 (ISRUTBC1) is displayed when the selected table (TSTTABA) from the table data set is currently open in SHARE mode for NOWRITE (not for update) and you either:

- Did not select the Open table in SHARE mode option on the entry or options panel, or
- Requested to edit (WRITE) the table
The panel shown in Figure 160 (ISRUTBC1) is displayed when the selected table (ISRPLIST) is currently open in SHARE mode for WRITE (for update) and you either:

- Did not select the Open table in SHARE mode option on the entry or options panel, or
- Requested to browse (NOWRITE) the table

If you press Enter, the table utility:
- Creates a temporary partitioned data set.
- Copies the table from the table data set you specified into a member in the temporary data set using a generated member name.
- Opens the table using the generated name.
- Displays the table data.

If you press the Exit key (usually PF3) on panel ISRUTBC1, the table utility:
- Displays the data for the currently open table. If this table was originally opened for WRITE, the data is displayed for edit, otherwise it is displayed for browse.

If you press Cancel (or Exit on panel ISRUTBC2):
- The table is not processed and you are returned to the entry or table selection panel.

If you edit a temporary copy of an open table, this panel is displayed when you exit the edit display:
ISPF table utility (option 3.16)

ISRUTBPB Save Temporary Table
Command ==> 

Specify the names of the data set and member where the temporary table will be saved.

Partitioned Data Set Name and Member
  Name ........ 'VANDYKE.TBUTIL.TABLES'
  Member ....... ISRPLIST

Enter */" to select option
  Replace existing member

Instructions:
Press ENTER key to save the temporary table in the specified data set and member.
Press EXIT or CANCEL to exit without saving the temporary table.

This panel allows you to save the updated table in a specified data set and member. The panel initially shows the table data set and table (member) you requested to edit. The "Replace existing member" option allows you to replace an existing member with the data from the table you have edited. If you press Enter, the table utility writes the table data to the specified data set and member. If you press Exit or Cancel, the data from the temporary table is not saved.

z/OS UNIX directory list utility (option 3.17)

The z/OS UNIX Directory List Utility (option 3.17) supports processing of directories and files in a z/OS UNIX directory structure. When you select this option, the z/OS UNIX Directory List Utility panel (ISRUULP) is displayed.

The layout and options of the Directory List Utility are similar to those in the Data Set List Utility (ISPF option 3.4). You can either display the directory list under the specified path name for further processing, or print the directory list to the ISPF list data set.
z/OS UNIX directory list utility (option 3.17)

Note: When the z/OS UNIX Directory List Utility panel is first displayed, a message is displayed showing the time zone that is used to calculate the date and time values displayed in the directory list. The time zone value is obtained from the z/OS UNIX TZ environment variable. If a value for the TZ environment value is not found in the system-wide /etc/profile file or the user’s .profile file, the utility calculates displayed date and time values using the operating system GMT offset.

z/OS UNIX Directory List Utility panel action bar

The Data Set List Utility Panel action bar choices function as follows:

Menu  For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Utilities  For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

Options

The Options pull-down offers these choices:

1 Directory List Options
   Options that control the behavior of the directory list display.

2 Directory List Column Arrangement
   Settings that alter the order and size of the column fields that are displayed in the directory list.

3 Directory List Default Line Commands
   Settings that define the default line commands for the different z/OS UNIX file types.

4 Enable superuser mode(SU)
   Select this option to switch to superuser mode.
Help

The Help pull-down provides general information about z/OS UNIX Directory List Utility topics as well as information about displaying and printing a z/OS UNIX Directory List.

z/OS UNIX Directory List Utility panel fields

The z/OS UNIX Directory List Utility panel contains these fields:

Pathname

This is a scrollable field where you enter the path name of the directory you want to list or print. If you leave this field blank, your home directory is used. If the field is blank and you do not have a home directory, you are prompted to enter a path name.

You can use these special characters at the beginning of the Pathname field to represent the path name for a particular directory:

~ (Tilde) The path name for your home directory.
.
 (Period) The path name for your current working directory.
.. (Double period) The path name of the parent directory of your current working directory.

Note: Within the z/OS UNIX Directory List Utility, you can also use these special characters in any field where a z/OS UNIX file path name can be entered.

Confirm File Delete

This option controls the display of the Confirm Delete panel. This panel is displayed when deleting files or empty directories from the directory list display using the D line command. If this option is selected, the Confirm Delete panel is displayed. If this option is not selected, the panel is not displayed and the file or empty directory is deleted without any additional user interaction.

Confirm Non-empty Directory Delete

This option controls the display of the Confirm Non-empty Directory Delete panel. This panel is displayed when using the directory list D line command to delete a directory that contains files and subdirectories. If this option is selected, the Confirm Non-empty Directory Delete panel is displayed. If this option is not selected, the panel is not displayed and the directory (including all contained files and subdirectories) is deleted without any additional user interaction.

z/OS UNIX Directory List Utility panel options

See:

- "Blank—display directory list"
- "P—print directory list” on page 277

Blank—display directory list

To display a directory list for the specified path, leave the Option line blank and press Enter. If you leave the Pathname field blank, your home directory will be used.

You can also specify the options "Confirm File Delete” and “Confirm Non-empty Directory Delete” to control the behavior of the D (delete file) line command in the directory list.
z/OS UNIX directory list utility (option 3.17)

The information for each entry in the directory is displayed in column fields across the screen. The number of columns displayed depends on the available screen width. Figure 162 shows the initial directory list display on a terminal with a screen width of 80 and a screen depth of 28.

The RIGHT primary command can be used to scroll the displayed column fields to the right. Figure 163 on page 271 shows the directory list display when the RIGHT command is issued on the previous display:

![Figure 162. z/OS UNIX Directory List panel (ISRUUDL0)](image-url)

The information for each entry in the directory is displayed in column fields across the screen. The number of columns displayed depends on the available screen width. Figure 162 shows the initial directory list display on a terminal with a screen width of 80 and a screen depth of 28.

The RIGHT primary command can be used to scroll the displayed column fields to the right. Figure 163 on page 271 shows the directory list display when the RIGHT command is issued on the previous display:
z/OS UNIX directory list utility (option 3.17)

Figure 163. z/OS UNIX Directory List—scrolling right

**Note:** The screens shown in Figure 162 and Figure 163 assume that the default column arrangement settings are used. You can change the width of column fields and the order in which they are displayed, and remove selected columns from the directory list display. See "z/OS UNIX Directory List Column Arrangement panel" on page 313.

**z/OS UNIX Directory List panel action bar:** The z/OS UNIX Directory List panel action bar choices function as follows:

**Menu** For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**Utilities** For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**View** The View pull-down offers this choice: 1. Sort

You can sort the list by any of these fields:
1. Filename
2. Message
3. File Type
4. Permissions
5. Permissions - Octal
6. Owner
7. Group
8. Size
9. Format
10. Links
11. Extended Attributes
12. Audit

---

Chapter 5. Utilities (option 3) 271
13. Changed Date/Time
14. Modified Date/Time
15. Accessed Date/Time
16. Created Date/Time

You can also specify the sort sequence (ascending or descending) or accept the default sequence for the associated sort field. By default, character fields are sorted alphabetically and numeric fields are sorted in descending order.

**Options**

The Options pull-down offers these choices:

1. Directory List Options
   - Options that control the behaviour of the directory list display.

2. Directory List Column Arrangement
   - Settings that alter the order and size of the directory list column fields and allow you to remove columns from the display.

3. Directory List Default Line Commands
   - Settings that define the default line commands for the different z/OS UNIX file types.

4. Enable superuser mode(SU)
   - Select this option to switch to superuser mode.

5. Refresh List
   - Refresh the display of the directory list.

6. Save List
   - Save the directory list to a file.

7. Reset
   - Reset the directory list.

**Help**

The Help pull-down provides general information about z/OS UNIX Directory List Utility topics, including the format of the directory list and the available line commands and primary commands.

**z/OS UNIX Directory List panel fields:** The fields listed here can appear on the directory list panel. Which fields are displayed depends on the column arrangements settings and whether the display has been scrolled left or right.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Field used to enter a line command, z/OS UNIX command, TSO command, CLIST, or REXX exec against a directory list entry.</td>
</tr>
<tr>
<td>Filename</td>
<td>The name of the file or subdirectory.</td>
</tr>
<tr>
<td>Message</td>
<td>This field is initially blank. After you run one of the built-in line commands on a file or subdirectory, a message is displayed showing the last function used on that file or subdirectory:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line Command</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Modified</td>
</tr>
<tr>
<td>B</td>
<td>Browsed</td>
</tr>
</tbody>
</table>
z/OS UNIX directory list utility (option 3.17)

CI      Replaced
CO      Copied
E       Edited
D       Deleted
FS      Information
I       Information
L       Listed
MF      Modified
MG      Modified
MM      Modified
MO      Modified
MX      Modified
N       Created
R       Renamed
UA      Modified
X       (Depends on whether a z/OS UNIX command or
        TSO command is executed)

If you enter a TSO command, CLIST, or REXX exec on the
Command line, a default message appears in the Message field.
The message is in this format:

XXXXXXXX  RC=#

where:

XXXXXXXX  is the command entered
#          is the return code from the command

If you enter a z/OS UNIX command, the completion status is
indicated by one of these messages being displayed in the Message
field:

 Ended  xxx
         Command has ended with a return code of xxx

 Terminated  xxx
             Command has terminated due to signal xxx

 Stopped xxx
             Command has stopped due to signal xxx

 Timed out
         The elapsed running time of the command exceeded the
         specified time limit. ISPF sent a SIGKILL signal to
         terminate the process.

Type      The directory entry type. The possible values are:

Dir      Directory
File     Regular file
Char     Character special file


**FIFO**  FIFO (first-in-first-out) special file

**Syml**  Symbolic link

**Extl**  External symbolic link

**Perm**  The file or subdirectory permissions, in octal format. The permissions are displayed as three octal (range 0-7) digits. The first digit defines the access permission for the file owner. The second digit defines the access permission for any member of the file's group. The third digit defines the access permission for anyone else. Table 17 shows the values and associated permissions for the octal digits:

Table 17. Octal permission values

<table>
<thead>
<tr>
<th>Value</th>
<th>Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Search (or execute)</td>
</tr>
<tr>
<td>2</td>
<td>Write</td>
</tr>
<tr>
<td>3</td>
<td>Write and search (or execute)</td>
</tr>
<tr>
<td>4</td>
<td>Read</td>
</tr>
<tr>
<td>5</td>
<td>Read and search (or execute)</td>
</tr>
<tr>
<td>6</td>
<td>Read and write</td>
</tr>
<tr>
<td>7</td>
<td>Read, write and search (or execute)</td>
</tr>
</tbody>
</table>

If there are extended access control list (ACL) entries defined for the file or subdirectory, the character + is displayed after the octal value.

**Permissions**  The file or subdirectory permissions, in symbolic format. There are three groups of three characters. The first group describes owner permissions; the second describes group permissions; and the third describes other (or "world") permissions. The characters that may appear in each group are:

- **r**  Permission to read the file
- **w**  Permission to write to the file
- **x**  Permission to execute the file

These characters can appear in the execute (third) position of each group:

- **s** If in owner permissions group, the set-user-ID bit is on; if in group permissions section, the set-group-ID bit is on.
- **S** Same as s except the execute bit is off.
- **t** The sticky bit is on.
- **T** Same as t except the execute bit is off.

**Note:** You can specify whether permissions are to be displayed in octal or symbolic format on the z/OS UNIX Directory List Options panel.

**Audit**  Two groups of three characters describing the audit bit settings. The first three characters describe the user-requested audit information. The last three characters describe the auditor-requested audit information. Each group of three characters shows the read, write, and execute (search) audit options. The possible values are:

- **s** Audit successful access attempts
- **f** Audit failed access attempts
- **a** Audit all access attempts
### z/OS UNIX directory list utility (option 3.17)

- **Ext**
  A group of four characters describing the extended attributes for a regular file. The possible values are:
  - **a** Program runs APF-authorized if linked AC=1
  - **p** Program is considered program-controlled
  - **s** Program is enabled to run in a shared address space
  - **l** Program is loaded from the shared library region
  - Attribute not set

- **Fmat**
  File format for regular files. The possible values are:
  - **bin** Binary data
  - **nl** New line
  - **cr** Carriage return
  - **lf** Line feed
  - **crlf** Carriage return followed by line feed
  - **lfcrl** Line feed followed by carriage return
  - **crlnl** Carriage return followed by new line

- **Owner**
  The user ID of the owner of the file or subdirectory.

- **Group**
  The group name of the owner of the file or subdirectory.

- **Links**
  For a file, the number of hard links to the file. For a subdirectory, the number of subdirectories it contains.

- **Size**
  The file size, in bytes.

- **Modified**
  The date and time the file was last changed.

- **Changed**
  The date and time the status of the file was last changed.

- **Accessed**
  The date and time the data in the file was last accessed.

- **Created**
  The date and time the file was created.

#### Actions you can take from the Directory List panel:
These topics describe actions you can take from the Directory List panel:

- **"Line commands"**
- "z/OS UNIX commands, TSO commands, CLISTs, and REXX EXECs"
- "Using the path name substitution character" on page 277

**Line commands:**
Line commands can be entered in the Command field to the left of the directory list entries.

**z/OS UNIX commands, TSO commands, CLISTs, and REXX EXECs:**
Besides the ISPF-supplied line commands, you can also enter z/OS UNIX Commands, TSO commands, CLISTs, and REXX EXECs that use a path name as an operand.
The line command field is a scrollable field with a maximum length of 255 characters and a display length of 8 characters. If the command you want to enter requires more space than is available in the display field, use the EXPAND function key (F4) to display the entire 255-character line command input field in a pop-up window.

The line command prefix characters > and < are used to identify a command to be run in z/OS UNIX. ISPF uses the spawn service (BPXISPN) to create a new process and execute the command. The > prefix character requests that the command be run by the z/OS UNIX login shell. The < prefix character requests that the command be run directly.
z/OS UNIX directory list utility (option 3.17)

Figure 164 shows an example of using the c89 shell command to compile, link-edit, and assemble the C program contained in the file /u/myhome/hello.c. The > character before the command name indicates that it will be run in a login shell environment:

![Table showing z/OS UNIX Directory List]

Figure 164. Example: specifying a z/OS UNIX command to run on a selected file

Figure 165 shows an example of running the program /u/myhome/hello.c directly in z/OS UNIX. The < character indicates that the selected file is the name of a command that is to be run:

![Table showing z/OS UNIX Directory List]

Figure 165. Example: running the selected file directly

A line command that is not recognized as a z/OS UNIX Directory List line command, or is not prefixed with < or >, is assumed to be a TSO command, CLIST, or REXX EXEC. These commands are passed to TSO for execution using the ISPF SELECT CMD service. Variable names that start with an ampersand (&) are evaluated by ISPF. If you want the underlying command processor to see the ampersand you must specify two consecutive ampersands (&&).

Figure 166 on page 277 shows an example of running a REXX EXEC called LISTDATA against the file prog1 in directory /u/myhome. This is the same as entering this command on the Command line:

TSO LISTDATA '/u/myhome/prog1'
Note: If the TSO command, CLIST, or REXX exec issues a return code greater than or equal to 8, processing stops and an error message is displayed.

Using the path name substitution character: If a command, CLIST, or REXX exec requires the file or subdirectory path name in a position other than the first operand or if other operands are needed, you can use the path name substitution character to represent the path name. If no operands are specified after the command, ISPF uses the path name of the file or subdirectory that is being acted on as the first operand of the command.

Note: For TSO commands, CLISTS, and REXX EXECs, the path name is enclosed in quotes.

The ISPF-defined default for the path name substitution character is the exclamation point (!) character. You can change the value of this character using the z/OS UNIX Directory List Options panel.

For example, if you specify: CLIST1 FILE(!) DEBUG in the line command field for file test_data in directory u/myhome the effect will be the same as if you had entered this primary command:

TSO CLIST1 FILE('/u/myhome/test_data') DEBUG

P—print directory list
Use option P to print a directory list. You must:
1. Enter the path name for the directory you want to list in the Pathname field. If you leave this field blank, the path name for your home directory will be used.
2. Press Enter to print the directory list. The directory list is stored in the ISPF list data set.

Note: The format of the printed directory list is not affected by any changes you make using the z/OS UNIX Directory List Column Arrangement panel.

z/OS UNIX directory list utility line commands
After you display a directory list by leaving the Option field blank, you can enter a line command to the left of a directory entry. You can also enter TSO commands, CLIST names, or REXX exec names. The path name substitution character can be used with TSO commands, CLISTS, and REXX EXECs to represent the quoted path name for a file or subdirectory. For more information about using this symbol, see “Using the path name substitution character.”
z/OS UNIX directory list utility (option 3.17)

The line command field is a scrollable field with a maximum length of 255 characters and a display length of 8 characters. If the command you want to enter requires more space than is available in the display field, use the EXPAND function key (F4) to display the entire 255-character line command input field in a pop-up window.

If you enter a slash (/) in the Command field, the Directory List Actions pop-up window is displayed. This window allows you to select the line command you wish to invoke.

```
Menu Utilities View Options Help

File ----- /u/myhome/bin/ctest

Directory List Actions

1. Edit
2. Edit - ASCII
3. View
4. View - ASCII
5. Browse
6. New
7. Directory List
8. Delete
9. Rename
10. Copy Out
11. Copy In
12. Information
13. File System
14. Modify Mode Fields
15. Modify Extended Attrs
16. Modify Owning User
17. Modify Owning Group
18. Modify Format
19. User Auditing
20. Auditor Auditing
21. Execute command
22. Refadd
23. Manage ACLs

Select a choice and press ENTER to process data set action.
F1=Help F2=Split F3=Exit F4=Expand
F7=Backward F8=Forward F9=Swap F10=Actions
```

Figure 167. z/OS UNIX Directory List Actions pop-up window

AA—auditor auditing

The AA (auditor auditing) line command can be entered against any directory entry. This line command causes the Modify z/OS UNIX File Auditor Audit Options panel to be displayed.
The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.

The auditor auditing options for the file can be changed by a user defined with AUDITOR authority in the security system. These options allow you to define the access attempts that will be audited by the security system. You can specify auditing to occur for read, write, and search or execute attempts on the file or directory.

The panel displays fields for specifying the Read, Write and Execute (or search) audit settings. For each of these fields you enter one of the listed numbers corresponding to one of these results for the access attempt:

- **None** No audit record is to be written for this type of access.
- **Failure** Write an audit record if this type of access fails.
- **Success** Write an audit record if this type of access is successful.
- **Both** Write an audit record for both failed and successful access attempts.

### B—browse regular file

The B (browse) line command can be entered against a regular file or directory. The ISPF browse function is invoked, allowing you to view the data in the file.

If you enter the B line command beside a directory a directory list is displayed allowing you to select a regular file to browse.

A numeric record length can also be specified as an option with the B line command for a regular file. This option allows you to browse fixed-length record files containing text or binary data without new line delimiters.

### C or CO—copy data out

The C or CO (copy out) line command can be entered against a regular file or directory.
Note: In the panel displayed by the CO line command, you can specify a "+" (plus) character as the first character of a path name to represent the path name of the directory currently listed.

Copying from a regular file: When the C or CO line command is entered against a regular file, the Copy From z/OS UNIX File panel is displayed.

![Copy From z/OS UNIX File panel](image)

This panel allows you to copy the data in a regular file to another z/OS UNIX file, a sequential data set, or a member of a partitioned data set.

Note: When copying to a sequential data set or member of a partitioned data set, ISPF invokes the z/OS UNIX OGET command to perform the copy operation.

The panel displays the path name of the file being copied.

These mandatory input fields are displayed on this panel:

**Name**  
The destination where the data from the file will be copied. Any of these can be specified:

- The path name of a z/OS UNIX file.
- The name of a sequential data set.
- The names of an existing partitioned data set and member.

**Permissions**  
When copying to a z/OS UNIX file, defines the permissions for that file. Enter as three octal (range 0-7) digits. The first digit defines the access permission for the file owner. The second digit defines the access permission for any member of the file's group. The third digit defines the access permission for anyone else. See [Table 17 on page 274](#).

These optional input fields are available on this panel:

**Confirm copy to existing target**  
When this option is selected and the target z/OS UNIX file, data set, or member exists, the Confirm Copy panel displays a warning that the data in the target will be overwritten if the copy proceeds.
In this situation, proceeding with the copy will cause the data in the target to be overwritten. Since this is an irrevocable process which may cause loss of valuable data, ISPF requires you to confirm you really want the copy to proceed. If you have made a mistake, the copy operation can be canceled using the CANCEL or EXIT commands.

**Update permissions for existing target file**
If this option is selected and the target of the copy is an existing z/OS UNIX file, the value specified in the Permissions field will be used to update the permissions for this file.

**Binary copy**
When this option is selected it indicates the file being copied contains binary data. This causes the copy to take place without any consideration for newline characters or the special characteristics of DBCS data. If this option is not selected the file is assumed to contain TEXT data.

**Note:** This option is ignored when copying to another z/OS UNIX file.

**Convert**
This option specifies whether data conversion is required during the copy operation. Typically, conversion is only required when the data contains square brackets. If no value is entered in the Conversion Table field, the data being copied is converted using the default conversion table (BPXFX000) in the standard library concatenation. By default, this would cause a conversion between code pages IBM-037 and IBM-1047. Otherwise the value in the Conversion Table field identifies a conversion table to be used for the copy operation.

**Note:** This option is ignored when copying to another z/OS UNIX file.

**Conversion Table**
These types of values can be specified in this field:

* `data_set_name(member_name)`
  The partitioned data set and member containing the character conversion table.

* `data_set_name`
  The partitioned data set that has the member BPXFX000 containing the character conversion table.

* `(member_name)`
  The member containing the character conversion table. It is assumed to be in a data set in the standard library concatenation. (The default data set is SYS1.LINKLIB.)

**Note:** This field is ignored if the Convert option is not selected or if copying to another z/OS UNIX file.

For further information on the character conversion table refer to the description of the OGET command in the z/OS UNIX System Services Command Reference.

**Copying from a directory:** When the C or CO line command is entered against a directory, the Copy From z/OS UNIX Directory panel is displayed.
This panel allows you to copy the data from regular files in a directory to members in a partitioned data set.

**Note:** When copying to a member of a partitioned data set, ISPF invokes the z/OS UNIX OGET command to perform the copy operation.

For a file to be selected for copying, it must have a file name that conforms to the naming conventions for a partitioned data set member. This panel also provides options that allow you to further control the files selected for copying.

The panel displays the path name of the directory being copied. These mandatory input fields are displayed on this panel:

- **Name**
  The name of an existing partitioned data set where the regular files in the directory will be copied. The files are copied into members in the partitioned data set.

These optional input fields are available on this panel:

- **Replace like-named members**
  When this option is selected, if the file into which the data from a selected member is to be copied already exists in the directory, the existing file will be overwritten with the data from the selected member. If this option is not selected, the member will not be copied.

- **Selection list**
  If this option is selected, the z/OS UNIX Directory Copy Selection List panel is displayed. This panel displays a list of the regular files that are eligible to be copied to the partitioned data set. The list contains these fields:
  - **S**
    An input field where you can enter S to indicate the associated regular file is to be copied to the partitioned data set.
  - **Filename**
    The name of a regular file that can be copied to the partitioned data set. The name conforms to the rules for a member name and fits the selection criteria specified on the Copy From z/OS UNIX Directory panel.
Member

The name to be used for the member into which the data from the associated regular file will be copied. Each member name is generated from the name of the source file. You can change a generated member name to something other than the name assigned by ISPF. For example, if ISPF generates the same member name for two files, you can change one of the member names to make them both unique.

Message

This field displays a message indicating the result of copying the regular file to the member. The possible values displayed are:

*COPIED
The data from the regular file was successfully copied to a new member in the partitioned data set.

*REPL The data from the regular file was copied to an existing member in the partitioned data set. The data in the member was overwritten. This can only occur when the Replace like-named members option is selected on the Copy From z/OS UNIX Directory panel.

*NO-REPL
The data from the regular file was not copied to the partitioned data set member because the member already existed and the Replace like-named members option was not selected on the Copy From z/OS UNIX Directory panel.

*FAILED RC=xx
The OGET command invoked to copy the data from the file to the member failed with return code xx. The data was not copied.

When you press Enter on this panel, the selected files will be copied to the partitioned data set. The Message field indicates the result of the copy operation for each file.

Include lowercase names

When this option is selected the file names for the regular files will be converted to uppercase before being checked for a valid member name. If this option is not selected, regular files whose file name contains lowercase characters will not be considered for copying to the partitioned data set.

Strip suffix

When this option is selected suffixes will be stripped from the file name at the first period (.) before being checked for a valid member name. The accompanying input field allows you to specify a particular suffix to be stripped (regular files with other suffixes will not be considered for copying). If this option is not selected, any regular files whose file name includes suffixes will not be copied to the partitioned data set.

Selecting this option can result in ISPF attempting to copy different files into the same member. For example, if the Strip suffix option is selected and the directory being copied contains these files:

- pgm1.exe
- pgm1.o
- pgm1.C
the data for each of these files is written to member PGM1. If the **Replace like-named members** option is also selected, member PGM1 will contain the data from file pgm1.C. If the **Replace like-named members** option is not selected, member PGM1 will contain the data from file pgm1.exe.

**Binary copy**
When this option is selected it indicates the file being copied contains binary data. This causes the copy to take place without any consideration for newline characters or the special characteristics of DBCS data. If this option is not selected the file is assumed to contain TEXT data.

**Convert**
This option specifies whether data conversion is required during the copy operation. Typically, conversion is only required when the data contains square brackets. If no value is entered in the Conversion Table field, the data being copied is converted using the default conversion table (BPXFX000) in the standard library concatenation. By default, this would cause a conversion between code pages IBM-037 and IBM-1047. Otherwise the value in the Conversion Table field identifies a conversion table to be used for the copy operation.

**Conversion Table**
These types of values can be specified in this field:

- **data_set_name(member_name)**
  The partitioned data set and member containing the character conversion table.

- **data_set_name**
  The partitioned data set that has the member BPXFX000 containing the character conversion table.

- **(member_name)**
  The member containing the character conversion table. It is assumed to be in a data set in the standard library concatenation. (The default data set is SYS1.LINKLIB.)

**Note:** This field is ignored if the Convert option is not selected or if copying to another z/OS UNIX file.


**CI—copy data in**
The CI (copy in) line command can be entered against a regular file or directory.

**Note:** In the panel displayed by the CI line command, you can specify a "+" (plus) character as the first character of a path name to represent the path name of the directory currently listed.

**Copying into a regular file:** When the CI line command is entered against a regular file, the Replace z/OS UNIX File panel is displayed.
This panel allows you to copy into a regular file data from another z/OS UNIX file, a sequential data set, or a member of a partitioned data set.

Notes:
1. When copying from a sequential data set or member of a partitioned data set, ISPF invokes the z/OS UNIX OPUT command to perform the copy operation.
2. this operation will cause existing data in the regular file to be overwritten.

The panel displays the path name of the file into which the data will be copied. These mandatory input fields are displayed on this panel:

Name  The source of the data to be copied into the file. Any of these can be specified:
• The path name of a z/OS UNIX file
• The name of a sequential data set
• The names of an existing partitioned data set and member

These optional input fields are available on this panel:

Binary copy
When this option is selected it indicates the data set/member being copied contains binary data. This causes the copy to take place without any consideration for newline characters or the special characteristics of DBCS data. If this option is not selected the data set/member is assumed to contain TEXT data.

Note: This option is ignored when copying to another z/OS UNIX file.

Convert
This option specifies whether data conversion is required during the copy operation. Typically, conversion is only required when the data contains square brackets. If no value is entered in the Conversion Table field, the data being copied is converted using the default conversion table (BPXFX000) in the standard library concatenation. By default, this would cause a conversion between code pages IBM-037 and IBM-1047. Otherwise the value in the Conversion Table field identifies a conversion table to be used for the copy operation.
z/OS UNIX directory list utility (option 3.17)

Note: This option is ignored when copying to another z/OS UNIX file.

Conversion Table
These types of values can be specified in this field:

- `data_set_name(member_name)`
  The partitioned data set and member containing the character conversion table.

- `data_set_name`
  The partitioned data set that has the member BPXFX000 containing the character conversion table.

- `(member_name)`
  The member containing the character conversion table. It is assumed to be in a data set in the standard library concatenation. (The default data set is SYS1.LINKLIB.)

Note: This field is ignored if the Convert option is not selected or if copying from another z/OS UNIX file.

For further information on the character conversion table refer to the description of the OPUT command in the z/OS UNIX System Services Command Reference.

Copying into a directory: When the CI line command is entered against a directory, the Copy Into z/OS UNIX Directory panel is displayed.

This panel allows you to copy the data from members of a partitioned data set into regular files in a directory.

Note: ISPF invokes the z/OS UNIX OPUT command to perform the operation of copying data from a member of a partitioned data set into a regular file.

The panel displays the path name of the directory into which the members of the partitioned data set will be copied. These mandatory input fields are displayed on this panel:
**z/OS UNIX directory list utility (option 3.17)**

**Name**  The name of an existing partitioned data set containing the members that will be copied as regular files into the selected directory.

**Permissions**  Defines the permissions for new regular files created when copying a partitioned data set member in the directory. When the option “Update permissions for replaced files” is selected, it also defines new permissions applied to a file replaced during the copy operation. Enter as three octal (range 0-7) digits. The first digit defines the access permission for the file owner. The second digit defines the access permission for any member of the file's group. The third digit defines the access permission for anyone else. See Table 17 on page 274.

These optional input fields are available on this panel:

**Suffix**  This field allows you to specify a value that will be added to the end of the member name to form the file name of the regular file that is created or updated during the copy operation. The member name and suffix are separated by a period (.). Any leading periods specified in the suffix are ignored.

**Replace like-named files**  When this option is selected, if the file into which the data from a selected member is to be copied already exists in the directory, the contents of the existing file will be overwritten with the data from the selected member. If this option is not selected, the copy of that member will not be performed.

**Update permissions for replaced files**  When this option is selected it causes existing files that are replaced by the copy operation to also have their permissions changed to the value specified in the Permissions field.

**Selection List**  If this option is selected, the Copy Into z/OS UNIX Directory - Selection List panel is displayed. This panel displays a list of the members in the partitioned data set that can be selected for copying into the directory. The list contains these fields:

**S**  An input field where you can enter S to indicate the associated member is to be copied into the directory.

**Member**  The name of the partitioned data set member that can be copied into the directory.

**Filename**  The name to be used for the regular file into which the data from the associated member will be copied. This is an input field, allowing you to change the file name to something other than the name assigned by ISPF. The field is scrollable and is 1023 bytes long. Use the EXPAND function key (F4) to display the entire field in a pop-up window.

**Message**  This field displays a message indicating the result of copying the member to the regular file. The possible values displayed are:

*COPIED*  The data from the member was successfully copied to a new regular file in the directory.
The data from the member was copied to an existing regular file in the directory. The data in the file was overwritten. This can only occur when the Replace like-named files option is selected on the Copy Into z/OS UNIX Directory panel.

The data from the member was not copied to the file in the directory because the file already existed and the Replace like-named files option was not selected on the Copy Into z/OS UNIX Directory panel.

The OPUT command invoked to copy the data from the member to the regular file failed with return code xx. The data was not copied.

When you press Enter on this panel, the selected members will be copied to the directory. The Message field indicates the result of the copy operation for each member.

Convert to lowercase
When this option is selected it causes the member name to be converted to lowercase before it is used to generated the file name for the target regular file.

Binary copy
When this option is selected it indicates the members being copied contains binary data. This causes the copy to take place without any consideration for newline characters or the special characteristics of DBCS data. If this option is not selected the members are assumed to contain TEXT data.

Convert
This option specifies whether data conversion is required during the copy operation. Typically, conversion is only required when the data contains square brackets. If no value is entered in the Conversion Table field, the data being copied is converted using the default conversion table (BPXFX000) in the standard library concatenation. By default, this would cause a conversion between code pages IBM-037 and IBM-1047. Otherwise the value in the Conversion Table field identifies a conversion table to be used for the copy operation.

Conversion Table
These types of values can be specified in this field:
  - data_set_name(member_name)
    The partitioned data set and member containing the character conversion table.
  - data_set_name
    The partitioned data set that has the member BPXFX000 containing the character conversion table.
  - (member_name)
    The member containing the character conversion table. It is assumed to be in a data set in the standard library concatenation. (The default data set is SYS1.LINKLIB.)

Note: This field is ignored if the Convert option is not selected.
z/OS UNIX directory list utility (option 3.17)

For further information on the character conversion table refer to the description of the OPUT command in the z/OS UNIX System Services Command Reference.

**D—delete a file**
The D (delete file) line command can be entered against any directory entry. If entered against a file or an empty directory and the Confirm File Delete option is selected, the Confirm Delete panel is displayed. This panel allows the delete operation to be canceled if necessary using the CANCEL or EXIT commands. You can prevent this panel being displayed for subsequent delete operations by selecting the “Set file delete confirmation off” option.

If the deletion proceeds successfully, the file or directory is removed from the file system.

If the D line command is entered against a directory containing files and subdirectories and the Confirm Non-empty Directory Delete option is selected, the Confirm Non-empty Directory Delete panel is displayed. This panel allows the delete operation to be canceled if necessary using the CANCEL or EXIT commands. You can prevent this panel being displayed for subsequent delete operations by selecting the “Set non-empty directory delete confirmation off” option.

If the deletion proceeds successfully the directory, including all contained files and subdirectories, is removed from the file system.

**E—edit regular file**
The E (edit) line command can be entered against a regular file or directory. The ISPF editor is invoked, allowing you to change the data in the file.

If you enter the E line command beside a directory, a directory list is displayed allowing you to select a regular file to edit.

A numeric record length can also be specified as an option with the E line command for a regular file. This option allows you to set the record length when editing fixed-length text files. When specified, the file is processed as variable length but loaded into the editor as fixed-length records and saved as fixed-length records. This lets you convert a variable-length file to fixed length.

The Edit Entry panel can be displayed when the E line command is entered. This panel allows you to specify items including the initial macro, profile name, panel name, format, mixed mode, and workstation editing. These values are stored in the profile and are used on subsequent edits. The Bypass z/OS UNIX File Edit Options panel option on the z/OS UNIX Directory List Options panel can be selected to stop this panel being displayed for subsequent file edit sessions.

**EA—edit ASCII file**
The EA (Edit - ASCII) line command can be entered against a regular file that contains data encoded in ASCII and the file is not tagged with a CCSID of 819. The ISPF editor is invoked with the ASCII edit facility which converts the ASCII data to the CCSID of the terminal, allowing you to read and change the ASCII data in file. If the E line command is used and the file is tagged with a CCSID of 819, ISPF invokes the ASCII edit facility.
FS—file system
The FS (file system) line command can be entered against any directory entry except a FIFO or character special file. This line command causes the z/OS UNIX File System Attributes panel to be displayed.

![z/OS UNIX File System Attributes panel](image)

**Figure 173. z/OS UNIX File System Attributes panel (ISRUULFS)**

This panel displays the attributes of the file system for the file in these fields:

**File system name**
The name of the data set for the file system.

**Mount point**
The name of the directory that is the mount point for this file system.

**Status** One of these values describing the current state of the file system:
- **Available**
The file system is mounted and available for use.
- **Not Active**
The file system is not available for use.
- **Reset in progress**
  A reset unmount request is currently being processed.
- **Unmount drain in progress**
The file system will be unmounted when it is no longer in use.
z/OS UNIX directory list utility (option 3.17)

**Unmount force in progress**
The file system is being unconditionally unmounted.

**Unmount immediate in progress**
The file system is being unmounted, even though it may be in use.

**Unmount in progress**
The file system is being unmounted if it is not currently in use.

**Pending unmount reset or force**
An immediate unmount request failed.

**Quiesced by (process ID)**
The file system is quiesced, usually for backup.

**Mount in progress**
The file system is being mounted.

**Recycling**
The physical file system is in a recycle but a mount has not yet been done for this file system.

**Recycling, Asynch Mounting**
The physical file system is in a recycle and the file system is in an asynchronous mount.

**Recycling, Not Active**
The physical file system is in a recycle and the file system failed to successfully mount.

**Unowned**
The file system has become unowned.

**In Recovery**
Recovery processing is in progress.

**Super Quiesced**
The file system is in a super quiesced state.

**File system type**
The type of physical file system that manages this mounted file system.

**Mount mode**
Shows whether the file system is mounted read/write (R/W) or read-only (R/O).

**Device number**
The device number that uniquely identifies the mounted file system. This is a hexadecimal value.

**Type number**
A number set by the physical file system to indicate the type of this file system. The HFS file system sets this value to 1.

**DD name**
The MVS data definition name used by the physical file system to access the mounted file system.

**Ignore SETUID**
This value indicates whether the SETUID and SETGID mode bits on any executable in this file system be ignored when the program is run.

**Bypass Security**
This value indicates whether security checks are not enforced for files in this file system.
Automove
This value indicates whether the system can automatically move the file
system to another system and remain local and unowned, or be
unmounted.

Owning system
The name of the system that owns this file system.

CCSID
The coded character set identifier to be implicitly set for untagged files in
the file system.

Text Convert
This value indicates whether untagged files are implicitly marked as
containing pure text data that can be converted.

Seclabel
This security label assigned to a file system that is mounted read-only. This
security label applies to all objects within the file system that do not have
security labels assigned.

Block size
The length, in bytes, of a data block for the physical file system.

Total blocks
The total number of 4096-byte blocks in this file system.

Available blocks
The number of 4096-byte blocks in this file system that are available for
use.

Blocks in use
The number of 4096-byte blocks in this file system that are currently in use.

Data blocks read
The block I/O count for user data reads. This value is only available if
SMF type 92 records are active.

Data blocks written
The block I/O count for user data writes. This value is only available if
SMF type 92 records are active.

Directory blocks r/w
The block I/O count for directory I/Os. This value is only available if SMF
type 92 records are active.

Mount parameters
The parameters specified with the mount command for this file system.

I—information
The I (information) line command can be entered against any directory entry.

Information display for non-link files: When entered against any directory entry
type apart from symbolic and external links, the z/OS UNIX File Information
panel is displayed. Figure 174 on page 293 shows an example.
This panel displays information describing the attributes of a z/OS UNIX file. The Pathname field displays the path name of the selected z/OS UNIX file.

The General Information section of the panel displays these fields:

File Type
The type of z/OS UNIX file. The possible values are:
- Dir: Directory
- File: Regular file
- Char: Character special file
- FIFO: FIFO (first-in-first-out) special file

Size
The file size, in bytes.

Links
For a file, the number of hard links to the file. For a directory, the number of subdirectories.

Inode
File identification number, unique within the file system.

File Format
File format for regular files. The possible values are:
- ----: Not specified
- bin: Binary data
- nl: New line
- cr: Carriage return
- lf: Line feed
- crlf: Carriage return followed by line feed
- lfcrl: Line feed followed by carriage return
- crnl: Carriage return followed by new line

Last Modified
The date and time the file was last changed.
z/OS UNIX directory list utility (option 3.17)

Last Changed
The date and time the status of the file was last changed.

Last Accessed
The date and time the data in the file was last accessed.

Created
The date and time the file was created.

CCSID
The coded character set identifier assigned to the file for Enhanced ASCII support.

Text Convert
A value of YES indicates the file is enabled for Enhanced ASCII automatic conversion. NO indicates the file is not enabled for automatic conversion.

The Owner section of the panel displays these fields:

File
The user ID and UID number of the owner of the file or directory.

Group
The group name and GID number of the owner of the file or directory.

The Mode Fields section of the panel displays these fields:

Permissions
The file or directory permissions, in octal format. If there are extended access control list (ACL) entries defined for the file or directory, + is displayed after the octal value.

Set User ID
A value of ON indicates the SETUID bit is on causing the effective user ID of the user process executing a program to be set to that of the file owner when this file is run.

Set Group ID
A value of ON indicates the SETGID bit is on causing the effective group ID of the user process executing a program to be set to that of the file owner when this file is run.

Sticky Bit
A value of ON indicates the sticky bit for the file or directory is set on. For files that are programs this causes z/OS UNIX to search for the program in the user's STEPLIB, the link pack area, or the link list concatenation. For a directory it means a user can only remove or rename a file or remove a subdirectory if one of these conditions is true:
- The user owns the file or subdirectory
- The user owns the directory
- The user has superuser authority

The Extended Attributes section of the panel displays these fields:

Shared AS
A value of YES indicates that the program can run in a shared address space.

APF Auth
A value of YES indicates that the program can run APF authorized if it has been linked with AC=1.
Pgm Control
A value of YES indicates that the program can run as if it were from a program controlled library.

Shared Lib
A value of YES indicates that the program is loaded as a system shared library program.

The Audit section of the panel displays these fields:

Auditor
Shows the audit criteria for this file as defined by a user with auditor authority. The value shows three characters describing the audit bit settings for read, write, and execute (search) access. The possible values for each character are:
  - s  Audit successful access attempts
  - f  Audit failed access attempts
  - a  Audit all access attempts
  - -  No audit

User  Shows the audit criteria for this file as defined by the file owner or a superuser. See the Auditor field for the possible values displayed.

The Device Data section of the panel displays these fields:

Device Number
A hexadecimal number that uniquely identifies the mounted file system for this file.

Major Device
For a character special file, this is a number that identifies the device type. The possible values are:
  1  Master pseudo-TTY device, which is tied to a slave device by the minor number
  2  Slave pseudo-TTY device, which is tied to a master device by the minor number
  3  Controlling terminal TTY
  4  Null file
  5  File descriptor file, which is tied to a file descriptor by the minor number
  6  UNIX domain socket name special file
  9  System console file

Minor Device
A number that identifies a specific device of a given device type.

The Modify action bar choice provides these options:

Mode Fields
Displays the Modify z/OS UNIX File Mode Fields panel where you can update the mode fields for the currently displayed file.

Extended Attributes
Displays the Modify z/OS UNIX File Extended Attributes panel where you can update the extended attributes for the currently displayed file.
Information display for link files: When the I line command is entered against a symbolic or external link file, the z/OS UNIX Symbolic Link Information panel is displayed. Figure 175 shows an example.

![Figure 175. z/OS UNIX Symbolic Link Information panel (ISRUULIS)](image)

This panel displays information describing the attributes of a z/OS UNIX symbolic or external file. The Pathname field displays the path name of the selected symbolic or external link file.

The General Information section of the panel displays these fields:

**External Link**
- A value of YES indicates the file is an external link to an object outside of the file system. A value of NO indicates the file is a link to another file or a directory.

**Size**
- The file size, in bytes.

**Links**
- The number of hard links to the file.

**Inode**
- File identification number, unique within the file system.

**Last Modified**
- The date and time the file was last changed.

**Last Changed**
- The date and time the status of the file was last changed.

**Last Accessed**
- The date and time the data in the file was last accessed.

**Created**
- The date and time the file was created.

The Owner section of the panel displays these fields:

**File**
- The user ID and UID number of the owner of the file or directory.

**Group**
- The group name and GID number of the owner of the file or directory.
The Symbolic Link field is a scrollable field that displays the path name or external name to which this symbolic link file refers.

**L—directory list**
The L (list directory) line command can be entered against a directory. This line command causes a new z/OS UNIX Directory List panel to be displayed, showing the entries for the selected directory. This new directory list display is nested so entering the END or EXIT command on this panel will return you to the previous directory list. Entering the CANCEL command on a nested directory list display will return you to the directory list utility entry panel.

**MA—modify ACL**
The MA (modify ACL) line command can be entered against any directory or file entry. This line command causes the Modify z/OS UNIX ACL list panel to be displayed.

![Figure 176. Modify z/OS UNIX ACL list panel (ISRUULMA)](image)

Panel ISRUULMA may display with no entries indicating that no ACL entries have been created.

The list is sorted in UID order.

You can enter these commands on the command line:

**A** Add a new ACL.

**SA** Sort the ACL list alphabetically by user id.

**SN** Sort the ACL list numerically on UID.

**ST** Sort the ACL list alphabetically by type.

If there are ACL entries displayed, these fields are shown:
z/OS UNIX directory list utility (option 3.17)

Select field. These commands are valid:

- **S** Select field. These commands are valid:
- **A** To add further entries.
- **D** To delete the entry.
- **X** To list members of an OMVS group.

**UID** Unix UID value.

**Read, Write, eXecute**
Read, write, and execute permissions for this ACL.

**Name** The name associated with the UID value.

**Type** Describes whether the entry is for a USER or GROUP.

**MF—modify format**
The MF (modify format) line command can be entered against any directory entry except a symbolic link file. This line command causes the Modify z/OS UNIX File Format panel to be displayed.

```
Menu Utilities View Options Help
```
```
Command ===> Modify z/OS UNIX File Format
```
```
Pathname . : /u/myhome/prog1
Type ... : File
Format ... : 1. NA 3. NL 5. LF 7. LFCR
CCSID . . .
Enter "/" to select option
  Automatic Conversion

F1=Help F2=Split F3=Exit F4=Expand F7=Backward
F8=Forward F9=Swap F10=Actions F12=Cancel
```

Figure 177. Modify z/OS UNIX File Format panel (ISRUULMF)

The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.

The format and tag information for the file can be changed by updating these input fields on the panel:

**Format**
Enter one of the listed numbers corresponding to one of these formats required for the file:

- **NA** No format specified.
- **Binary** Binary data.
- **NL** Text file; lines delimited by the newline character.
- **CR** Text file; lines delimited by the carriage-return character.
- **LF** Text file; lines delimited by the line-feed character.
CRLF  Text file; lines delimited by carriage-return and line-feed characters.
LFCR  Text file; lines delimited by line-feed and carriage-return characters.
CRNL  Text file; lines delimited by carriage-return and newline characters.

CCSID
Enter the numeric coded character set identifier (CCSID) associated with
the file. The numeric value must be between 0 and 65535. You can set this
field to blanks or enter a value of 0 to indicate there is no CCSID
associated with the file.

Automatic Conversion
Select this option to identify the file as a candidate for automatic
conversion provided by z/OS UNIX Enhanced ASCII support.

Notes:
1. A superuser or the owner can change the file format of a file.
2. A superuser, the owner, or a user with write permission can change the tag
   information (CCSID and automatic conversion setting) for a file.
3. File tag information cannot be set for a z/OS UNIX directory. Therefore when
   processing a directory the CCSID and Automatic Conversion fields are
   protected.

MG—modify group
The MG (modify group) line command can be entered against any directory entry
except a symbolic link file. This line command causes the Modify z/OS UNIX File
Owning Group panel to be displayed.

Figure 178. Modify z/OS UNIX File Owning Group panel (ISRUULMG)

The Pathname field displays the path name of the selected file. The Type field
display the file type for the selected file.

The owning group for the file can be changed by a superuser or the owner by
updating one of these input fields on the panel:

GID Number
This field allows you to enter the GID of the new group. This must be a
Group ID
This field allows you to enter the group ID of the new group. The group ID must be defined as a z/OS UNIX group in your security data base.

MM—modify mode fields
The MM (modify mode) line command can be entered against any file type apart from symbolic and external link files. This line command causes the Modify z/OS UNIX File Mode Fields panel to be displayed. This panel allows you to modify mode fields for the selected z/OS UNIX file.

The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.

These optional input fields allow you to make modifications to the mode of the file:

Permissions
This field allows you to change the permissions defined for the file. The current permissions for the file are initially displayed. The permissions are displayed and entered as three octal (range 0-7) digits. The first digit defines the access permission for the file owner. The second digit defines the access permission for any member of the file's group. The third digit defines the access permission for anyone else. See Table 17 on page 274.

Set UID bit
When this option is selected, the file mode SETUID bit is set on. When the option is not selected, the SETUID bit is set off. If the SETUID bit is on, the effective user ID of the user process executing a program will be set to that of the file owner when this file is run.

Set GID bit
When this option is selected, the file mode SETGID bit is set on. When the option is not selected, the SETGID bit is set off. If the SETGID bit is on, the effective group ID of the user process executing a program will be set to that of the file owner when this file is run.

Sticky bit
When this option is selected, the file mode sticky bit is set on. When this option is not selected, the sticky bit is set off. If the sticky bit is on for a file that is a program, z/OS UNIX will search for the program in the user's STEPLIB, the link pack area, or the link list concatenation. If the sticky bit is on for a directory it means a user can only remove or rename a file or remove a subdirectory if one of these conditions is true:
- The user owns the file or subdirectory
- The user owns the directory
- The user has superuser authority

MO—modify owner
The MO (modify owner) line command can be entered against any directory entry except a symbolic link file. This line command causes the Modify z/OS UNIX File Owning User panel to be displayed.
The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.

The owner of the file can be changed by a superuser by updating one of these input fields on the panel:

**UID Number**

This field allows you to enter the UID of the new owner. This must be a number, in the range 1 to 2147483647, and must be defined as a z/OS UNIX UID in your security data base.

**User ID**

This field allows you to enter the user ID of the new owner. The user ID must be defined in your security data base and have the authority to use z/OS UNIX resources.

**MX—modify extended attributes**

The MX (Modify eXtended) line command can be entered against regular files in the directory list. This line command causes the Modify z/OS UNIX File Extended Attributes panel to be displayed. This panel allows you to modify the extended attributes for the selected z/OS UNIX regular file. These attributes only affect files that are programs.

The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.

These optional input fields allow you to modify the extended attributes:

**Use Shared Address Space**

When this option is selected, ISPF sets the extended attribute that makes the program eligible to run in a shared address space.

**APF Authorized**

When this option is selected, ISPF sets the extended attribute that makes the program eligible to run APF-authorized if it has been linked with AC=1.
Program Controlled
When this option is selected, ISPF sets the extended attribute that makes
the program eligible to run as if it were from a program controlled library.

Shared Library
When this option is selected, ISPF sets the extended attribute that causes
the program to be loaded from the system shared library region.

N—create a new directory entry
The N (new) line command can be entered against any directory entry. The Create
New z/OS UNIX File panel is displayed.

Figure 180. Create New z/OS UNIX File panel (ISRUULNW)

These mandatory input fields are displayed on this panel:

Pathname
The path name for the z/OS UNIX file to be created. This field is
initialized with the path name of the file that the N line command was
entered against. The field is scrollable with a length of 1023 bytes. Use the
EXPAND function key (F4) to display the entire field in a pop-up window.

Permissions
The permissions defined for the new file. Enter as three octal (range 0-7)
digits. The first digit defines the access permission for the file owner. The
second digit defines the access permission for any member of the file's
group. The third digit defines the access permission for anyone else. See
Table 17 on page 274

Link
This field is only mandatory when creating a Symbolic Link, External Link,
or Hard Link. When creating a Symbolic Link or a Hard Link this field is
used to define the path name of the existing file the link refers to. When
creating an External Link this field is used to define the external name the
link refers to. The field is scrollable with a length of 1023 bytes. Use the
EXPAND function key (F4) to display the entire field in a pop-up window.
File Type
This field is used to enter one of the listed numbers corresponding to the type of file you want to create.
1. Directory
2. Regular file
3. FIFO
4. Symbolic Link
5. External Link
6. Hard Link

These optional fields can be selected on this panel:

Set sticky bit
When this option is selected it causes the sticky bit to be set on for the new file or subdirectory. When the sticky bit is set for a directory, a user cannot remove or rename a file in the directory unless one or more of these is true:
- The user owns the file
- The user owns the directory
- The user has superuser authority

If the sticky bit is set for a program file, when executing the program z/OS UNIX will search for the program in the user's STEPLIB, the link pack area, or the link list concatenation.

Copy
When this option is selected and you are creating a new regular file, it causes the Replace z/OS UNIX File panel to be displayed, allowing you to have the data from a z/OS UNIX file, data set, or partitioned data set member copied into the new file. When selected and you are creating a new directory, it causes the Copy Into z/OS UNIX Directory panel to be displayed, allowing you to have the data from members in a partitioned data set copied into files in the new directory.

Edit
When this option is selected and you are creating a new regular file, it causes the edit function to be invoked allowing you to create and modify data in the new file.

R—rename a file
The R (rename file) line command can be entered against any directory entry. This line command causes the Rename z/OS UNIX File panel to be displayed. This panel displays the Pathname and Type of the file being renamed. Use the New Pathname field to enter the new name for the file.

Note: In the panel displayed by the R line command, you can specify a "+" (plus) character as the first character of a path name to represent the path name of the directory currently listed.

When you press Enter, ISPF attempts to rename the file.

Attention: If the New Pathname you specified corresponds to an existing file, the Confirm Rename panel is displayed. In this situation, proceeding with the rename will cause the existing file with the same name to be deleted.

RA—Add to Personal Data Set List
The RA (refadd) line command is used to add the pathname of the selected file or directory to a personal data set list. When the RA line command is entered, the pop-up panel shown here is displayed, allowing you to enter the name of the
z/OS UNIX directory list utility (option 3.17)

personal data set where the entry for the pathname is to be added.

UA—user auditing

The UA (user auditing) line command can be entered against any directory entry. This line command causes the Modify z/OS UNIX File User Audit Options panel to be displayed.

The Pathname field displays the path name of the selected file. The Type field display the file type for the selected file.
The user auditing options for the file can be changed by a superuser or the owner. These options allow you to define the access attempts that are audited by the security system. You can specify auditing to occur for read, write, and search or execute attempts on the file or directory.

The panel displays fields for specifying the Read, Write and Execute (or search) audit settings. For each of these fields, you enter one of the listed numbers corresponding to one of these results for the access attempt:

- **None**  No audit record is to be written for this type of access.
- **Failure**  Write an audit record if this type of access fails.
- **Success**  Write an audit record if this type of access is successful.
- **Both**  Write an audit record for both failed and successful access attempts.

**V—view regular file**
The V (view) line command can be entered against a regular file or directory. The ISPF editor is invoked, allowing you to view the data in the file.

If you enter the V line command beside a directory, a directory list is displayed allowing you to select a regular file to view.

The View Entry panel can be displayed when the V line command is entered. This panel allows you specify items including the initial macro, profile name, panel name, format, mixed mode, and workstation editing. These values are stored in the profile and are used on subsequent edits. The **Bypass z/OS UNIX File Edit Options panel** option on the z/OS UNIX Directory List Options panel can be selected to stop this panel being displayed for subsequent file edit sessions.

**VA—view ASCII file**
The VA (View - ASCII) line command can be entered against a regular file that contains data encoded in ASCII and the file is not tagged with a CCSID of 819. The ISPF editor is invoked with the ASCII edit facility which converts the ASCII data to the CCSID of the terminal, allowing you to view the ASCII data in file. If the V line command is used and the file is tagged with a CCSID of 819, ISPF invokes the ASCII edit facility.

**X—execute command**
The X (eXecute command) line command can be entered against regular files, directories, or symbolic links to regular files or directories in the directory list. This line command causes the Execute Command for z/OS UNIX File panel to be displayed.

This panel allows you to enter and execute a z/OS UNIX command, TSO command, CLIST, or REXX EXEC, with the path name of the selected file being passed as a parameter.

The Pathname field displays the path name of the selected file.

These input fields allow you to specify the command and select the method by which it is run:

**Command for file**
Use this field to enter the z/OS UNIX command, TSO command, CLIST, or REXX exec to be run.
z/OS UNIX directory list utility (option 3.17)

By default, ISPF appends the path name of the selected file to the end of the command you have entered. If you need to have the path name in a position other than the end of the command, use the path name substitution character to indicate where you want the path name to be placed. The default path name substitution character is ! (exclamation point). For more information about using this symbol, see “Using the path name substitution character” on page 277.

The path name substitution character can also be changed using the Directory List Options panel (see page 312).

If the command is to run in z/OS UNIX by selecting a Run method of Direct or Login shell, then this field can be left blank. This causes the selected file to be executed.

Run method
This field is mandatory. It allows you to select one of these methods for running the command:

- **Direct**
  Causes the command to be run in z/OS UNIX.

- **Login shell**
  Causes the command to be run under the login shell in z/OS UNIX.

- **TSO**
  Causes the command to be passed to TSO for execution.

z/OS UNIX command time limit
This field allows you to set a limit to the amount of time the command can run. This time limit is entered as a number of seconds. If this limit is exceeded, ISPF sends a SIGKILL signal to the process running the command to terminate execution. If you do not want a time limit set, leave the field blank or enter a value of zero.

The time limit value can also be specified on the Directory List Options panel (see page 312).

z/OS UNIX directory list utility primary commands
These topics describe the primary commands available when using the z/OS UNIX Directory List Utility:

- “EDIT command” on page 307
- “FIND and RFIND commands” on page 307
- “LEFT command” on page 308
- “LOCATE command” on page 308
- “REFRESH command” on page 309
- “RESET command” on page 309
- “RIGHT command” on page 309
- “SAVE command” on page 310
- “SORT command” on page 310
- “SU command” on page 311
- “z/OS UNIX commands” on page 311

**Note:** If you enter a “/” (forward slash) in the primary command field, ISPF displays a panel with an extended primary command field allowing you to enter commands up to 255 characters in length.
EDIT command
The EDIT primary command is used to edit a file in the directory currently listed. Use this format:

Syntax
```
EDIT filename
```

The command can be abbreviated as E or EA if EA is used, the editor is invoked with the ASCII edit feature.

For example, if the command shown here was entered while displaying the directory list for u/myhome it would invoke Edit for the file with a path name of /u/myhome/prog1:

```
E prog1
```

ISPF calls the ISPF editor to edit the file. If the file specified on the EDIT command does not exist in the directory, the ISPF editor is still called and can be used to create a new file in the directory.

FIND and RFIND commands
The FIND primary command is used to find and display the next occurrence of a character string in the list of file names. Use this format:

Syntax
```
FIND string NEXT ALL FIRST LAST PREV
```

The command can be abbreviated as F.

For example, this command would tell ISPF to find all occurrences of the character string dat1:

```
F dat1 ALL
```

For more information about the operands used with this command, see “FIND—find character strings” on page 85.

ISPF automatically scrolls to bring the character string to the top of the directory list. To repeat the search without re-entering the character string, use the RFIND command.

Note: The RFIND search starts from the second file on the current directory list screen. It is not cursor-sensitive.
LEFT command
The LEFT primary command scrolls the columns displaying information for the directory list to the left. These columns do not include the Filename and Message columns, which are fixed as the left-hand columns of the Directory List display. Use this format:

Syntax

```
LEFT
```

where:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE</td>
<td>Specifies to scroll left by the number of columns of data (not counting the fixed fields) that can be displayed within the current screen width. This is the default. P can be used as an abbreviation.</td>
</tr>
<tr>
<td>MAX</td>
<td>Specifies to scroll left so that the first column of data is displayed in the leftmost position. M can be used as an abbreviation.</td>
</tr>
<tr>
<td>n</td>
<td>Is a numeric value specifying the number of columns to be scrolled to the left.</td>
</tr>
</tbody>
</table>

Note: If you issue the LEFT command while the cursor is positioned in a scrollable field such as the Filename field, ISPF will scroll the scrollable field and the directory list columns will not be scrolled to the left.

LOCATE command
The LOCATE primary command scrolls the directory list based on the field on which the directory list is sorted, as described under "SORT command" on page 310. Use this format:

Syntax

```
LOCATE lp
```

You can use the lp operand with the LOCATE command for either of these situations:

- If the list is sorted by the Filename field, specify a file name.
- If the list is sorted by another field, specify a value for the field by which the list is sorted.

The command can be abbreviated as L.

For example, for a directory list sorted by type, you could enter:

```
L Sym
```
This command locates the first symbolic link file in the directory list. If the value is not found, the list is displayed starting with the entry before which the specified value would have occurred.

**REFRESH command**
The REFRESH primary command updates the display of the directory list to whatever the list's current state is. For example, after deleting several items on the list, REFRESH causes the list to be displayed without the deleted items. ISPF rebuilds the directory list display by re-reading the entries for the directory.

The command can be abbreviated as REF

**Syntax**
```
/SM590000/SM590000
  REFRESH
  REF
```

**RESET command**
The RESET primary command removes any pending line commands and messages from the directory list.

The command can be abbreviated as RES.

**Syntax**
```
/SM590000/SM590000
  RESET
  RES
```

**RIGHT command**
The RIGHT primary command scrolls the columns displaying information for the directory list to the right. These columns do not include the Filename and Message columns, which are fixed as the left-hand columns of the Directory List display.

Use this format:

```
/SM590000/SM590000
  RIGHT
```

where:
- **Page**  Specifies to scroll right by the number of columns of data (not counting the fixed fields) that can be displayed within the current screen width. This is the default. P can be used as an abbreviation.
- **Max**    Specifies to scroll right so that the first column of data is displayed in the rightmost position. M can be used as an abbreviation.
n Is a numeric value specifying the number of columns to be scrolled to the right.

Note: If you issue the RIGHT command while the cursor is positioned in a scrollable field such as the Filename field, ISPF will scroll the scrollable field and the directory list columns will not be scrolled to the right.

**SAVE command**

The SAVE primary command writes the directory list to the ISPF list data set or to a sequential data set. ISPF writes the directory list in its current sort order. Use this format:

```
Syntax

SAVE list-id

where list-id is an optional user-specified qualifier of the data set to which the directory list will be written. ISPF names the data set prefix.userid.list-id.DIRLIST where:

prefix Your data set prefix, as specified in your TSO user profile. If you have no prefix set, or if your prefix is the same as your user ID, the prefix is omitted and the data set name will be: userid.list-id.DIRLIST

userid Your TSO user ID.

If the data set does not exist it is created. If the data set already exists and has compatible attributes it is overwritten. If you omit the list-id operand, the list is written to the ISPF list data set.

This command would tell ISPF to write the list to a sequential data set named either prefix.userid.MY.DIRLIST or userid.MY.DIRLIST:

SAVE MY

If the sequential data set already exists, ISPF overwrites it; if not, ISPF creates it.

**SORT command**

The SORT primary command sorts the directory list by the specified field. Use this format:

```
Syntax

SORT field1 field2

where:

field1 The major sort field. If omitted, Filename is assumed.
**field2** The minor sort field. If both operands are used, ISPF sorts the list by **field1** first, then by **field2** within **field1**.

**A | D** Specifies the sort sequence for the associated sort field (A=ascending; D=descending). By default, character fields are sorted alphabetically and numeric fields are sorted in descending order.

For example, to sort a directory list by file type and then in descending order by modification date and time within each file type, use this command:

```
SORT TYPE MODIFIED
```

This table identifies the sort field names and associated sort sequence:

<table>
<thead>
<tr>
<th>Field</th>
<th>Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILENAME</td>
<td>Ascending</td>
<td>File name</td>
</tr>
<tr>
<td>MESSAGE</td>
<td>Ascending</td>
<td>Command message</td>
</tr>
<tr>
<td>TYPE</td>
<td>Ascending</td>
<td>File type</td>
</tr>
<tr>
<td>PERM</td>
<td>Ascending</td>
<td>Permissions</td>
</tr>
<tr>
<td>PERMO</td>
<td>Descending</td>
<td>Permissions (octal)</td>
</tr>
<tr>
<td>AUDIT</td>
<td>Ascending</td>
<td>Audit bit settings</td>
</tr>
<tr>
<td>EXT</td>
<td>Ascending</td>
<td>Extended attributes</td>
</tr>
<tr>
<td>FORMAT</td>
<td>Ascending</td>
<td>File format</td>
</tr>
<tr>
<td>OWNER</td>
<td>Ascending</td>
<td>File owner</td>
</tr>
<tr>
<td>GROUP</td>
<td>Ascending</td>
<td>Owner group</td>
</tr>
<tr>
<td>LINKS</td>
<td>Descending</td>
<td>File links</td>
</tr>
<tr>
<td>SIZE</td>
<td>Descending</td>
<td>File size</td>
</tr>
<tr>
<td>MODIFIED</td>
<td>Descending</td>
<td>Date/time file last changed</td>
</tr>
<tr>
<td>CHANGED</td>
<td>Descending</td>
<td>Date/time file status last changed</td>
</tr>
<tr>
<td>ACCESSSED</td>
<td>Descending</td>
<td>Date/time file status last accessed</td>
</tr>
<tr>
<td>CREATED</td>
<td>Descending</td>
<td>Date/time file was created</td>
</tr>
</tbody>
</table>

**SU command**

The SU primary command allows you to switch to super-user mode (UID 0) or switch back to your initial UID.

For more details, see "Switching UIDs with the SU primary command" on page 316.

**z/OS UNIX commands**

You can also enter z/OS UNIX commands in the primary command field on the directory list display panel if the option **Enter z/OS UNIX commands in Command field** is selected on the z/OS UNIX Directory List Options panel. These commands run under the login shell in z/OS UNIX.

**z/OS UNIX directory list options panels**

These topics describe the panels available through the Options pull-down menu:

- "z/OS UNIX Directory List Options panel"
- "z/OS UNIX Directory List Column Arrangement panel" on page 313
- "z/OS UNIX Directory List Default Line Commands panel" on page 313

**z/OS UNIX Directory List Options panel**

This panel allows you to set and save options that change the behaviour of z/OS UNIX Directory List Utility functions. This panel contains these optional input fields:
**Width of filename column**
Use this field to define the width of the column used to display file names in the directory list. The minimum value you can specify is 8. The maximum value is 30.

**Note:** The panel field used for the Filename column is defined as scrollable.

**Path name substitution character**
This field defines the character that can be used to represent the full path name of a selected file. This character shows the position of the file name when it is specified as an argument in a z/OS UNIX command, TSO command, CLIST, or REXX exec. The substitution character can be used with commands that are invoked either as a line command in the directory list or through the Execute Command for z/OS UNIX File panel (see “X—execute command” on page 305). The default character is ! (exclamation point).

**z/OS UNIX command time limit**
This field allows you to set a limit to the amount of elapsed time for a z/OS UNIX command run either directly or under the login shell. z/OS UNIX commands can be invoked via the X line command (see “X—execute command” on page 305) or by using the line command prefix characters < (direct) or > (login shell) (see “z/OS UNIX commands, TSO commands, CLISTs, and REXX EXECs” on page 275). If the time limit set is exceeded by a z/OS UNIX command, ISPF sends a SIGKILL signal to the process running the command to terminate execution.

If you do not want to set a time limit, leave the field blank or enter a value of zero.

**Confirm File Delete**
This option controls the display of the Confirm Delete panel. This panel is displayed when you use the directory list line command “D” to delete files or empty directories. When this option is selected, the Confirm Delete panel is displayed. When this option is not selected, the panel is not displayed and the file or empty directory is deleted without any additional user interaction.

**Confirm Non-empty Directory Delete**
This option controls the display of the Confirm Non-empty Directory Delete panel. This panel is displayed when you use the directory list line command “D” to delete a directory that contains files and sub-directories. When this option is selected, the Confirm Non-empty Directory Delete panel is displayed. When this option is not selected, the panel is not displayed and the directory (including all contained files and sub-directories) is deleted without any additional user interaction.

**Bypass z/OS UNIX File Edit Options panel**
When this option is selected, ISPF will not display the z/OS UNIX File Edit Options panel when the directory list line command “E” is used to edit a regular file. When this option is not selected, this panel, which allows you to specify an edit profile and initial edit macro, will be displayed before editing a regular file.

**Display permissions in octal format**
When this option is selected, permissions for files in the directory list are displayed in octal format. When this option is not selected, permissions are displayed in symbolic format.
z/OS UNIX directory list utility (option 3.17)

z/OS UNIX Directory List Column Arrangement panel
This panel allows you to alter the order and width of the columns displayed on the directory list panel. It lists each column in the z/OS UNIX Directory List. These fields are displayed for each entry:

Restore default column arrangements
Selecting this option allows you to reset the Order and Width values used to format the directory list display to their default values.

Order
This input field displays the current ordinal position for the column on the directory list display. You can update the value in this field to alter the position of this column on the directory list display. For example, to move the Owner field to be the second column displayed, type 02 over its current Order number and press Enter. The list of Columns is rearranged to show the Owner field in the second position. When you next display a directory list, the columns are shown in the new order:

<table>
<thead>
<tr>
<th>Command</th>
<th>Filename</th>
<th>Message</th>
<th>Type</th>
<th>Owner</th>
<th>Permission</th>
<th>Audit</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>bin</td>
<td>Dir</td>
<td>IBMUSER</td>
<td>rwxr-xr-x</td>
<td>fff---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dev</td>
<td>Syml</td>
<td>IBMUSER</td>
<td>rwxrwxrwx</td>
<td>fff---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc</td>
<td>Syml</td>
<td>IBMUSER</td>
<td>rwxrwxrwx</td>
<td>fff---</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Column
This output field displays the heading for the column on the directory list display.

Width
This input field displays the current width for the field for the column on the directory list display. You can update this value to increase or decrease the size of the field for the column. Setting the width value to 0 (zero) means the column will not be displayed in the directory list.

Maximum
This output field displays the maximum value that can be entered in the Width field.

z/OS UNIX Directory List Default Line Commands panel
This panel allows you to set and save the default line commands for the different z/OS UNIX file types displayed in a z/OS UNIX directory list. The default line command for a file type is invoked when the cursor is positioned in the line command field for a file of that type, the Enter key is pressed but a command is not entered in the field. This panel contains these input fields:

Directory
Use this field to define the default line command for directories. The valid values are:
- CO
- CI
- N
- L (default)
- I
- D
- R
- MM
- MO
- MG
- MF
- X
z/OS UNIX directory list utility (option 3.17)

- UA
- AA
- FS

**Regular file**

Use this field to define the default line command for regular files. The valid values are:
- E
- EA
- V
- VA
- B (default)
- CO
- CI
- N
- I
- D
- R
- MM
- MX
- MO
- MG
- MF
- X
- UA
- AA
- FS
- RA

**Character special**

Use this field to define the default line command for character special files. The valid values are:
- N
- I (default)
- D
- R
- MM
- MO
- MG
- MF
- UA
- AA

**FIFO**

Use this field to define the default line command for FIFO files. The valid values are:
- N
- I (default)
- D
- R
- MM
- MO
- MG
- MF
- UA
- AA
Symbolic link
Use this field to define the default line command for symbolic link files.
The valid values are:
- E
- EA
- V
- VA
- B
- CO
- CI
- N
- I (default)
- D
- R
- X

Use of scrollable fields for path names
Because path names can be up to 1023 characters in length, ISPF uses scrollable fields throughout the z/OS UNIX Directory List Utility for the display and entry of path names.

For path name output fields, if a + (scroll indicator) is displayed to the right of the path name it indicates that the path name is larger than the display field length. The RIGHT primary command can be used to view more of the path name by scrolling the value right. Use the EXPAND function key (F4) to display the entire path name field in a pop-up window.

For path name input fields the + scroll indicator is always displayed to the right of the path name, indicating that you can enter a path name larger than the input field length. The RIGHT primary command can be used to obtain more input space by scrolling the value right. Use the EXPAND function key (F4) to display the entire path name input field in a pop-up window.

Switching to super-user (UID 0) mode and back
On the entry panel and the directory list display panel, you can switch to super-user mode (UID 0) or switch back to your initial UID with either:
- The Options pull-down menu, or
- The SU primary command

Switching UIDs with the Options pull-down menu
The Options pull-down menu available on the entry panel and the directory list display panel provides an option that lets you switch to super-user mode (UID 0) or switch back to your initial UID.

When you are operating under your UID, the Options pull-down menu displays this option:
3. Enable superuser mode (SU)

Note: If you select this option, and you have permission to the BPX.SUPERUSER facility class, you are switched to UID 0 (super-user mode).

When you are operating in super-user mode, the Options pull-down menu displays this option:
3. Reset UID to nnn
Switching UIDs with the SU primary command

From the entry or directory list panels, you can switch to super-user mode (UID 0) or switch back to your initial UID with the SU primary command. Use this format:

Syntax

```
SU UIDnum
```

where:

*UIDnum*

The UID to which you want to switch.

**Note:** To switch to another UID, you must have permission to the BPX.DAEMON facility class (if defined).

If you do not specify a UID number, you are switched either to UID 0 (if you are currently operating under your UID), or reset back to your UID (if you are currently operating in super-user mode).
Chapter 6. Foreground (option 4)

The Foreground option (4) allows ISPF to run the foreground processors shown on the Foreground Selection panel, Figure 183. All these processors except for COBOL interactive debug, SCRIPT/VS, and FORTRAN interactive debug are also available with the Batch option (5).

When you run a foreground processor, you must wait until the processor ends before doing anything else with ISPF. If you want to use ISPF while waiting for the processor to end, submit the input as a batch job. You can do this by using the Batch option if the processor you need is listed on the Batch Selection panel, Figure 202 on page 351.

The names of the foreground processors on this panel are point-and-shoot fields. For more information, see the Point-and-Shoot Text Fields section of the ISPF User Interface topic of the z/OS ISPF User's Guide Vol I.

Foreground selection panel action bar

The Foreground Selection Panel action bar choices function as follows:

<table>
<thead>
<tr>
<th>Menu</th>
<th>Utilities</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assembler</td>
<td>11 *FORTRAN debug</td>
<td>1 Assembler 11 *FORTRAN debug</td>
</tr>
<tr>
<td>2 COBOL</td>
<td>12 Member Parts List</td>
<td>2 COBOL 12 Member Parts List</td>
</tr>
<tr>
<td>3 VS FORTRAN</td>
<td>13 *C/370</td>
<td>3 VS FORTRAN 13 *C/370</td>
</tr>
<tr>
<td>4 PL/I</td>
<td>14 *REXX/370</td>
<td>4 PL/I 14 *REXX/370</td>
</tr>
<tr>
<td>5 VS PASCAL</td>
<td>15 *ADA/370</td>
<td>5 VS PASCAL 15 *ADA/370</td>
</tr>
<tr>
<td>7 *Binder/Link editor</td>
<td>16 *AD/Cycle C/370</td>
<td>7 *Binder/Link editor 16 *AD/Cycle C/370</td>
</tr>
<tr>
<td>9 SCRIPT/VS</td>
<td>18 ISPOTLC</td>
<td>9 SCRIPT/VS 18 ISPOTLC</td>
</tr>
<tr>
<td>10 VS COBOL II debug</td>
<td>19 *OS/390 C/C++</td>
<td>10 VS COBOL II debug 19 *OS/390 C/C++</td>
</tr>
<tr>
<td>10A *OS/VS COBOL debug</td>
<td></td>
<td>10A *OS/VS COBOL debug</td>
</tr>
</tbody>
</table>

Enter "/" to select option * No packed data support
Source Data Packed

Option ===>
F1=Help    F2=Split    F3=Exit    F7=Backward    F8=Forward    F9=Swap
F10=Actions F12=Cancel

Figure 183. Foreground Selection Panel (ISRFPA)

The names of the foreground processors on this panel are point-and-shoot fields. For more information, see the Point-and-Shoot Text Fields section of the ISPF User Interface topic of the z/OS ISPF User's Guide Vol I.
foreground processing as well as information about each available choice on the Foreground Selection Panel.

**Foreground processing sequence**

This topic describes the main sequence for foreground processing.

1. If you do not know whether the source data is in packed format, find out by editing the data set and entering the PROFILE command. If the source data is in packed format, the profile shows PACK ON.
   
   If the data is packed, select the Source Data Packed option. If the data is not packed, deselect this option.
   
   Also, you should read [“Expanding packed data” on page 321](#), paying close attention to:
   
   - Information that applies to the foreground processor you plan to use.
   - The difference between expanding a sequential data set and expanding members of a partitioned data set.

   When you are satisfied that the data set is ready to be processed, continue with the next step.

2. Select one of the foreground processors listed at the top of the Foreground Selection panel shown in [Figure 183 on page 317](#).
   
   **Note:** A region size of 2 megabytes or more will probably be required to run the VS FORTRAN compiler in the foreground.

3. Select the Source Data Packed option to tell ISPF if it needs to expand the source data.
   
   **Note:** The Source Data Packed option has no effect on the Member parts list option (4.12). Member parts list can read both packed and unpacked data sets, so no expansion is needed.

4. When the Session Manager licensed program, 5740-XE2, is installed, you can select the Session Manager mode option on the ISPF Settings panel so that you enter Session Manager mode when you call any of the foreground processors. Once you call Session Manager, it stays in effect for all logical screens until you turn it off. For example, if you call Session Manager and then split the screen, Session Manager will be in effect on both logical screens.
   
   **Note:** If graphics interface mode is active, Session Manager does not get control of the screen. Graphics interface mode is started when a GRINIT service has been issued, but a GRTERM service has not been issued. See [z/OS ISPF Services Guide](#) for more information about these two services.

5. Press Enter. ISPF displays the data entry panel for the processor you selected.
   
   The remainder of this processing sequence applies to all foreground processors except SCRIPT/VS, VS COBOL II interactive debug, COBOL interactive debug, and Member Parts List. For these processors, use the sequence referred to in this list:

<table>
<thead>
<tr>
<th>Processor</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCRIPT/VS</td>
<td>“SCRIPT/VS processor (option 4.9)” on page 334</td>
</tr>
<tr>
<td>VS COBOL II interactive debug</td>
<td>“VS COBOL II interactive debug (option 4.10)” on page 341</td>
</tr>
<tr>
<td>COBOL interactive debug</td>
<td>“OS/V&gt;&lt;/noscript&gt;RS COBOL debug (option 4.10A)” on page 341</td>
</tr>
</tbody>
</table>
6. Enter the appropriate ISPF library and concatenation sequence or data set name. If the input data set is partitioned, you can leave the member name blank or use a pattern to display a member list. If you need help, see:

- The Naming ISPF Libraries and Data Sets section of the “ISPFF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for help in entering library or data set names.
- The Displaying Member Lists section of the “ISPFF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for information about patterns and displaying member lists.
- “Input data sets” on page 324 for information about the regular concatenation sequence.
- “Object data sets” on page 326 for information about object modules.
- “Linkage editor concatenation sequence” on page 334 for help with the linkage editor concatenation sequence.

VS FORTRAN has no LIB option, which some foreground processors use to specify the input data set concatenation sequence. Therefore, the concatenation sequence specified in the Group fields is used to find the member to be compiled.

For FORTRAN interactive debug, the TYPE, or last qualifier, must be either OBJ or LOAD. However, if you specify an OBJ data set as your input data set, you must include a load library or data set in the input search sequence (see step 11).

7. This step applies to FORTRAN interactive debug only. Use the Source Type field to tell ISPF the Type, or last qualifier, of the data set used to create the input object module or load module.

8. Use the List ID field to tell ISPF what to name the output listing. See “List data sets” on page 325 for more information.

9. Enter your password in the Password field if your input data set is password-protected. See “Password protection” on page 326 for more information.

10. The Option field, whether ASSEMBLER, COMPILER, LINKAGE EDITOR, or DEBUG, is remembered from one session to another. Therefore, you do not need to change this field unless the options you need are not displayed. Be careful not to enter any options that ISPF generates automatically. These options are listed on the data entry panel. For more information about the options available for your processor, refer to the documentation supplied with that processor.

11. Enter any additional input libraries you need. For FORTRAN interactive debug, enter any input LOAD libraries that you need to complete the search sequence. These libraries must be LOAD libraries only. See “Input data sets” on page 324 if you need help.

12. Once all the input fields have been specified, press Enter to call the foreground processor.

If the Session Manager is installed and you selected Session Manager mode on the ISPF Settings panel, the foreground processor and all function keys and PA keys are under the control of the Session Manager. When foreground processing is complete, you are prompted to enter a null line to return to ISPF control.
If the Session Manager is not called, the PA and function keys have their usual TSO-defined meanings; generally, the function keys are treated the same as the Enter key.

13. Communication with foreground processors is in line-I/O mode. Whenever you see three asterisks, press Enter.

14. If the foreground processor generated an output listing, the listing is displayed automatically in Browse mode.

Note: If a Foreground processing program ends abnormally, ISPF displays a message in the upper-right corner of the screen and does not enter Browse mode. The list data set is retained, but the Foreground Print Options panel (see step 15) is not displayed.

You can scroll the output up or down using the scroll commands. All the Browse commands are available to you. When you finish browsing the listing, enter the END command.

15. An optional print utility exit routine can be installed by your system programmer. If this exit routine is installed, it may cause the Foreground option’s response to differ from the descriptions shown here. See z/OS ISPF Planning and Customizing for more information about the print utility exit.

Another factor that can affect the performance of the Foreground option is whether the TSO/E Information Center Facility is installed. If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to display a panel for submitting TSO/E Information Center Facility information with the print request. See Figure 185 on page 327 for an example of this panel and “Using the TSO/E information center facility” on page 186 for information about the fields on this panel. If the TSO/E Information Center Facility is not installed, the Foreground option displays the panel shown in Figure 184 to allow you to print, keep, or delete the output.

---

<table>
<thead>
<tr>
<th>PK</th>
<th>Print data set and keep</th>
<th>K</th>
<th>Keep data set (without printing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD</td>
<td>Print data set and delete</td>
<td>D</td>
<td>Delete data set (without printing)</td>
</tr>
</tbody>
</table>

If END command is entered, data set is kept without printing.

Data set name . :

Print mode . . . BATCH (Batch or Local)

Batch SYSOUT class . .

Local Printer id or
writer-name . . (For local printer)

Local SYSOUT class . .

Job statement information: (Required for system printer)

Option ===>

F1=HELP F2= F3=END F4=DATASETS F5=FIND F6=CHANGE
F9=SWAP F10=LEFT F11=RIGHT F12=SUBMIT

Figure 184. Foreground Print Options panel (ISRFPPRT)

On this panel, the “Data set name” field shows the name of the list data set that contains the output generated by the processor you selected. In the
**Foreground—processing sequence**

Option field, enter one of the options shown at the top of the panel. The “Print mode”, “Batch SYSOUT class”, “Local Printer id or writer name”, and Local SYSOUT Class fields on this panel are described under “Hardcopy utility (option 3.6)” on page 183. The “Job statement information” field is described under the Job Statement Information section of the “ISPF Libraries and Data Sets chapter” of the [z/OS ISPF User’s Guide Vol I](#). When you press Enter, the processor entry panel is displayed again. A message indicating completion of the process is displayed in the upper-right corner of the screen.

16. You can perform one of these actions:
   - Enter other parameters and call the same processor.
   - Enter the END command to return to the Foreground Selection panel and select another processor.
   - Enter the RETURN command to go to the ISPF Primary Option Menu.
   - Use the jump function (=) to choose any primary option.

---

**Expanding packed data**

*Packed data* is data in which ISPF has replaced any repeating characters with a sequence showing how many times the character is repeated. Packing data allows you to use direct access storage devices (DASD) more efficiently because the stored data occupies less space than it would otherwise.

If the source data that you want to process is packed, it must be expanded before it can be successfully processed by any of the language processors. Which expansion method you should use depends on whether your source data is:

- A sequential data set that contains expansion triggers

   An *expansion trigger* is a keyword that tells ISPF to expand additional data before copying, including, or imbedding it in the source data. Examples are INCLUDE and COPY statements, and SCRIPT .IM (imbed) control words. For information about defining your own expansion triggers, refer to [z/OS ISPF Planning and Customizing](#).

   ISPF does not recognize expansion triggers in data stored as a sequential data set. Therefore, for this type of data, you should follow these steps:

   1. Manually expand the data that is to be copied, included, or imbedded in your source data. To do this, edit the source data, enter the PACK OFF command, and then save the data. When you have finished processing the data, you can repack it by editing it again and entering PACK ON.

   2. Select the Source Data Packed option before calling one of the language processors.

- Either of these:
  - A sequential data set that does not contain expansion triggers
  - Any member of a partitioned data set, either with or without expansion triggers.

   ISPF does recognize expansion triggers in data stored as members of a partitioned data set. Also, if your source data does not contain expansion triggers, you do not have to be concerned with them. Therefore, for these two types of data, select the Source Data Packed option before calling one of the language processors.

In each of the preceding situations, selecting the Source Data Packed option causes ISPF to expand packed source data before it is processed. For partitioned data sets,
any included members are also expanded inline where the INCLUDE or COPY statements, .IM SCRIPT control words, or other user-defined trigger statements are found.

**Member expansion (ISRLEMX)**

Member expansion uses simple language scanners to find expansion triggers. If you specify that the source data is not packed, the ISRSCAN program is used. However, if you specify that the source data is packed, member expansion uses the ISRLEMX program.

These scanners do not have all the sophistication of the actual language processors. Therefore, unusual code or code that does not compile cannot be successfully processed by member expansion. Examples are trigger statements:
- With comments that extend onto the next line
- That have compiler instructions to change the content of the code to be included.

Compiler control statements and symbolic substitution are not considered during member expansion. Instead, ISRLEMX creates a temporary data set to be used as input to the language processor. All members to be processed, including members imbedded with COPY, INCLUDE, or .IM statements, are copied into this data set, expanded, and passed on to the language processor. The temporary data set will have the same block size as the input data set that contains your source data.

When using languages that allow multiple compilations, such as VS FORTRAN, you must put the source statement that ends the program in your original, or top-level, program. This statement cannot be in an included member.

Table 18 shows the languages processed by member expansion, their expansion triggers, syntax, and the input columns processed for fixed-record data and variable-record data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Expansion Trigger</th>
<th>Syntax</th>
<th>Input Columns Processed for F/PB Format</th>
<th>Input Columns Processed for V/VB Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembler</td>
<td>COPY</td>
<td>COPY name</td>
<td>1 - 80</td>
<td>N/A</td>
</tr>
<tr>
<td>PL/I</td>
<td>%INCLUDE</td>
<td>%INCLUDE DDNAME(name); %INCLUDE name;</td>
<td>2 - 72</td>
<td>10 - 100</td>
</tr>
<tr>
<td>COBOL</td>
<td>COPY</td>
<td>COPY name.</td>
<td>7 - 72</td>
<td>N/A</td>
</tr>
<tr>
<td>VS FORTRAN</td>
<td>INCLUDE</td>
<td>INCLUDE (name)</td>
<td>1 - 72</td>
<td>N/A</td>
</tr>
<tr>
<td>Pascal</td>
<td>%INCLUDE</td>
<td>%INCLUDE name; %INCLUDE DDNAME(name);</td>
<td>1 - 72</td>
<td>1 - 100</td>
</tr>
<tr>
<td>SCRIPT</td>
<td>.IM</td>
<td>.IM name; .IM (name) .IM ('name')</td>
<td>1-reclength or 9-reclength</td>
<td>1-reclength or 1-(reclength-8)</td>
</tr>
<tr>
<td>All languages</td>
<td>User-trigger</td>
<td>User-trigger name</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Restrictions on member expansion and member parts lists**

These restrictions apply only to the member expansion and member parts listing functions:
- These restrictions apply to all languages:
Foreground—member expansion (ISRLEMX)

- Expansion triggers must follow their respective language coding conventions unless otherwise noted.
- Multiple names and preprocessor variables on trigger statements are not permitted.
- User triggers and their start column are specified at installation time and must be:
  - No more than 20 characters long
  - Uppercase with no imbedded blanks.
  No part of the user trigger can be in a comment or continuation field.
- Macros cannot be in packed form.
- The trigger statement must be the only statement in the logical record. No continuation is allowed into or from a trigger statement. Also, the trigger keyword must be the first character on the trigger statement that is not a blank and can be followed by only one statement delimiter.
- For compilers that allow names longer than 8 characters, the name is truncated at 8.
- For compilers that allow uppercase and lowercase names, all referenced names are converted to uppercase.
  - This restriction applies to assembler only:
    - The user trigger cannot start in column 1.
  - This restriction applies to FORTRAN only:
    - The member expansion function allows only the fixed form of coding.
  - This restriction applies to PL/I, Pascal, and COBOL:
    - Free form coding is allowed except in trigger statements.
  - Other COBOL restrictions are:
    - The name is truncated at 8 characters or the first hyphen (-), whichever comes first.
    - The first statement in the COBOL program must be either an expansion trigger, a valid COBOL division header, a TITLE, a PROCESS, or a CBL statement. The expansion trigger can precede all other statements, but it must start in FIELD B.
      - If an expansion trigger is the first statement, it must eventually resolve (through multiple expansion triggers if needed) to a valid COBOL division header, TITLE, PROCESS, or CBL statement.
    - In the COPY statement, the text-name is the only value processed. The statement must end on the same line as the COPY keyword with a period followed by a space. If any option is found, the COPY statement is not expanded.
    - In the IDENTIFICATION DIVISION, the division header or paragraph header statements must be blank except for the division or paragraph name. The trigger statement must be on the next line that is neither blank nor a comment.
    - In all other divisions, the trigger statement (line) can be on any line in the division.
    - If the WITH DEBUGGING MODE clause is not found in the SOURCE COMPUTER paragraph, all debug lines are passed to the compiler without being scanned for expansion triggers, as if they were comment lines. If the clause is found, valid trigger statements found on debug lines are expanded and a D is inserted in column 7 of all the non-comment, non-continuation lines included.
Forefront—member expansion (ISRLEMX)

- Any character found in FIELD A that is not a blank causes the end of the paragraph form of the NOTE statement.

- These are SCRIPT/VS restrictions:
  - The .im statement must be the only statement in the logical record and must start in the first valid column. The first logical record is tested for line numbers, as follows:
    - For fixed-length records, if the last 8 characters are all numeric, they are skipped for the complete library.
    - For variable-length records, if the first 8 characters are all numeric, processing begins with column 9.
  - The statements can be in either uppercase, lowercase, or mixed case.
  - Because ISPF creates a sequential data set from the imbedded members, use of the .EF control word will cause all statements in the sequential data set following the .EF to be ignored. The use of .EF is not recommended with packed data.

Member expansion ISRLEMX return codes

Table 19 describes the ISRLEMX return codes.

<table>
<thead>
<tr>
<th>ISRSCAN</th>
<th>ISREMX</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1-15</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

   12 Member not found.
   16 OPEN error on DDNAME=IN.
   20 I/O error on DDNAME=IN.
   24 OPEN error on DDNAME=OUT.
   28 I/O error on DDNAME=OUT.

   1-15 Parameter n was too long, where n = 1 to 15.
   16 Too many parameters.
   17 Too few parameters.
   20 Severe error in expand module. An error message should be printed in the ISRLMSG data set.

Trigger statement errors

Some of the more common errors that occur are:

- Restricted option.
- Statement on more than one line.
- Referenced member name not found.

If an error occurs, the trigger statement is not expanded and is passed to the language processor.

In SCRIPT/VS, if the error was found in a user trigger, one blank line is inserted before and after the statement in question.

Input data sets

Input to a foreground processor is either:

- A member of an ISPF library or other partitioned data set. If you do not specify a member name, ISPF displays a member list, or
- A sequential data set

If an ISPF library is the input source, the member can be in any library in the concatenation sequence. You can include additional input by using:
Forefront—input data sets

- The COPY statement for assembler and COBOL.
- The INCLUDE statement for PL/I, FORTRAN, and Pascal.
- The SCRIPT/VS imbed control word (.im).
- Macros
- Additional input libraries.

Whenever the input source is partitioned, you can specify additional input libraries. They must be partitioned data sets that are not password protected. You cannot specify additional input libraries if the input source is sequential. Specify the fully qualified data set names, enclosed in apostrophes, such as:

```
Additional input libraries:
  ==> 'ABC.MACROS'
```

For example, in Figure 186 on page 328 a concatenation sequence of three ISPF data sets and one additional input library has been specified. The concatenation order is:

```
ISPFDEMO.XXX.ASM
ISPFDEMO.A.ASM
ISPFDEMO.MASTER.ASM
ISPFTEST.FLAG.ASM
```

The last data set in the concatenation sequence, ISPFTEST.FLAG.ASM, is entered as an additional input library at the bottom of the panel. Additional input libraries are always last in the sequence.

Before calling a foreground processor, ISPF scans the concatenated sequence of libraries to find the member to be processed. For this example, the member name is TOP. If member TOP first appears in data set ISPFDEMO.A.ASM, this prompter command would be generated by Assembler XF.

```
ASM 'ISPFDEMO.A.ASM(TOP)'
LIB('SYS1.MACLIB',
  'ISPFDEMO.XXX.ASM',
  'ISPFDEMO.A.ASM',
  'ISPFDEMO.MASTER.ASM',
  'ISPFTEST.FLAG.ASM')
LOAD('ISPFDEMO.XXX.OBJ(TOP)')
PRINT(LISTASM)
LIST,TEST,TERM,RENT
```

The processor options are passed to the prompter exactly as you specify them.

**Note:** The macro library SYS1.MACLIB is included in the concatenation sequence for Assembler only. When included, as the preceding prompter command example shows, it is always first in the sequence because of its large block size.

### List data sets

In the List ID field, you can enter the name you want ISPF to use to identify the list data set that will contain the foreground processor output. This name is passed to the foreground processor by either the LIST or PRINT option. These rules apply:

- If the input data set is partitioned the List ID field is optional:
  - Leave the List ID field blank if you want ISPF to use the input member name to identify the output list data set.
  - Enter a LIST ID if you want to use a name other than the input member name to identify the output list data set.
Foreground—list data sets

- If the input data set is sequential, you must enter a LIST ID.

For best results, if you plan to debug your program later using COBOL interactive debug:
- Enter the name of the member being compiled in the List ID field if the input data set is partitioned.
- If the input data set is sequential, enter the name of the sequential data set.

Then, when you debug your program, use these same names in the PROG ID fields on the COBOL Interactive Debug panel.

ISPF names the listing:
prefix.userid.listid.LIST

where
prefix

is the data set prefix in your TSO profile, if you have one and if it is different from your user ID,
userid

is your user ID, and
listid

is the member name or the value in the List ID field.

If you are using the same list data set for multiple job steps, be aware that the DCB information can differ between the language processors and the linkage editor, causing an I/O error when trying to read the list data set. We suggest that you use a different list ID for each job step.

Password protection

Input, object, interpretable text (ITEXT), and symbolic debug data sets can be password-protected. You can specify the password in the Password field on the foreground processor data entry panel. The password does not appear on the screen when you enter it, but ISPF remembers it.

Since foreground processor panels have only one Password field, ISPF prompts you if all data sets do not have the same password.

Object data sets

The information shown here about object data sets applies to all foreground assemblers and compilers. However, if you are using the VS FORTRAN compiler, you must enter OBJECT in the Other field to generate an output object module. The two assemblers and the other compilers generate object modules automatically.

If you specify an ISPF library as the input source, ISPF writes object output from the foreground assembler or compiler to a partitioned data set. This data set has the same name as the first library in the concatenation sequence, but has a type of OBJ. For example, if you specify PROJECT.LIB1.ASM as the first library name, the object output is placed in data set PROJECT.LIB1.OBJ. The member name of the object module is the same as the input member.
Foreground—object data sets

If you specify another data set, the object output is placed in a data set of the same name, but with the last qualifier replaced by OBJ. If the data set name has only one qualifier, OBJ is appended as the last qualifier. For example, if you specify an input data set named OTHER.ASM or OTHER, the object output is placed in a data set named OTHER.OBJ. For partitioned data sets, the object output is stored in a member with the same name as the input member. For sequential data sets, the object output is stored in a sequential data set.

Note: The object data set must exist before invoking a foreground or batch option that creates an object module.

Foreground—TSO/E information center facility

If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to substitute the panel shown in Figure 185 for the panel shown in Figure 184 on page 320. This panel is valid for all foreground processors except SCRIPT/VS and member parts list. See "Using the TSO/E information center facility" on page 186 for information about the fields on this panel.

![Foreground Print Options panel with TSO/E information center facility](ISRFPPRI)

**Foreground Print Options**

- **PK**: Print data set and keep
- **K**: Keep data set (without printing)
- **PD**: Print data set and delete
- **D**: Delete data set (without printing)

If END command is entered, data set is kept without printing.

Data set name . . . :

Printer Location . .

Printer Format . .

Number of copies . .

Option ==>  
F1=HELP F2= F3=END F4=DATASETS F5=FIND F6=CHANGE  
F9=SWAP F10=LEFT F11=RIGHT F12=SUBMIT

**Figure 185. Foreground Print Options panel with TSO/E information center facility**

Assembler (option 4.1)

Foreground Assembler enables you to use either High Level Assembler or Assembler H. Both are called from the Foreground Assembler panel, shown in Figure 186 on page 325. For information about Assembler data sets, see the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol I.
Forefront—Assembler (option 4.1)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

Assembler Options

Be careful not to enter the OBJECT and LIST options in this field. ISPF generates these options automatically. OBJECT writes the output object module to a partitioned data set. LIST writes the output listing to a list data set. See “Object data sets” on page 326 and “List data sets” on page 325 for more information.

Assembler

Enables you to specify whether to use High Level Assembler or Assembler H. Specify 1 for High Level Assembler or 2 for Assembler H.

COBOL (option 4.2)

ISPF generates an ISPEXC SELECT PGM(IGYCRCTL) statement to invoke a COBOL compiler using the values you enter on the Foreground COBOL Compile panel, shown in Figure 187 on page 329. For information about COBOL allocation data sets, see the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol I.
VS FORTRAN compile (option 4.3)

The Foreground VS FORTRAN Compile panel is shown in Figure 188 on page 330.
All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

**Object**

ISPF does not automatically generate any options for VS FORTRAN. Instead of generating an object module automatically, the VS FORTRAN compiler allows you to decide whether to generate one. To generate an object module, enter OBJECT in the Object field. To avoid generating an object module, enter NOOBJECT. See “Object data sets” on page 326 for more information.

**Other**

If you plan to run FORTRAN interactive debug after you compile your program, enter TEST in the Other field, along with any other options you need.

**PL/I (option 4.5)**

The Foreground PL/I option enables you to invoke either OS PL/I Version 2 or PL/I for MVS and VM, using the values specified on the Foreground PL/I Compile panel shown in Figure 189 on page 331.
Foreground—PL/I compile (option 4.5)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the [z/OS ISPF User's Guide Vol I] except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

Compiler
Choose the compiler you want to use from the list presented.

Compiler Options
Enter any options you need in the Other field, except LIB, OBJECT, or PRINT. ISPF generates these options automatically. LIB specifies the input data set concatenation sequence. OBJECT writes the output object module to a partitioned data set. PRINT writes the output listing to a list data set. See “Input data sets” on page 324, “Object data sets” on page 326, and “List data sets” on page 325 for more information.

VS Pascal compile (option 4.6)

The Foreground VS Pascal Compile panel is shown in [Figure 190 on page 332].
Foreground—VS Pascal compile (option 4.6)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

Other Enter any options you need in the Other field, except LIB, OBJECT, or PRINT. ISPF generates these options automatically. LIB specifies the input data set concatenation sequence. OBJECT writes the output object module to a partitioned data set. PRINT writes the output listing to a list data set. See “Input data sets” on page 324, “Object data sets” on page 326, and “List data sets” on page 325 for more information.

Binder/linkage editor (option 4.7)

The Foreground Binder/Linkage Editor is called from the Foreground Binder/Linkage Edit panel, shown in Figure 191 on page 333.
All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol. I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

**Linkage editor/binder options**

Enter any options you need, except LOAD, LIB, or PRINT. ISPF generates these options automatically. LOAD writes the output object module to a partitioned data set.

**Note:** Sequential data sets are invalid when using the Linkage Editor.

LIB specifies the input data set concatenation sequence. PRINT writes the output listing to a list data set. See “List data sets” on page 325 and “Object data sets” on page 326 for more information.

**Binder**

Determines whether the Linkage Editor (NOBINDER) or Binder (BINDER) is invoked.

**Note:** The binder is available only if DFSMS 1.1, or later, is installed.

**SYSLIB**

The name of the data set that is to contain the ISPF library concatenation sequence used to resolve any copy statements specified in your program. See “Input data sets” on page 324 and the SYSLIB Data Set section in the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol. I for more information.

**SYSLIN**

The name of the data set that is to contain the object module. The SYSLIN field is provided to accommodate the VS Pascal XA and NOXA processing options. See “Input data sets” on page 324 and the SYSLIB Data Set section in the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol. I for more information.
Linkage editor concatenation sequence

The concatenation sequence used by ISPF to find the member for input to the Linkage Editor is:

```
project-name.lib1-name.type
project-name.lib2-name.type
(and so forth)
```

where type is whatever you specify on the panel. For example, it can be OBJ or some other type containing Linkage Editor language (LEL) control statements. If the type is not OBJ, an OBJECT DDNAME is automatically allocated to ease the use of these Linkage Editor control statements:

```
INCLUDE OBJECT(member-name)
```

For example:

```
Project . . . XYZ
Group . . . MYLIB . . . MASTER . . . . . .
Type . . . LEL
Member . . . TOP
```

In this example, ISPF searches data sets XYZ.MYLIB.LEL and XYZ.MASTER.LEL to find member TOP, which should contain LEL control statements. Also, ISPF allocates to DDNAME OBJECT (DISP=SHR) these concatenated sequence of object libraries:

```
XYZ.MYLIB.OBJ
XYZ.MASTER.OBJ
```

This concatenated sequence is searched by the Linkage Editor if member TOP contains INCLUDE OBJECT(member-name) statements. The concatenation sequence passed to the Linkage Editor by way of the LIB parameter has a type qualifier of LOAD and includes the system libraries you specify, as follows:

```
LIB('project-name.lib1-name.LOAD',
   'project-name.lib2-name.LOAD',
   : 
   and so forth,
   : 
   'syslib1-name',
   : 
   and so forth)
```

This concatenation sequence is used by the Linkage Editor to resolve automatic call references.

SCRIPT/VS processor (option 4.9)

Use of this facility requires the installation of the Document Composition Facility (DCF) program product and its component text processing program, SCRIPT/VS, with the Foreground Environment Feature.

Note: DCF requires the TSO profile prefix to be set. For additional information, refer to DCF documentation.

When you select the SCRIPT/VS option, the first panel displayed is the SCRIPT/VS Processor panel shown in Figure 192 on page 335.
SCRIPT/VS processing sequence

A style contains options that tell SCRIPT/VS how to format a document for display or printing. These options include the use of fonts, white space, line lengths, and so forth.

The value you put in the Style field and whether or not you select the Display Style Options and Browse Output options determine this SCRIPT/VS processing sequence:

1. For the Style field, you can perform one of these actions:
   • Enter the name of an existing style.
     You can enter the name of a style you have created or one of the styles SCRIPT/VS creates for you: DRAFT and FINAL. These two styles correspond to the formatting options available in the previous release of SCRIPT/VS Foreground Processing. If you have not defined these options before or if this is your first release of ISPF, the default values for the SCRIPT/VS formatting options are set for you.
     If you enter the name of an existing style in the Style field, that style is used for formatting.
   • Enter the name of a new style you want to define.
     If you enter a new style name, the name is added to your style list. The new style uses SCRIPT/VS formatting options that are equal to the formatting options of the last style. Step 2 on page 336 explains what to do to change these options.
   • Leave the Style field blank.
If you leave the Style field blank, ISPF displays the Select SCRIPT/VS Formatting Style panel. This panel displays a list of the available styles. See “Selecting a formatting style” on page 338 for more information.

2. Use a slash to select Display Style Options. ISPF displays the SCRIPT/VS Options for Style panel, which shows the options that are currently being used and allows you to change them. See “Changing style options” on page 339 for more information.

If you do not select Display Style Options, ISPF does not display the SCRIPT/VS Options for Style panel.

3. Enter the appropriate ISPF library and concatenation sequence or data set names. You can display a member list by omitting the member name or by using a pattern. See the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I if you need help entering library or data set names, “Input data sets” on page 324 for more information about the concatenation sequence, and the Displaying Member Lists section of the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for more information about displaying member lists.

4. Enter your password in the Password field if your input data set is password-protected. See “Password protection” on page 326 for more information.

5. Use the List ID field to tell ISPF what to name the output SCRIPT/VS listing. See “List data sets” on page 325 for more information.

6. Use a slash to select the Browse Output option. ISPF displays your output in Browse mode after it has formatted.

If you do not select the Browse Output option, ISPF skips Browse mode and displays a Foreground Print Options for Style panel, shown in Figure 193 on page 337.

7. Once all the input parameters have been specified, press Enter to call SCRIPT/VS.

8. Communication with SCRIPT/VS is in line-I/O mode. Each time you see three asterisks, press Enter. These asterisks, which usually appear at the bottom of the screen, show that TSO is waiting for you to clear the screen before it can proceed.

If the Session Manager is installed and you selected the Session Manager mode option on the ISPF Settings panel, SCRIPT/VS and all PF and PA keys are under control of the Session Manager. When formatting is complete, you are prompted to enter a null line to return to ISPF control.

If the Session Manager is not called, the PA and function keys have their usual TSO-defined meanings; generally, the function keys are treated the same as Enter.

9. One or both of the panels listed may appear, depending on your treatment of the Style and Display Style Options fields. If both appear, they will be in this sequence:
   a. Select SCRIPT/VS Formatting Style
   b. SCRIPT/VS Options for Style

See “Selecting a formatting style” on page 338 and “Changing style options” on page 339 if you need information about using these panels. When you are finished with each panel, press Enter.

10. If SCRIPT/VS generated an output listing and you selected the Browse Output option, the output is displayed automatically in Browse mode. Otherwise, continue with the next step.
Foreground—SCRIPT/VS processor (option 4.9)

Note: If SCRIPT/VS formatting ends abnormally, ISPF displays a message in the upper-right corner of the screen and does not enter Browse mode. The list data set is retained, but the Foreground Print Options for Style panel (see step 11) is not displayed.

You can scroll the output up or down using the scroll commands. All the Browse commands are available to you. When you finish browsing the listing, enter the END command.

11. An optional print utility exit can be installed by your system programmer. If this exit is installed, it may cause SCRIPT/VS's response to differ from the descriptions here. See z/OS ISPF Planning and Customizing for more information about the print utility exit.

Another factor that can affect the performance of SCRIPT/VS is whether the TSO/E Information Center Facility is installed. If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to display a panel for submitting the TSO/E Information Center Facility information with the print request. See Figure 196 on page 341 for an example of this panel and "Using the TSO/E information center facility" on page 186 for information about the fields on this panel.

If the TSO/E Information Center Facility is not installed, SCRIPT/VS displays the panel shown in Figure 193.

The Foreground Print Options for Style panel allows you to optionally print the formatted document and specify its disposition. On this panel, the Data Set Name field shows the name of the list data set that contains the SCRIPT/VS output. On the Command line, enter one of the options shown at the top of the panel.

| Foreground Print Options for Style: |
| PK Print data set and keep | K Keep data set (without printing) |
| PD Print data set and delete | D Delete data set (without printing) |

If END command is entered, data set is kept without printing.

Data Set Name :

Print mode . . BATCH (Batch or Local)
Batch SYSOUT class . .
Local Printer ID or writer-name . . (For local printer)
Local SYSOUT class . .

Job statement information: (Required for system printer)

Command ==>

F1=HELP  F2=  F3=END  F4=DATASETS  F5=FIND  F6=CHANGE  F9=SWAP  F10=LEFT  F11=RIGHT  F12=SUBMIT

Figure 193. Foreground Print Options for Style panel (ISRFP09P)

In the Print mode field, enter either of these commands:
  • BATCH to submit your print request as a background job.
If you choose BATCH, specify a valid Batch SYSOUT class and job statement information. Specifying BATCH causes SCRIPT/VS to ignore the “Local Printer ID or writer-name” field and the “Local SYSOUT class” field. SCRIPT/VS list data sets are formatted DCB=RECFM=VBM. Unless the line count is altered, the formatted page length may exceed the JES line count and cause duplicate page ejects. Therefore, specify this job statement information to prevent JES line counting:
/*JOBPARM LINECT=0

• LOCAL to print the output on a local printer.
  If you choose LOCAL, specify the “Local Printer ID or writer-name” of a local printer and optional “Local SYSOUT class”. Specifying LOCAL causes SCRIPT/VS to ignore the “Batch SYSOUT class” field. Job statement information is ignored.

Page spacing will probably vary from the expected format because of differences between 328x printers and 1403 or 3800 printers used as a formatting guide.

See “Hardcopy utility (option 3.6)” on page 183 if you need information about the “Print mode”, “Batch SYSOUT class”, “Local Printer ID or writer-name”, and “Local SYSOUT class” fields. For information about the “Job statement information” fields, see the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I.

When you press Enter, the SCRIPT/VS Processor panel is displayed again. A message indicating completion of the process is displayed in the upper-right corner of the screen.

12. You can perform one of these actions:
  • Enter other parameters and call SCRIPT/VS again.
  • Enter the END command to return to the Foreground Selection panel and select another processor.
  • Enter the RETURN command to go to the ISPF Primary Option Menu.
  • Use the jump function (=) to choose any primary option.

Selecting a formatting style

Use the Select SCRIPT/VS Formatting Style panel shown in Figure 194 on page 339 to see which styles are available and to select or delete styles as necessary.
The Select SCRIPT/VS Formatting Style panel is a list that can be scrolled and contains all the styles available to you. Each style is a set of predefined formatting options.

Type either S or D in the Line Cmd field and press Enter to select or delete a style, respectively. You can only select one style at a time for formatting. However, one or more styles can be deleted at the same time.

The display fields on the Select SCRIPT/VS Formatting Style panel contain:

- **Style**: The names of styles that you can either select or delete.
- **Description**: A reminder of the purpose of each style. Type over the description to change it.

### Changing style options

Use the SCRIPT/VS Options for Style panel to:
- See which options are currently being used for the style you chose
- Change the options as needed.

Figure 195 on page 340 shows the options available for the DRAFT style.
The fields on the SCRIPT/VS Options for Style panel represent SCRIPT/VS formatting options, all of which are optional. For a complete description of these options, refer to Document Composition Facility: Generalized Markup Language Starter Set User’s Guide.

If you enter the END command from the SCRIPT/VS Options for Style panel, changes on this panel are not saved. If the style is new, it is saved with default formatting options.

If you press Enter from the SCRIPT/VS Options for Style panel, SCRIPT/VS processes the data set, and then one of these actions occurs:
- A Browse panel is displayed if you selected the Browse Output option on the SCRIPT/VS Processor panel. When you finish browsing the SCRIPT/VS formatted output, a Foreground Print Options for Style panel is displayed.

Note: If you enter the PRINT parameter in the “Other script parms” field, the Browse panel is not displayed.
- A Foreground Print Options for Style panel is displayed if you did not select the Browse Output option on the Script/VS Processor panel.

See step 11 on page 337 for more information about printing SCRIPT/VS output.

Using SCRIPT/VS with the TSO/E information center facility

If the TSO/E Information Center Facility is installed, your installation can optionally allow ISPF to substitute the panel shown in Figure 196 on page 341 for the panel shown in Figure 193 on page 337. See “Using the TSO/E information center facility” on page 186 for information about the fields on this panel.
To run VS COBOL II interactive debug in foreground, the VS COBOL II compiler, Release 2, must be both installed and accessible, for these reasons:

- You must compile your program by using the VS COBOL II compiler (option 4.2 or option 5.2) with the TEST and RESIDENT options before running VS COBOL II interactive debug. Debug output from the compilation is stored in the object module, which ISPF generates automatically.

- The VS COBOL II compiler contains the Debug Productivity Aid (DPA) facility, which ISPF accesses when you run VS COBOL II interactive debug in the foreground.

All VS COBOL II interactive debug processing in the foreground is under DPA’s control. DPA displays a series of interactive panels. When processing is complete, return to step 12 on page 319.

OS/VS COBOL debug (option 4.10A)

Before you can run COBOL interactive debug, you must first perform these actions in the order shown:

1. Allocate a symbolic debug data set and, optionally, a print output data set by using the Data Set utility (option 3.2). See “Symbolic debug data sets” on page 343 and “Print output data sets” on page 343 for more information.

2. Compile the program by using the OS/VS COBOL compiler (option 4.2A or option 5.2A) with the TEST option.

3. Use the linkage editor (option 4.7 or option 5.7) to generate an output load module, which COBOL interactive debug will use as input.

The COBOL Debug panel is shown in Figure 197 on page 342.
COBOL debug processing sequence

Fill in the fields on the COBOL Debug panel as follows:

1. Enter the ISPF library or data set name that contains the input load module generated by the linkage editor. You can display a member list by omitting the member name or by using a pattern. See the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide, Vol I for more information about object modules, and the Displaying Member Lists section of the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide, Vol I for more information about displaying member lists.

2. The Prog ID field tells ISPF the names of the sequential list data sets generated by the OS/VS COBOL compiler. You can enter up to four Prog ID names if you compiled a partitioned data set member or a sequential data set for each name. See “List data sets” on page 325 for more information.

3. The Print ID field is optional. This field tells ISPF the name of a sequential data set to which it writes the print output from the debug session. This data set must be preallocated. See “Print output data sets” on page 343 for more information.
4. Enter your password in the Password field if your input data set is password-protected. See "Password protection" on page 326 for more information.

5. The Source option tells ISPF whether to allocate the list data sets specified in the Prog ID field. If you select Source, these data sets must already exist.

6. The Execution Parms field is remembered from one session to another. Therefore, you do not need to change this field unless the parameters you need are not displayed. Enter any parameters that you want ISPF to pass to the program being debugged.

7. To continue COBOL interactive debug, return to step 12 on page 319.

**Symbolic debug data sets**

If you want to run COBOL interactive debug on a program compiled with the OS/VS COBOL compiler, you must use the Data Set utility (option 3.2) to allocate a symbolic debug data set before compiling the program. Then, when you compile the program, enter TEST in the Test field on the Foreground OS/VS COBOL Compile panel. The TEST parameter generates the debug output, which ISPF stores in the symbolic debug data set you allocated.

*Note:* You do not need to allocate a symbolic debug data set for programs compiled with VS COBOL II because the debug output, if requested, is stored in the OBJECT module, which ISPF generates automatically.

When you allocate the data set, specify the same name as the data set that contains your COBOL program, but:

- For an ISPF library, enter:
  - The Group name you will specify in the first Group field on the Foreground OS/VS COBOL Compile panel
  - SYM in the Type field.
- For another partitioned or sequential data set, use SYM to replace the last qualifier. For example, if COBOL.INPUT or COBOL is the input data set name, allocate COBOL.SYM as the symbolic debug data set.

Use these values to allocate symbolic debug data sets:

- Record format . . . . . F
- Record length . . . . . . 512
- Block size . . . . . . . . 512

For partitioned data sets, including ISPF libraries, the debug output is stored in a member with the same name as the input member. For sequential data sets, the debug output is stored in a sequential data set.

When you run COBOL interactive debug, the names you put in the Prog ID field on the COBOL Interactive Debug panel must be the same as the input member names if you are to create a correct SYM data set.

**Print output data sets**

ISPF writes the print output from a debug session to a sequential data set, if you:

- Allocate the data set, using the Data Set utility (option 3.2), before you run COBOL interactive debug
- Enter, in the Print ID field on the COBOL Interactive Debug panel, the name of the data set you allocated.
You can avoid generating the print output by leaving the Print ID field blank, even if you allocated the data set.

The last qualifier in the name of the data set you allocate must be TESTLIST. For example, if you allocate a sequential data set named DEBUG1.TESTLIST and then specify the Print ID as:

```
Print ID . . DEBUG1
```

ISPF writes the print output to a sequential data set named:

```
'prefix.userid.DEBUG1.TESTLIST'
```

where `prefix` is your TSO data set prefix, if you have one and if it is different from your user ID, and `userid` is your TSO user ID. Use these values to allocate print output data sets:

```
Record format . . . . FBA
Record length . . . . 121
Block size . . . . . . 3146
```

The value you put in the Block Size field should be a multiple of 121, the record length. Therefore, if your print output data is too large to fit within the recommended block size (3146), increase this amount by using a multiple of 121, such as 3267 or 3388.

**FORTRAN debug (option 4.11)**

Before you can run FORTRAN interactive debug, you must first compile the program using the VS FORTRAN compiler (option 4.3 or option 5.3) with the OBJECT and TEST options.

The FORTRAN interactive debug option supports both FORTRAN Interactive Debug Version 2 (5668-903) and FORTRAN Interactive Debug Version 1 (5734-F05). ISPF looks for Version 2 first, then Version 1, and finally its own Debug Dialog, which displays the panel shown in Figure 198 on page 345.
All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324, and here:

**Debug Options**

Enter any options you need, except LIB, SOURCE, or PRINT. ISPF generates these options automatically. LIB specifies the input data set concatenation sequence. SOURCE specifies the input source program, whose type is identified in the Source Type field. PRINT writes the output listing to a list data set. See “Input data sets” on page 324 and “List data sets” on page 325 for more information.

**Member parts list (option 4.12)**

The member parts list uses the program ISRLEMX to show this information for each source program module specified:

- The names of the modules it calls or includes.
- The names of the modules that call or include it.

The languages permitted in the member expansion function also are permitted in the member parts list function, and the expansion triggers have the same restrictions. See “Member expansion (ISRLEMX)” on page 322. Besides the expansion triggers, the member parts list also uses the CALL statements in assembler, PL/I, COBOL, and VS FORTRAN. The format of the CALL statement is:

```
CALL name
```

where the delimiter after the name can be either a left parenthesis, a blank, or a valid statement delimiter. In COBOL, the CALL statement is valid only in the
PROCEDURE DIVISION, and the CALL PGMA and CALL 'PGMA' statements both result in a reference to the member name PGMA.

When you select the Foreground Member parts list option (4.12), the panel shown in Figure 199 is displayed.

The member parts list does not use the Source Data Packed option on the Foreground Selection panel; both packed and unpacked data sets can be read.

Fill in the fields on the Foreground Member Parts List panel as follows:
1. Select one of the options listed at the top of the panel by typing its number in the Option field.
2. Enter the appropriate ISPF library and concatenation sequence or data set names. A blank member name results in a member list being displayed. You can select only one member from this list. A pattern results in the processing of all member names matching the pattern; an asterisk results in all members being processed.

See the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for help entering library or data set names, the Displaying Member Lists section of the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I for information about using patterns and displaying member lists, and “Input data sets” on page 324 for more information about the concatenation sequence.

3. The Language field is optional. It is used to specify the language in which the source code is written. If you leave this field blank, ISPF uses the value in the Type field as the default. However, the language must be one of these:
   - Assembler
   - COBOL
   - FORTRAN
   - Pascal
   - PLI
4. In the “Groups For Primary members” field, enter a number from 1 to 4. This number tells ISPF how many libraries in the concatenation sequence are to be used in locating primary members. For example, if you enter 2, the first and second libraries specified in the Group field are used to find primary members.

5. If you selected option 2 (write member parts data set), use the Data Set Name field to tell ISPF where to write the output data set. The name you enter:
   - Can be a sequential data set or a member of a partitioned data set
   - Must follow standard TSO data set naming conventions.
   If you enter the name of a data set that does not exist, ISPF allocates it for you.

6. Once all the input parameters have been specified, press Enter to call the Foreground Member Parts List processor.
   If the Session Manager is installed and if you specified Session Manager mode on the Foreground Selection panel, the Foreground Member Parts List processor and all function keys and PA keys are under control of the Session Manager. When processing is complete, you are prompted to enter a null line to return to ISPF control.
   If the Session Manager is not called, the PA and function keys have their usual TSO-defined meanings; generally, the function keys are treated the same as Enter.

7. Communication with the Foreground Member Parts List processor is in line-I/O mode. Each time you see three asterisks, press Enter. These asterisks, which usually appear at the bottom of the screen, show that TSO is waiting for you to clear the screen before it can proceed.

8. The option you chose in step 1 [on page 346] determines what happens next.

   **Note:** If the Foreground Member Parts List processing program ends abnormally, ISPF displays a message in the upper-right corner of the screen and does not enter Browse mode. The list data set is retained, but the Foreground Print Options panel (see step 15 [on page 320]) is not displayed.

   Option 1 (Browse/print member parts) creates the member parts list and displays it in Browse mode. Figure 200 shows an example.
The figure shows that:

- Library ISPFPROJ.ABL.PLI contains these members:
  - MEMBERA has no calls or includes.
  - MEMBERB calls MEMBERC.
  - MEMBERC calls MEMBERD and MEMBERG, and includes MEMBERE. The asterisk (*) beside the C in the third VIA column means that MEMBERG was not found in the input library.
  - MEMBERD includes MEMBERE.
  - MEMBERE has no calls or includes.
  - MEMBERF has no calls or includes.

- A parts list is requested for all members in the first data set.

You can scroll the output up or down using the scroll commands. All the Browse commands are available to you. When you finish browsing the listing, enter the END command and continue with step 15 on page 320.

Option 2 (Write member parts data set) produces an intermediate sequential member parts list in the data set you named in step 5 on page 347. This data set can be either a sequential data set or a member of a partitioned data set.

If the data set has not been allocated, option 2 allocates it with a logical record length (LRECL) of 17, a block size (BLKSIZE) of 3009, and a record format (RECFM) of FB. The format of the records is shown in Table 20.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member name</td>
<td>CHAR(8)</td>
<td>Subject member.</td>
</tr>
<tr>
<td>Called by or calls</td>
<td>CHAR(8)</td>
<td>Referenced member.</td>
</tr>
<tr>
<td>Call flag</td>
<td>BIT(1)</td>
<td>Found on a CALL statement.</td>
</tr>
</tbody>
</table>

Figure 200. Member parts list display (ISRFP12B)
Table 20. Foreground member parts list record formats (continued)

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include flag</td>
<td>BIT(1)</td>
<td>Found by INCLUDE or COPY.</td>
</tr>
<tr>
<td>Not found flag</td>
<td>BIT(1)</td>
<td>Referenced member not found.</td>
</tr>
<tr>
<td>From flag</td>
<td>BIT(1)</td>
<td>Subject member called from referenced member.</td>
</tr>
<tr>
<td>To flag</td>
<td>BIT(1)</td>
<td>Referenced member called from subject member.</td>
</tr>
<tr>
<td>COBOL flag</td>
<td>BIT(1)</td>
<td>Member referenced outside valid COBOL division.</td>
</tr>
<tr>
<td>Reserved</td>
<td>BIT(2)</td>
<td>Field that is reserved.</td>
</tr>
</tbody>
</table>

9. You can perform one of these actions:
   - Enter other parameters and call the same processor.
   - Enter the END command to return to the Foreground Selection panel and select another processor.
   - Enter the RETURN command to go to the ISPF Primary Option Menu.
   - Use the jump function (=) to choose any primary option.

**Member not found**

A *primary library* is one of the number of libraries specified in the “Groups For Primary members” field. A *primary member* is a member that starts the member parts explosion chain. An *explosion chain* is the order in which members are nested, starting with the primary member and continuing through each member that it includes, calls, or copies.

The chain is broken when a member cannot be found in the set of concatenated libraries or no more members are referenced. If a member cannot be found, the name is flagged with an asterisk (*) and processing continues. For instance, internally called routines are not found.

When no more primary members can be found, the listing is printed, written, or browsed. Calls to internal routines or variable names result in the member not found flag being set.

**C/370 compile (option 4.13)**


**REXX/370 compile (option 4.14)**


**Ada/370 compile (option 4.15)**

AD/Cycle C/370 compile (option 4.16)

ISPF supports the AD/Cycle® C/370 compiler through dialogs supplied with the AD/Cycle C/370 compiler (5688-216). See IBM SAA AD/Cycle C/370 Programming Guide SC09-1356, for additional information.

ISPD TLC (option 4.18)

ISPF supports the ISPF Dialog Tag Language compiler by running the ISPD TLC function. See z/OS ISPF Dialog Tag Language Guide and Reference for more information about DTL.

The first ISPD TLC interface panel appears as shown in Figure 201.

OS/390 C/C++ compile (option 4.19)

ISPF supports the OS/390® C/C++ compiler and its tools through dialogs supplied with the OS/390 C/C++ compiler (5647-A01). For information about OS/390 C/C++, refer to the OS/390 C/C++ User’s Guide.
Chapter 7. Batch (option 5)

The Batch option (5) allows ISPF to run the batch processors shown on the Batch Selection panel, Figure 202, as batch jobs. ISPF generates job control language (JCL) for the job, based on information you enter on the batch processing panels, and then submits the job for processing. All these processors, plus SCRIPT/VS, COBOL interactive debug, and FORTRAN interactive debug, are also available with the Foreground option (4).

When you run a batch processor, you can continue using ISPF while the program is running. However, if you run these processors by using the Foreground option, you must wait for processing to end before doing anything else with ISPF. The Foreground Selection panel is shown in Figure 183 on page 317.

The names of the batch processors on this panel are point-and-shoot fields. See the information about Point-and-Shoot Text Fields in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I for more information.

Menu Utilities Help

Batch Selection Panel

1 Assembler 7 *Binder/Link editor 15 *ADA/370
2 COBOL 10 *VS COBOL II debug 16 *AD/Cycle C/370
3 VS FORTRAN 12 Member Parts List 18 ISPDLC
5 PLI 13 *C/370 19 *OS/390 C/C++
6 VS PASCAL 14 *REXX/370

Enter /* to select option * No packed data support
/ Source data online
_ Source data packed

Job Statement Information: Verify before proceeding

===> //LSACKV1 JOB (ACCT),CLASS=A
===> //*
===> //*
===> //*

Option ===>
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

Figure 202. Batch Selection panel (ISRJPA)

The names of the batch processors on this panel are point-and-shoot fields. See the information about Point-and-Shoot Text Fields in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I for more information.

Batch selection panel action bar

The Batch Selection Panel action bar choices function as follows:

Menu See the information about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I for more information about the Menu pull-down.

Utilities See the information about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I for more information about the Utilities pull-down.
Help

The Help pull-down provides general information about foreground processing as well as information about each available choice on the Batch Selection Panel.

Batch processing sequence

This topic describes the main sequence for batch processing.

1. If you do not know whether the source data is in packed format, find out by editing the data set and entering the PROFILE command. If the source data is in packed format, the profile shows PACK ON.
   If the data is not packed, continue with the next step.

   If the data is packed, you should read "Expanding packed data" on page 321, paying close attention to information that applies to the batch processor you plan to use. When you are satisfied that the data set is ready to be processed, save the data set if you are in Edit and continue with the next step.

2. Select a batch processor. If you bypass the Batch Selection panel, you cannot verify or change the job statement parameters, or generate multiple compilations (multiple job steps) or link-edits within the same job.

3. Select the Source data online option to tell ISPF that the data to be processed resides on a currently mounted volume. ISPF checks the data set information that you entered on the Batch Selection panel and allows you to display a member list. If you do not select this option, ISPF assumes that the data cannot be accessed except by the batch job and does not verify the existence or validity of the specified data set.

4. Select the Source data packed option to tell ISPF that it needs to expand the source data. This option has no effect on the member parts list option (5.12). Member parts list can read both packed and unpacked data sets, so no expansion is needed.

5. Enter any job statement information you need. See the information about Job Statement Information in the "ISPF Libraries and Data Sets chapter" of the z/OS ISPF User's Guide Vol I for more information.

6. Press Enter. ISPF displays the data entry panel for the processor you selected.

   Note: The remainder of this processing sequence applies to all batch processors except Member Parts List. See "Member parts list (option 5.12)" on page 363 for more information.

7. Enter the appropriate ISPF library and concatenation sequence or data set names.

   For VS COBOL II interactive debug, enter the name of the input object module or load module. The TYPE, or last qualifier, must be either OBJ or LOAD. However, if you specify an OBJ data set as your input data set, you must include a load library or data set in the input search sequence (see step 11 on page 353).

   ISPF displays a member list if you omit the member name or use a pattern. See the information about Naming ISPF Libraries and Data Sets in the "ISPF Libraries and Data Sets chapter" of the z/OS ISPF User's Guide Vol I if you need help entering library or data set names, "Input data sets" on page 324 for more information about the concatenation sequence, and the Displaying Member Lists section of the "ISPF Libraries and Data Sets chapter" of the z/OS ISPF User's Guide Vol I for more information about displaying member lists.
Notes:

a. VS FORTRAN has no LIB option. However, the concatenation sequence is still used to find the member to be compiled.

b. Password protection is not supported from the Batch option. Therefore, if your input or output data sets are password-protected, use the Foreground option, which does support passwords.
   If you submit a job requiring a password-protected data set, the system operator will be requested to enter the required password.

8. The List ID field tells ISPF what to name the output listing. Leave this field blank and enter a SYSOUT class to send the listing to a printer. See “List data sets” on page 325 for more information.

9. Enter a SYSOUT class to generate hardcopy of the listing. You can enter any valid SYSOUT parameter. If a List ID is entered, this field is ignored.

10. The Options field, whether ASSEMBLER, COMPILER, or LINKAGE EDITOR, is remembered from one session to another. Therefore, you do not need to change these fields unless the options or parameters you need are not displayed.

   If you need information about the options available for your processor, refer to the documentation provided with the processor.

11. Enter any additional input libraries you need. For VS COBOL II interactive debug, enter any input LOAD libraries that you need to complete the search. These libraries must be LOAD libraries only. See “Input data sets” on page 324 if you need help.

12. Once all the input fields have been specified, press Enter to call the batch processor. ISPF generates the appropriate JCL statements. See “JCL generation—compilers” on page 354 and “JCL generation—assemblers and linkage editor” on page 355 for more information.

   Note: You can leave the entry panel without generating any JCL by entering the END command instead of pressing Enter.

13. One of these actions occurs:
   • If you used the jump function to bypass the Batch Selection panel, ISPF submits the generated JCL and returns directly to the ISPF Primary Option Menu.
     ISPF calls the TSO SUBMIT command to submit a job. The SUBMIT command displays this message:
     JOB useridA(JOB nnnnn) SUBMITTED
     ***
     When you press Enter or any other interrupt key, ISPF returns to the previous panel.
   • Otherwise, ISPF returns to the Batch Selection panel with the message Job step generated displayed in the short message area on line 1, as shown in Figure 203 on page 354.
Batch—processing sequence

The job statement parameters are shown for information only. They are no longer intensified, and you cannot type over them because the JOB statement has already been generated. At this point, you can:

- Select the same or another processor to cause more JCL to be generated.
- Go to the ISPF Primary Option Menu by:
  - Canceling the batch job by entering the CANCEL command
  - Entering the END or RETURN command to cause the generated JCL to be submitted for processing.
- Use the jump function (=) to choose any primary option. If any JCL has been generated, it is submitted for batch processing.

JCL generation—compilers

Figure 207 on page 359 shows an example for the PL/I optimizing compiler. This panel is typical of the batch compiler entry panels. After you fill in an entry panel and press Enter, ISPF generates the appropriate JCL statements. The JCL that would be generated for the PL/I example is:

```
//SCAN EXEC PGM=ISRLEMX,COND=(12,LE),
// PARM=('PLI,TOPSEG,B,N,E,4, ,00,ENU,4,7','
// '1,/,VIO')
//*
//* INSERT STEPLIB DD CARDS HERE FOR ISRLEMX AND THE NATIONAL
//* LANGUAGE LITERAL LOAD MODULE IF THEY ARE NOT IN YOUR SYSTEM
//* LIBRARY
//*
//ISRLCODE DD DSN=ISPFDEMO.XXX.PLIO,DISP=SHR
// DD DSN=ISPFDEMO.A.PLIO,DISP=SHR
// DD DSN=ISPFDEMO.MASTER.PLIO,DISP=SHR
//ISRLYPD DD UNIT=SYSDA,DISP=(NEW,PASS),SPACE=(CYL,(2,2)),
// DSN=&&TEMP1
//ISRLMSG DD SYSOUT=(A)
//PLIO EXEC PGM=IEL0AA,REGION=1024K,COND=(12,LE),
// PARM='MACRO,XREF'
```
The JCL is generated in two steps:

1. The first step processes one of these scan programs, which are distributed as part of ISPF:

   ISRSCAN  Copies one member.
   ISRLEMX  Copies the primary member, expands any included members, and unpacks any packed members.

   The selected scan program searches the user-specified sequence of concatenated libraries to find the designated member. If the scan program finds the member, it copies the member to a temporary sequential data set that is shown by &&TEMP1 and generated by the system. The scan program then exits with a return code of zero, if no errors are found. If any errors are found, the scan program exits with one of these return codes, which prevents the processing of the second job step. Table 21 describes ISRLEMX return codes:

   **Table 21. ISRSCAN and ISRLEMX return codes**

<table>
<thead>
<tr>
<th>ISRSCAN</th>
<th>ISRLEMX</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1-15</td>
</tr>
<tr>
<td>Member not found.</td>
<td>Parameter n was too long, where n = 1 to 15.</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>OPEN error on DDNAME=IN.</td>
<td>Too many parameters.</td>
</tr>
<tr>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>I/O error on DDNAME=IN.</td>
<td>Too few parameters.</td>
</tr>
<tr>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>OPEN error on DDNAME=OUT.</td>
<td>Severe error in expand module. An error message should be printed in the ISRLMSG data set.</td>
</tr>
<tr>
<td>28</td>
<td></td>
</tr>
<tr>
<td>I/O error on DDNAME=OUT.</td>
<td></td>
</tr>
</tbody>
</table>

2. In this example, the second step calls the PL/I optimizing compiler by using the temporary data set designated by &&TEMP1 as the input data set. The concatenation sequence is passed to the compiler through SYSLIB DD statements, to allow inclusion of subsidiary members referenced by %INCLUDE statements in the source text.

   The object module is directed to a partitioned data set with a three-level name composed of the project name, the first library name, and a type qualifier of OBJ. The member name for the object module is the same as the primary member to be compiled.

   The compiler listing is directed to SYSOUT class A, as specified.

**JCL generation—assemblers and linkage editor**

For batch assembly and link-edit, an optional SYSTERM DD statement is generated (if you specify TERM) besides the JCL shown in "JCL generation—compilers" on page 354, as follows:

```plaintext
//SYSTERM DD DSN=prefix.member.TERM,DISP=(MOD,CATLG)
```
Batch—JCL generation for assemblers and Linkage Editor

where:

prefix The data set prefix in your TSO user profile

member For members of partitioned data sets, this is the same member name specified on the entry panel. For sequential data sets, this name is TEMPNAME.

Assembler (option 5.1)

Batch Assembler enables you to invoke either High Level Assembler or Assembler H. Both are called from the Batch Assembler panel, shown in Figure 204. For information about Assembler allocation data sets, see the topic about Allocation Data Sets in the z/OS ISPF User's Guide Vol I.

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User's Guide Vol I, except List ID, which is explained in “List data sets” on page 325. “Additional input libraries”, which is explained here and in “Input data sets” on page 324.

Term In the Term field, enter TERM if you want ISPF to generate a terminal data set. A terminal data set contains a synopsis of the error messages produced by the Assembler. If the input data set is partitioned, the terminal data set name is:

prefix.member.TERM

where prefix is the data set name prefix in your TSO user profile, if you have one, and member is the name of the member being assembled. However, if the input data set is sequential, the terminal data set name is:

prefix.TEMPNAME.TERM

Enter NOTERM in the Term field to avoid generating the terminal data set. This is a required field.
Batch—Assembler (option 5.1)

Other Enter any other options you need in the Other field.

COBOL compile (option 5.2)

ISPF generates an ISPEXCSE SELECT PGM(IGYCRCTL) statement to invoke a COBOL compiler using the values you enter on the Batch COBOL Compile panel, shown in Figure 205. For information about COBOL allocation data sets, see the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol I.

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325. “Additional input libraries”, which is explained here and in “Input data sets” on page 324.

Term In the Term field, enter TERM if you want ISPF to generate a terminal data set. A terminal data set contains a synopsis of the error messages produced by the COBOL compiler. If the input data set is partitioned, the terminal data set name is:

prefix.member.TERM

where prefix is the data set name prefix in your TSO user profile, if you have one, and member is the name of the member being assembled. However, if the input data set is sequential, the terminal data set name is:

prefix.TEMPNAME.TERM

Enter NOTERM in the Term field to avoid generating the terminal data set. This is a required field.

Other If you plan to run VS COBOL II interactive debug after you compile your program, enter TEST, RESIDENT, and any other options you need in the Other field.
**VS FORTRAN compile (option 5.3)**

The Batch VS FORTRAN Compile panel is shown in Figure 206.

In the Term field, enter TERM if you want ISPF to generate a terminal data set. A terminal data set contains a synopsis of the error messages produced by the VS FORTRAN compiler. If the input data set is partitioned, the terminal data set name is:

```
prefix.member.TERM
```

where `prefix` is the data set name prefix in your TSO user profile, if you have one, and `member` is the name of the member being assembled. However, if the input data set is sequential, the terminal data set name is:

```
prefix.TEMPNAME.TERM
```

Enter NOTERM in the Term field to avoid generating the terminal data set. This is a required field.

If you plan to run FORTRAN interactive debug after you compile your program, enter TEST in the Other field, along with any other options you need.

---

**PL/I compile (option 5.5)**

The Batch PL/I Compile option enables you to invoke either OS PL/I Version 2 or PL/I for MVS and VM, using the values specified on the Batch PL/I compile panel shown in Figure 207 on page 359.
Batch—PL/I compile (option 5.5)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, “Additional input libraries”, which is explained in “Input data sets” on page 324.

Compiler
Choose the compiler you want to use from the list presented.

VS Pascal compile (option 5.6)

The Batch VS Pascal Compile panel is shown in Figure 208 on page 360.
Batch—VS Pascal compile (option 5.6)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User's Guide Vol I except List ID, which is explained in “List data sets” on page 325, and “Additional input libraries”, which is explained in “Input data sets” on page 324.

Binder/linkage editor (option 5.7)

The Batch Binder or Linkage Editor is called from the Batch Binder/Linkage editor panel. The panel in Figure 209 on page 361 shows entries you might make when link-editing a VS Pascal program.
Batch—binder/linkage editor (option 5.7)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325, and here:

**Binder**

Determines whether the Linkage Editor (NOBINDER) or Binder (BINDER) is invoked.

**Note:** The binder is available only if DFSMS 1.1, or later, is installed.

**Term**

In the Term field, enter TERM if you want ISPF to generate a terminal data set. A terminal data set contains a synopsis of the error messages produced by the linkage editor. If the input data set is partitioned, the terminal data set name is:

```
prefix.member.TERM
```

where `prefix` is the data set name prefix in your TSO user profile, if you have one, and `member` is the name of the member being assembled.

**Note:** Sequential data sets are invalid when using the Linkage Editor. Leave the Term field blank to avoid generating the terminal data set.

**Other**

Enter any other options you need in the Other field.

**SYSLIB**

The name of the data set that is to contain the ISPF library concatenation sequence used to resolve any copy statements specified in your program. See “Input data sets” on page 324 and the SYSLIB Data Set section of the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol I for more information.

**SYSLIN**

The name of the data set that is to contain the object module. The SYSLIN field is provided to accommodate the VS Pascal XA and NOXA processing
options. See "Input data sets" on page 324 and the SYSLIN Data Set section of the topic about Allocation Data Sets in the z/OS ISPF User’s Guide Vol I for more information.

VS COBOL II interactive debug (option 5.10)

Before you can run VS COBOL II interactive debug in batch, you must first perform these tasks in the order shown:
1. Compile the program using the VS COBOL II compiler (option 4.2 or option 5.2) with the TEST and RESIDENT options.
2. Use the linkage editor (option 4.7 or option 5.7) to generate an output load module, which VS COBOL II interactive debug will use as input.

The VS COBOL II Interactive Debug panel is shown in Figure 210.

Menu RefList Utilities Help

VS COBOL II Interactive Debug

ISRJP10

More: +

ISPF Library:
Project . . . LSACKV
Group . . . PRIVATE (Type = LOAD assumed)
Member . . . (Blank or pattern for member selection list)

Other Partitioned or Sequential Data Set:
Data Set Name . .

List ID . . . . . . . (Blank for hardcopy)
SYSOUT class . . . A (If hardcopy requested)

Debug command data set:
>>>

Additional input libraries:
>>> <<<

Command <<<
F1=Help F2=Split F3=Exit F7=Backward F8=Forward F9=Swap
F10=Actions F12=Cancel

Figure 210. VS COBOL II Interactive Debug panel (ISRJP10)

All the fields on this panel are explained in the “ISPF Libraries and Data Sets chapter” of the z/OS ISPF User’s Guide Vol I except List ID, which is explained in “List data sets” on page 325. “Additional input libraries”, which is explained in “Input data sets” on page 324 and here:

Note: For VS COBOL II interactive debug, any additional input libraries that you enter to complete the search sequence must be LOAD libraries only.

Debug command data set

In the “Debug command data set” field, enter the name of the data set that contains the DEBUG command that you want VS COBOL II interactive debug to enter during batch processing. See VS COBOL II Application Programming Debugging Guide for more information.
Member parts list (option 5.12)

When you select the Batch Member Parts List option (5.12), the panel shown in Figure 211 is displayed.

The only difference between this panel and the Foreground Member Parts List panel is that option 1 (print member parts) is called Browse/Print member parts list in foreground. The foreground version does not print your member parts list unless you use the Foreground Print Options panel to do so.

Otherwise, this version operates the same as the foreground version. See “Member parts list (option 4.12)” on page 345 for more information about using the member parts list function.

The listing is 120 characters wide and uses ANSI printer controls.

C/370 compile (option 5.13)


REXX/370 compile (option 5.14)

Batch Ada/370 compile (option 5.15)

Ada/370 compile (option 5.15)


AD/Cycle C/370 compile (option 5.16)

ISPF supports the AD/Cycle C/370 compiler through dialogs supplied with the AD/Cycle C/370 compiler (5688-216). See IBM SAA AD/Cycle C/370 Programming Guide SC09-1356, for additional information.

ISPDTLC compile (option 5.18)

ISPF supports the ISPF Dialog Tag Language compiler by running the ISPDTLC function. See z/OS ISPF Dialog Tag Language Guide and Reference for more information.

The ISPDTLC interface panels are identical to those in the Foreground option. The first panel can be seen in Figure 201 on page 350.

The fields on this panel are explained in the topic “Using the Conversion Utility” in z/OS ISPF Dialog Tag Language Guide and Reference.

OS/390 C/C++ compile (option 5.19)

ISPF supports the OS/390 C/C++ compiler and its tools through dialogs supplied with the OS/390 C/C++ compiler (5647-A01). For information about OS/390 C/C++, refer to the OS/390 C/C++ User’s Guide.
Chapter 8. Command (option 6)

When you select this option, the ISPF Command Shell panel shown in Figure 212 is displayed. You can enter TSO commands, CLISTS, and REXX EXECs on the Command line of any panel and in the Line Command field on data set list displays (option 3.4). However, the ISPF Command Shell panel provides additional capabilities:

- You can enter TSO commands, ISPF commands, CLISTS, and REXX execs in a separate, but optional, ISPF Command field. This field is displayed only if your installation chooses to do so. The default panel shown in Figure 212 does not display this field. When you use this field, commands that are typed in the TSO Command Entry field (==> ) are not blanked out when you enter the SPLIT command to split the screen.

  **Note:** If you use this field, you will not have access to the saved command area (see “The saved command area” on page 367).

- You can enter Session Manager mode, but only if this licensed program is installed. See “Using the session manager” on page 368 for more information.

- You can enter a long command that continues on these two lines.

---

<table>
<thead>
<tr>
<th>Menu</th>
<th>List</th>
<th>Mode</th>
<th>Functions</th>
<th>Utilities</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISPF Command Shell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Enter TSO or Workstation commands below:

==> 

Place cursor on choice and press enter to Retrieve command

=>

=>

=>

=>

=>

=>

=>

=>

F1=Help  F2=Split  F3=Exit  F7=Backward  F8=Forward  F9=Swap
F10=Actions  F12=Cancel

Figure 212. ISPF Command Shell panel (ISRTSO)

**ISPF command shell panel action bar**

The ISPF Command Shell panel action bar choices function as follows:

**Note:** The ISPF Command Shell panel action bar contains three pull-down choices that let you control the saved command area.

- List
- Mode
Command (option 6)

- Functions

**Menu**  For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**List**  The List pull-down offers you these choices:

- **Update On**  Makes the list of commands in the saved command area *live*; that is, new commands are appended automatically.

- **Update Off**  Makes the list of commands in the saved command area *static*; that is, new commands are not appended automatically.

The current setting is shown as an unavailable choice.

**Mode**  The Mode pull-down offers you these choices:

- **Retrieve**  Allows commands to be retrieved from the saved command area and placed on the TSO Command Entry field (==>) so that you can edit them before they are executed. This mode is the default.

- **Execute**  Allows commands to be retrieved from the saved command area and executed in one step.

- **Delete**  Allows you to delete commands from the saved command area without executing the commands. Place the cursor on the command to be deleted and press Enter. The command will be blanked out. This process allows you to delete a command if you are running with Update mode set off.

The current setting is shown as an unavailable choice.

**Functions**  The Functions pull-down offers you this choice:

- **Compress List**  Removes duplicate entries and blank spaces in the saved command area if you are running with Update mode set off. Entries are compressed automatically in Update mode.

**TSO command**  Sets the command shell to route commands to TSO

**Workstation command**  Sets the command shell to route commands to your workstation.

**Notes:**
1. Workstation command is available only if you are running the ISPF Client Server.
2. Any command may be prefixed with either TSO or WS to override the command function setting.

**Utilities**  For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**Help**  The Help pull-down provides general information on the TSO Command processor panel, including line I/O mode and Session Manager mode, and restrictions on entering commands.
The saved command area

The ISPF Command Shell panel has a saved command area (the bottom portion of the screen) that contains a list of up to 10 commands that you have saved; see Figure 213 for an example. These commands are point-and-shoot fields. What happens when you select a command depends on the mode you specify from the Mode pull-down menu on the action bar.

Entering TSO commands, CLISTs, and REXX EXECs

You do not need to enter TSO before the command on this panel as you do on other panels, unless the command exists in both ISPF and TSO and you want to process the TSO command. If you use TSO, your processed command is blanked out when the ISPF Command Shell panel is displayed again.

TSO commands, CLISTs, and REXX EXECs entered are invoked using the ISPF SELECT CMD service. Variable names starting with an ampersand (&) are evaluated by ISPF. If you want the underlying command processor to see the ampersand you must specify 2 ampersands. For example:

```
DEF NONVSAM(NAME('MY.DATASET') DEVT(0000) VOLUME(&&SYSR2))
```

For example, the HELP, PRINT, and CANCEL commands are interpreted as the ISPF HELP, PRINT, and CANCEL commands, unless you precede them with TSO. Therefore, to get TSO HELP information, enter:

```
====> TSO HELP
```

Rules for entering TSO commands

Do not enter these commands under ISPF:

- LOGON and LOGOFF
- ISPF, PDF, or ISPSTART
Commands that are restricted by TSO or ISPF
Commands that call a program authorized by the Authorized Program Facility (APF), except for the TSO CALL command
ISPEXEC service calls.

Rules for entering CLISTs and REXX EXECs
You can enter a CLIST name or REXX exec name on this panel, but these restrictions apply:

- The CLIST or REXX exec cannot call the restricted commands shown in the preceding list. However, this does not apply to ISPEXEC, which can be called in a CLIST or REXX exec.
- CLIST error exits are not entered for ABENDs.
- CLIST TERMIN command procedure statements may cause unwanted results.

Note: Remember that a command issued through an alias may contain some of the characteristics listed here and thus may cause unwanted results.

Using the session manager
If the Session Manager licensed program is installed and available, you can use it by selecting Session Manager mode on the ISPF Settings panel. For information on altering the PDF configuration table to allow you to enter Session Manager mode, refer to z/OS ISPF Planning and Customizing.

If you select this option, any display output is displayed in the Session Manager TSOOUT stream.

Note: If GDDM/ISPF mode is active, Session Manager does not get control of the screen. GDDM/ISPF mode is started when a GRINIT service has been issued, but a GRTERM service has not been issued. See z/OS ISPF Services Guide for more information about these two services.

The function key definitions are not transferred to the Session Manager from ISPF. When the command ends, the Session Manager prompts you to enter a null line to return to ISPF control and displays the TSO Command Processor panel again when you do so.

If you do not select Session Manager mode, terminal I/O occurs as though the Session Manager were not installed. The terminal operates in normal TSO fashion. Any communication with the command is in line-I/O mode. When the command ends, three asterisks (*** are displayed. Press Enter to display the TSO Command Processor panel again in full screen mode.

To interrupt a TSO command, CLIST, or REXX exec, press the PA1 key. The TSO command ends and the TSO Command Processor panel is displayed again. If terminal input is inhibited, press the Reset key before pressing the PA1 key. If you are in Session Manager mode, enter a null line to return to ISPF full-screen mode.

When the TSO Command Processor panel is displayed again, the command that was just processed is displayed to the right of the arrow. Enter another command or the END command to return to the ISPF Primary Option Menu.
For terminals with primary and alternate screen sizes, ISPF does not check to make sure the same screen settings are in effect when a command, CLIST, or REXX exec ends. If you call a CLIST, REXX exec, or command that changes the screen settings, you are responsible for saving and restoring them before control is returned to ISPF.
Chapter 9. Dialog test (option 7)

This topic describes Dialog Test, option 7 on the ISPF Primary Option Menu.

Dialog Test (option 7) provides you with facilities for testing both complete ISPF applications and ISPF dialog parts, including functions, panels, variables, messages, tables, and skeletons. The Dialog Test option allows you to:

- Call selection panels, command procedures, and programs
- Display panels
- Add new variables and change variable values
- Display a table's structure and status
- Display, add, modify, and delete table rows
- Browse the ISPF log
- Process dialog services
- Add, modify, and delete function and variable trace definitions
- Add, modify, and delete breakpoint definitions.

You can use TSO TEST to complement this option if you want to examine and manipulate non-ISPF storage areas.

You usually test a dialog in one of two ways:

- Test individual dialog parts, including panels, skeletons, and messages, without calling a function or a selection panel. Eventually, you end your test session by entering the END command on the Dialog Test Primary Option Panel.
- Test dialog functions, including programs, commands, and selection panels, using the Functions option (7.1). You can define traces and breakpoints before calling the function.

Any requested traces for variable usage and dialog service calls are written to the ISPF log. You can browse the log using the Log option (7.5).

If you define a breakpoint and the function gets to it, dialog processing is suspended, and Dialog Test displays the Breakpoint Primary Option Panel [Figure 236 on page 416]. At this point, you can access and manipulate dialog parts, such as variables, tables, and so forth. Then, if you select the Go option from the Breakpoint Primary Option Panel, the dialog resumes processing.

When the processing is complete, you are returned to the Functions option (7.1). If you select the Cancel option from the Breakpoint Primary Option Panel, the dialog is canceled and the first primary option panel that you were shown during your terminal session is displayed again. For example, if the first screen displayed when you began your session was a master application panel that is different from the ISPF Primary Option Menu, that master application panel is displayed again.

The dialog test environment

The Dialog Test Primary Option Panel, shown in [Figure 214 on page 372] follows the conventions for a primary option panel. If you use the RETURN command from one of the selected Dialog Test options, the Dialog Test Primary Option Panel is displayed again. If you use the END command from this panel, you return to the ISPF Primary Option Menu.
Dialog test (option 7)

When you enter Dialog Test from the ISPF Primary Option Menu, you enter a new user application with an ID of ISR. When you enter Dialog Test from the ISPF primary option panel, you enter a new user application with an ID of ISP. All options listed on the Dialog Test Primary Option Panel operate in this context. If you call a new function using the Functions options (7.1), a SELECT service call is performed, and the rules for the SELECT service are followed.

Note: You can set the application ID under which you enter the Dialog Test function using the Dialog Test appl ID choice from the Options pull-down on the ISPF Primary Option Menu or using the Dialog Test appl ID choice from the Test pull-down on an Edit panel.

After you begin an application under Dialog Test, you can enter the DTEST command with one of its parameters as a quicker way to start a dialog test function. For example, if you enter DTEST 8 on the command line, the Option 7.8 Breakpoints panel is displayed. The other parameters of the DTEST command also match the dialog test function they perform:

1 invoke Functions panel
2 invoke Display Panel panel
3 invoke Variables panel
4 invoke Tables panel
5 display Browse Log panel
6 invoke Dialog Services panel
7 invoke Traces selection panel
8 invoke Breakpoint panel

You must use a parameter with the DTEST command, otherwise an error message appears. After you complete the entries on whichever dialog test panel you invoke, leaving the panel returns you to the application you were running with the new entries in place.
Dialog Test (option 7)

Dialog Test is itself a dialog and, therefore, uses dialog variables. Because it is important to allow your dialog to operate without interference, as though in a production environment, Dialog Test accesses and updates variables independently of your dialog variables.

All breakpoints and traces that you set in Dialog Test exist only while you remain within the Dialog Test option.

You should always allocate the ISPF log when using Dialog Test. Do not suppress its generation by typing 0 in the “Primary pages” field that appears on the “Log Data set defaults” and “List Data set defaults” choices from the Log/List pull-down on the ISPF Settings panel. Dialog Test writes trace data to the log when you request it. Also, if Dialog Test finds an unexpected condition, it writes problem data to the log.

When you enter Dialog Test, you are given these ISPF facilities:
• All functions you normally get by specifying the TEST parameter on the ISPSTART command
• Logging of all severe errors, both from user dialogs and Dialog Test. This is normally done when you specify TRACE or TRACEX on the ISPSTART command.
• Suspension of the logging of all ISPEXEC dialog service requests. Such logging normally occurs when you specify TRACE or TRACEX on the ISPSTART command. You should use the Traces option (7.7).

These facilities become active for all logical screens when you are using split-screen mode. At the completion of the last dialog test session (dialog test is no longer active in any logical screen), these options will be restored to the original values established during dialog manager start-up. Optionally, by making the appropriate selection on the ISPF Settings panel, the facilities established by dialog test will remain in effect after the last dialog test session terminates.

Dialog test primary option panel action bar

The Dialog Test Primary Option Panel action bar choices function as follows:

Menu  
For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol 1.

Utilities  
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol 1.

View  
Allows you to select whether the Add row, Modify row, and Display row panels are displayed in pop-up windows and whether Dialog Services (option 7.6) are displayed in a pop-up. By displaying the panel in a pop-up window, you can see the panel underneath and move the window. By displaying the panel as a full-screen display, you can see more data. The setting you choose will remain until you change it.

Help  
The Help pull-down provides general information about Dialog Test topics as well as information about each available choice on the Dialog Test Primary Option panel.
Using variables

When you select the Dialog Test option from the ISPF Primary Option Menu, you are given a new function pool, a new shared pool, and the profile pool for the application ID under which you entered Dialog Test. When you select Dialog Test from the ISPF Primary Option Menu, you are given a new function pool, a new shared pool, and the ISPPROF profile pool. These pools are used if you set a variable, display a panel, call an ISPF service, and so forth. When you call a new dialog, Dialog Test uses the SELECT service, and follows the rules for the creation of new variable pools. For example, if you call a new dialog using the NEWPOOL option, Dialog Test creates new shared and function variable pools for you. The profile variable pool, ISRPROF or ISPPROF, remains as it was.

If you set a dialog variable in the shared pool from a dialog running under Dialog Test and then call the dialog again from the Command line, you cannot retrieve the value of that variable.

Dialog variables should be initialized and set in the context of the dialog's processing. A dialog's function variable pools are created when it is called; that is, when the SELECT is done. Therefore, to set function variables in newly created pools, you must define a breakpoint early in your dialog's processing, at a point before the function is called.

For example, if you call a dialog with the NEWPOOL parameter, you must define a breakpoint in the dialog before the first function is called to access that dialog's function and shared variable pools. You can change the dialog's profile variable pool before calling the dialog, since a new profile variable pool is not created.

When your dialog ends, all variable pools that were created when the dialog was called are deleted.

Note: ISPF does not support TSO global variables. You can find a severe dialog test error when testing a dialog that refers to a global variable.

Severe error handling

If your dialog finds a severe error when it calls a dialog service, the error is handled as requested by the dialog. The current CONTROL service ERRORS setting, CANCEL or RETURN, determines what is done. If CANCEL is in effect, you can choose whether to continue dialog testing when the Error Message panel is displayed.

Note: If you choose not to continue dialog testing, you return to the ISPF Primary Option Menu. The TEST and TRACE options set by dialog test are restored to the values originally established during dialog manager start-up.

Optionally, by making the appropriate selection on the ISPF Settings panel, the facilities established by dialog test will remain in effect after the last dialog test session terminates.

If you find a severe error when manipulating your dialog at a breakpoint, Dialog Test assumes that the CONTROL service ERRORS setting is CANCEL. For example, if you display a panel at a breakpoint and that panel is not found, the Error Message panel is displayed. This occurs even if your current dialog has an ERRORS setting of RETURN.

Regardless of the ERRORS setting, all your severe errors are logged.
If Dialog Test finds a severe error during its processing, the details are logged and this message is shown to you on an error message display:

Test severe error
Details precede this message in the ISPF log

Dialog Test errors can occur because:
• Proper ISPF libraries are not being used.
• A programming problem has been found.
• You have attempted to process Dialog Test.
• You have called a Dialog Test option without being in test mode or without calling Dialog Test first.

Browse the ISPF log to find the problem; see “Log (option 7.5)” on page 402 for more information.

Commands

You can enter ISPF primary commands on Dialog Test panels. Seven commands have special meaning during Dialog Test operations. You enter them in the Command line of the applicable Dialog Test option panel. These commands, and the Dialog Test options with which they function, are:

<table>
<thead>
<tr>
<th>Primary Command</th>
<th>Valid Options</th>
</tr>
</thead>
</table>
| CANCEL          | • Variables (option 7.3)  
|                 | • Tables (option 7.4)\(^1\)  
|                 | • Traces (option 7.7)\(^2\)  
|                 | • Breakpoints (option 7.8) |
| END             | • Variables (option 7.3)  
|                 | • Tables (option 7.4)\(^3\)  
|                 | • Traces (option 7.7)\(^2\)  
|                 | • Breakpoints (option 7.8) |
| LOCATE          | • Variables (option 7.3)  
|                 | • Tables (option 7.4)\(^4\)  
|                 | • Traces (option 7.7)\(^2\)  
|                 | • Breakpoints (option 7.8) |
| NEXT/PREV       | • Tables (option 7.4)\(^4\)  
| QUAL            | • Breakpoints (option 7.8) |

---

1. Valid only with Tables options 3 and 4.
2. Valid only with Traces options 1 and 2.
3. Valid only with Tables options 1, 3, and 4.
4. Valid only with Tables options 1 and 3.
Dialog Test (option 7)

- Breakpoints (option 7.8)

**SORT**

- Variable (option 7.3)

Dialog Test has three line commands that have special meaning during testing operations. These commands, and the options with which they function, are:

<table>
<thead>
<tr>
<th>Line Command</th>
<th>Valid Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>D (delete)</td>
<td>Varieties (option 7.3)</td>
</tr>
<tr>
<td></td>
<td>Tables (option 7.4)</td>
</tr>
<tr>
<td></td>
<td>Traces (option 7.7)</td>
</tr>
<tr>
<td></td>
<td>Breakpoints (option 7.8)</td>
</tr>
<tr>
<td>I (insert)</td>
<td>Varieties (option 7.3)</td>
</tr>
<tr>
<td></td>
<td>Tables (option 7.4)</td>
</tr>
<tr>
<td></td>
<td>Traces (option 7.7)</td>
</tr>
<tr>
<td></td>
<td>Breakpoints (option 7.8)</td>
</tr>
<tr>
<td>R (repeat)</td>
<td>Tables (option 7.4)</td>
</tr>
<tr>
<td></td>
<td>Traces (option 7.7)</td>
</tr>
<tr>
<td></td>
<td>Breakpoints (option 7.8)</td>
</tr>
</tbody>
</table>

When using the Dialog Test primary and line commands, you should be aware that:

- You can specify both a primary command and line commands before you press the Enter key.
- You can enter multiple line commands on the display.
- You cannot carry out a deletion if one of the included lines contains another line command.
- You can delete lines that contain an input error.
- The line commands are processed in row order when you press the Enter key. Any fields changed in the row are handled before a line command is processed.
- A primary command is handled after processing for all line commands is complete.
- As in the ISPF editor, you can specify a number with each line command to denote repetitive operation, unless you are using the Variables option (7.3). To avoid conflict with the I (insert) line command, the Variables option does not allow you to type a number along with the D command to delete more than one line simultaneously. Therefore, enter a single D line command on each line you want to delete. Unlike the ISPF editor, the Variables option does not support block deletes; however, you can enter this command on more than one line before pressing the Enter key.

**Ending the current option without saving changes**

The CANCEL command ends the current option. Any changes made to the data are ignored.
Saving changes

The END command ends the current option. Any changes made to the data now take effect.

Finding a character string

The LOCATE command searches for a character string and positions a scrollable display to the next row that contains the string. The scan starts at the end of the first row currently being displayed. A message is displayed indicating the result of the scan.

LOCATE string

where:

string

The character string you are trying to find. If the string ends in an asterisk (*), a scan for the characters preceding the asterisk is done. The asterisk is optional in the Variables option (option 7.3).

Displaying breakpoint qualification data

The QUAL command can only be entered from the Breakpoints pop-up window. It displays the breakpoint qualification data.

The same breakpoint qualification data can be obtained using the Qualifications choice on the Qualify pull-down.

Restoring the format of the Breakpoints panel

The RESUME command is entered on the Breakpoints panel when qualification parameter values are shown. It restores the format of the Breakpoints panel. Each breakpoint that has qualification is flagged by the characters *QUAL* in columns 75 to 80 on that line of the Breakpoints panel.

Dialog test line commands

These line commands have special meaning during testing operations:

D – deleting lines

The D command deletes one line or n lines starting with this line. The syntax is:

```
Syntax
```

If you are using the Variables option (7.3), the n operand does not apply. To avoid conflict with the I (insert) line command, the Variables option does not allow you to type a number along with the D command to delete more than one line simultaneously. Therefore, enter a single D line command on each line you want to delete. You can enter this command on more than one line before pressing the Enter key.
Dialog test (option 7)

I – inserting lines
The I command inserts one line or \( n \) lines directly after this line, with underscores and quotation marks in the appropriate fields. The syntax is:

```
Syntax
I \[1\] \[\_\_\_\_] \[\"\][/SM590000/SM630000]
```

R – repeating lines
The R command repeats this line once or \( n \) times. The syntax is:

```
Syntax
R \[1\] \[\_\_\_\_] \[\"\][/SM590000/SM630000]
```

Setting a keylist for dialog test
Depending on your needs and preferences, you may wish to set a dialog test-specific keylist to enhance productivity. To modify the default function key settings, go to the Dialog Test Primary Option Panel, type KEYS on the Command line, and press Enter to display the pop-up window shown in Figure 215 on page 379. Or, you may perform these steps to display the pop-up:
1. Select Option 0 from the ISPF Primary Option Menu.
2. Select Keylist settings from the Function keys pull-down on the ISPF Settings panel action bar.
3. Use a slash to select the ISPTEST Keylist; then select Change from the Functions pull-down.
On the Keylist Change panel, you can reassign existing function keys by typing over the information in the data fields, or create a new function key assignment to suit your needs. For example, you could assign the GO command to F4 if you typically issue GO many times during a dialog test.

If you press F3 or select Save and Exit from the File pull-down, the values that you have assigned will be valid when you return to Dialog Test. If you select Cancel from the File pull-down, the fields return to their original values.

Functions (option 7.1)

The Functions option (7.1) allows you to test a dialog function without having to build supporting code or panels. Dialog functions include panels, command procedures, and programs. The name of the dialog function and the parameters you can pass are the same as those that you can specify from a dialog function when you call the SELECT service. When you press the Enter key, a SELECT service is called.

If you call a new function or selection panel at a breakpoint, the previous function or selection panel is suspended and the new one is processed. When the new activity finishes, the Invoke Dialog Function/Selection Panel is displayed. The old activity resumes when you enter the END command. When the function that was called originally finishes processing, the Invoke Dialog Function/Selection Panel is displayed again.

When you select the Functions option, the scrollable panel shown in Figure 216 on page 380 is displayed to allow you to specify the dialog function that you want to test. Press F8=Forward to display the rest of the panel.
Functions (option 7.1)

There are two alternate Invoke Dialog Function/Selection panels, ISPYFPA and ISPYFPB. ISPYFPA is formatted with the most often used fields at the top of the scrollable area. ISPYFPB is similar, but it has a selection field for panel, command, program, or request selection. Unlike panel ISPYFP and ISPYFPA, when you use ISPYFPB the panel, command, program, and request selection fields can all contain values.

You can specify one of the alternate panels using the ISPF Configuration utility. See z/OS ISPF Planning and Customizing for more information.

One of the advantages of placing dialog panels in pop-up windows is that you can move the pop-up within the 3270 physical display area to reveal portions of the underlying panel.

See z/OS ISPF Dialog Developer’s Guide and Reference for instructions on how to move a pop-up window.

**Invoke dialog function/selection panel action bar**

The Invoke Dialog Function/Selection Panel action bar choices function as follows:

- **Menu**
  - For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

- **Save**
  - Allows you to specify that you want to save or clear input field information when you exit this panel.

- **Utilities**
  - For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

- **Help**
  - The Help pull-down offers you these choices:
    1. General
    2. Invoke Function Panel

Figure 216. Invoke Dialog Function/Selection panel (ISPYFP)
Invoke dialog panel fields

To call a function, you must specify a value for either the PANEL, CMD, or PGM field. You cannot specify more than one of these fields.

The fields on the Invoke Dialog Function/Selection Panel function as follows:

Invoke selection panel:
Use these fields to call a selection panel:

PANEL
The name of the selection panel to be displayed.

OPT
An optional parameter indicating the first selection option that must be valid from the specified selection panel. This input field continues onto the next line on the panel.

Invoke command:
Use these fields to call a command:

CMD
The name of a command procedure written in CLIST or REXX, or any TSO command, to be called as a dialog function. You can include command parameters.

Use the percent sign (%) as a prefix symbol to tell ISPF to remove the Invoke Dialog Function/Selection Panel and use the full screen to display the results of a CLIST or REXX exec call. A complete CLIST or REXX exec call is indicated by three asterisks. Press the Enter key to return to the Invoke Dialog Function/Selection Panel.

If you omit the % prefix, ISPF interprets the command as a TSO command, using line mode to display the command results at the bottom of the Invoke Dialog Function/Selection Panel.

LANG
An optional parameter used to specify APL or CREX.

Type APL in this field to specify the use of the APL language. If this is your first APL request during the session, the command specified in the CMD keyword is called and an APL2® environment is established. If this is not your first APL request during this session, the string specified after the CMD keyword is passed to the APL2 workspace and processed.

Type CREX in this field to specify that the command specified in the CMD keyword is a REXX exec that has been compiled and link-edited into a load module, and that a CLIST/REXX function pool is to be used rather than an ISPF module function pool. LANG(CREX) is optional if the compiled REXX has been link-edited to include any of the stubs EAGSTCE, EAGSTCPP, or EAGSTMP.

See z/OS ISPF Dialog Developer’s Guide and Reference for more information about Compiled REXX processing.

To specify any language other than APL or Compiled REXX, leave this field blank.

MODE
An optional parameter that overrides:
Automatic line mode entry, caused when a TSO command is entered.

Automatic full-screen display caused by the `% CLIST or REXX exec prefix. However, it does not prevent ISPF from calling the command as a CLIST or REXX exec.

If you leave this field blank, the `% prefix has its normal effect. The valid values for this field are:

- **LINE** Used to enter line mode when calling a CLIST or REXX exec.
- **FSCR** Used to enter full-screen mode when calling a TSO command.

**Invoke program:**

Use these fields to call a program:

- **PGM** The name of a program to be called as a dialog function.
- **PARM** Optional parameters to be passed to the program. This input field continues onto the next line on the panel.
- **MODE** An optional parameter used to tell ISPF whether to display the program results in line mode or full-screen mode. If you leave this field blank, ISPF uses line mode as the default. The valid values for this field are:
  - **LINE** Used to enter line mode when calling a program. Results of the program are displayed at the bottom of the Invoke Dialog Function/Selection Panel.
  - **FSCR** Used to enter full-screen mode when calling a program. ISPF removes the Invoke Dialog Function/Selection Panel and uses the full screen to display the program results. Three asterisks show program completion. Press the Enter key to return to the Invoke Dialog Function/Selection Panel.

**Invoke request:**

Use this field to call a workstation command:

- **WSCMD** A fully qualified workstation command with any of its parameters.

**Options:**

Use a slash to select these options:

- **NEWAPPL** Indication of whether a new application is being called. Select this option if the function is a new application.
- **ID** A 1- to 4-character ID for a new application. If you call a new application and leave the ID field blank, the default ID of ISP is used. Note that the ID determines the names of the profile and the command table to be used for the application.
- **NEWPOOL** Indication of whether a new shared variable pool is to be created. Select this option if you want to create a new shared variable pool; however, the selection is ignored if NEWAPPL is selected.
Functions (option 7.1)

<table>
<thead>
<tr>
<th>PASSLIB</th>
<th>Shows that the current set of application-level ISPF libraries, if any sets exist, is to be used by the application being selected. You can select PASSLIB only if you also select NEWAPPL.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong></td>
<td>For more information about the PASSLIB field, see the description of the SELECT service in z/OS ISPF Services Guide.</td>
</tr>
</tbody>
</table>

Panels (option 7.2)

When you are developing panels, you can use the Panels option (7.2) to test newly created or changed panels and messages without having to build supporting code to display them. Any variables referred to and set during panel processing are written to the current function variable pool.

When you select the Panels option (7.2), the panel in Figure 217 is displayed.

![Figure 217. Display panel (ISPYP1)](image)

**Display panel action bar**

The Display Panel action bar choices function as follows:

<table>
<thead>
<tr>
<th><strong>Menu</strong></th>
<th>For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Save</strong></td>
<td>Allows you to specify that you want to save or clear input field information when you exit this panel.</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td>For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol 1.</td>
</tr>
<tr>
<td><strong>Help</strong></td>
<td>The Help pull-down offers you these choices:</td>
</tr>
</tbody>
</table>
## Display panel fields

The fields on the Display Panel function as follows:

**Panel name**
- The name of the panel to be displayed.

**Message id**
- The identifier of a message to be displayed on the panel.

**Cursor field**
- The name of the field on the panel where the cursor is to be positioned.

**Cursor position**
- An integer specifying the position in the field where the cursor is to be placed.

**Message pop-up field**
- The name of a panel field the pop-up message window should be placed adjacent to. Note that the message definition determines if the message will appear in a pop-up window.

**Display in window**
- A slash (/) specifies that the panel is to be displayed in a pop-up window.

If you specify a panel name, entries in "Message id", "Cursor field", "Cursor Position", "Message pop-up field", and the Display in window option are optional.

With the exception of the Display in window option, these are the same parameters that a dialog function can specify when calling the DISPLAY service. Selecting the Display in window field is the functional equivalent to the dialog issuing an ADDPOP service before the DISPLAY service.

When the panel is displayed, the )INIT and )PROC sections of the panel are processed in the same way the DISPLAY service would process them.

If you want to set variables before you display the panel, you can use the Variables option (7.3) to do so. When you display the panel, you can type in new data or type over existing data, and then verify the variables by using the Variables option (7.3) again. Data that you type on the panel is retained until you change it, leave Dialog Test, or reset the function pool.

Figure 218 on page 385 shows the panel that is displayed if you specify message ID ISPD241 and, optionally, a cursor position without identifying a panel name. The long message portion of the identified message is displayed when you enter the HELP command on that panel.
When you enter the END command from the panel being tested, the Display Panel reappears on the screen.

Variables (Option 7.3)

The Variables option (7.3) allows you to:

- Display all the ISPF variables defined in the dialog application you are testing.
- Change the value of a variable by typing over it, unless the variable has an N (non-modifiable) attribute.
- Define new variables by inserting lines or by changing the name or pool of a listed variable.
- Delete variable names and blank lines.

When you select this option, you can scroll a display showing all the current variables for the dialog being tested, as shown in Figure 219 on page 386.

In addition to scrolling capability, you can also increase the size of the Variables pop-up window to fill the entire 3270 physical display area using the RESIZE command. The initial RESIZE command increases the pop-up window to its maximum size, and the subsequent RESIZE reduces the window to its original size.
Variables (Option 7.3)

The Variables display is controlled by the selection you make in the View pull-down on the Dialog Test Primary Option Panel action bar:

1. **Display Variables in window.** Variables are displayed in a pop-up window.
2. **Display Variables full-screen.** Variables are displayed full-screen.

**Note:** The current setting is shown as an unavailable choice; that is, it is displayed in blue (the default) with an asterisk as the first digit of the selection number (if you are running in GUI mode, the choice is grayed).

**Variables panel action bar**

The Variables Panel action bar choices function as follows:

**Menu**
For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

**Utilities**
For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

**Help**
The Help pull-down offers you these choices:

1. General Variables
2. Definitions
3. Variables Panel
4. Manipulating Variables
5. Primary Commands
6. Line Commands
7. Usage Notes
8. General Dialog Test
Variables (Option 7.3)

Variables panel fields

Each line of the display represents a variable and contains a line command area. The fields on the Variables panel function as follows:

Variable
Name of the variable. The variable name is alphanumeric, with the first character being either alphabetic or one of the special characters $, #, or @. The variable name cannot be longer than eight characters. All alphabetic characters are converted to uppercase when you press the Enter key. The Variable field is required.

P Pool that contains the variable; a required 1-character field, where:
V Function pool; the variable was defined with the VDEFINE service.
I Function pool; a variable that was created by a CLIST or REXX exec, or by using the Variables option. This is an implicit variable, which was not explicitly defined by using the VDEFINE service.
S Shared variable pool.
P Profile variable pool.

A Attributes of the variable, a non-modifiable 1-character field, where:
N Non-modifiable variable. Some system-reserved variables are not modifiable.
H Non-modifiable variable containing hexadecimal data. Some system-reserved variables are not modifiable.
X Variable containing hexadecimal data.
T Truncated variable value. The actual value is longer than the 2048 characters that you can display on the expanded panel.

If you change a line showing a truncated value, only the data shown on the display is stored as the new value.

Value Value of the variable. The value can be up to 2048 characters in length. Each value is scrollable, by placing the cursor over the value and using the LEFT and RIGHT functions keys. The EXPAND function key can be used to display a full screen of data and display hexadecimal values.

Variables commands

The Variables option (7.3) uses the CANCEL, END, and LOCATE commands, and the I (insert) and D (delete) Dialog Test line commands described in [Commands on page 375]. You can change the displayed sort order using the SORT command. SORT with no operands sorts the list by variable pools then by variable name. SORT NAME sorts the list by variable name and then by variable pool. SORT VALUE sorts the list by the displayed Value field. The LOCATE command can be used to search for a specific variable. LOCATE accepts as an operand the name, or first letters of the name of a variable. If the name is not found, the list is positioned near the closest match. You can use the RFIND key to continue searching other variable pools.

Normally, the variable pools are updated with the data from the display when you use the END command to leave the option.
Manipulating variables

The rows of the display are sorted in this order:
1. By pool (function, then shared, then profile)
2. By function pool type (V, then I)
3. Alphabetically by variable name within each pool.

Insertions are left where they are typed on the display. Changes to the display are processed when you press the Enter key. Updating of the variable pools occurs when you enter the END command.

Creating new variables

You can create new dialog variables, but you cannot create two variables with the same name in the same variable pool.

To create a new variable, you can do one of two things:
- Use the I line command to insert a new row, and then type the variable name, pool, and value on the new line. For each field, move the cursor to the start of the field and type new information. The underscores are pad characters; you do not need to blank them out.
- Type over the name of an existing variable, its pool indicator, or both. This creates a new variable and resets the old variable’s value to nulls.

If you change a truncated value, the portion that is not displayed is lost. The new variable value consists only of the visible portion on the screen.

New function pool variables are given an I (implicit) attribute and a CHAR format. If you type F in the attribute field, ISPF changes it to I.

By using the second method, you can interchange the values of two or more variables by simply changing their names. For example, you can interchange the values for variables A and B by changing the variable name A to B and name B to A, and then pressing the Enter key.

Deleting variables

Any dialog variable in the shared and profile pools can be deleted, unless it has an N attribute. Though you cannot delete a variable from the function pool, you can set its value to blanks.

To delete a variable, use the D line command. However, to avoid conflict with the I (insert) line command, the Variables option does not allow you to type a number along with the D command to delete more than one line simultaneously. Therefore, enter a single D line command on each line you want to delete. You can type this command on more than one line before pressing the Enter key.

Variables usage notes

When using the Variables option (7.3), you should be aware of:

Input errors
Correct any errors before leaving a display. If you cannot correct the errors, use the CANCEL command.

Length and format errors in variables defined with the VDEFINE service are detected when you enter the END command. If ISPF finds such an error, it prompts you to fix the variable value.

Test mode
Variable manipulations carried out under Dialog Test at a breakpoint are
Variables (Option 7.3)

considered an extension of your dialog and, as such, are handled in user mode. Dialog variables, table data, and service return codes that you introduce, delete, or change are treated as though your dialog had made those changes.

Variable life
Profile variables that you create remain in your profile pool from one Dialog Test session to another. Shared and function variables exist only for the duration of Dialog Test.

Split-screen mode
In split-screen mode, two logical screens can share a profile variable pool. Since the Variables option (7.3) takes a snapshot of the variables, any change to a profile variable on one screen is not immediately reflected on the other screen. To get the latest changes, select the Variables option (7.3) again. Also, when one profile variable is changed on two logical screens using split-screen mode, the changed profile variable on the screen where the last END command was entered takes precedence.

Variable value
Variables defined with the VDEFINE service as non-character are displayed in converted form. Any changes made to the variable’s value should conform to the defined format.

Do not change them using the hexadecimal representation. A format or length error causes a message to be displayed when you use the END command. When a VDEFINE error occurs, a panel identifies the data and its value and describes the error. You must then correct the error and press the Enter key. If you create a new variable by changing the pool indicator of an existing variable defined as non-character, the new variable has character (CHAR) format.

Hexadecimal data
Hexadecimal data that cannot be displayed is converted to displayable characters or typed using the form:

\[X'\text{n1n2n3n4n5n6}'\]

where:

\(n\) An integer 0 through 9 or an alphabetic character A through F.
There must be an even number of characters within the quotation marks.

DBCS data
A variable defined as DBCS by the VDEFINE service or displayed through the field with FORMAT(DBCS) specified in the test environment is displayed using the form:

\['\sim[\text{DBDBDBDB}]'\]

where:

\([\] \) and \(\] \)
Represent the SO (shift-out) and SI (shift-in) characters, respectively.

If you type a DBCS value in this format on the Variables panel, only the DBCS characters are stored.
Tables (option 7.4)

The Tables option (7.4) allows you to examine and manipulate the rows of a table, and to display table structure and status. When you select this option, the panel in Figure 220 is displayed, on which you show the table function you want and the parameters needed to identify the table.

### Tables panel action bar

The Tables panel action bar choices function as follows:

**Menu**

For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

**Utilities**

For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

**View**

Allows you to select whether the Add row, Modify row, and Display row panels are displayed in pop-up windows. By displaying the panel in a pop-up window, you can see the panel underneath and move the window. By displaying the panel as a full-screen display, you can see more data. The setting you choose will remain in effect until you change it.

**Help**

The Help pull-down offers you these choices:

1. General Tables
2. Definitions
3. Tables Panel
4. Display Row
5. Delete Row
6. Modify Row
7. Add Row
8. Display Structure
Tables (option 7.4)

Tables panel fields

The fields on the Tables panel function as follows:

**Table Name**
The name of the table in which you are interested. The table must be open for all, except the Display Status option (6) of the Tables option (7.4). The table can be opened using the Dialog Services option (7.6) or can be opened automatically by specifying the Open tables field WRITE/NOWRITE option.

**Open tables**
The table must be open for all but the Display Status option (6) of the Tables option (7.4). Specifying WRITE or NOWRITE will cause Tables option to automatically open the table in the respective mode. A blank field directs Tables to bypass the automatic open. If Tables automatically opens the table, it will be closed automatically when the Tables option is terminated. This is done with a TBCLOSE service which will cause any table changes to be preserved if the table were automatically opened with the WRITE option.

This field is ignored if the table has been opened outside of the Tables (7.4) option.

**Row identification**
Identify a row, either directly by row number or indirectly by specifying table variable names and their values as search operands.

**Current row**
The position number of the current row after you have identified a table. This field is not modifiable.

**By row number**
The position number of the table row that you want, or, if you are adding a row, you can use:
- **TOP** Makes the new row first in the table.
- **BOTTOM** Makes the new row last in the table.

**Variable**
The names of variables whose values are to be used to search the table for a row with matching contents. You insert them by typing over the underscores beneath this heading.

**Value**
The value to be used in the search, up to 54 characters. For an abbreviated search, type the beginning characters followed by an asterisk.

You can specify a DBCS value in the form:

```
¬[DBDBDB]
```

where:

- [ and ]
- Represent the SO (shift-out) and SI (shift-in) characters, respectively. For an abbreviated search, type a 2-byte asterisk (*) at the end of the DBCS value. For example:
  ```
  ¬[DBDB**]
  ```
  where ** represents the 2-byte asterisk character.
Tables (option 7.4)

DBCS column specification
The variable names of the values that are DBCS data. The value of
the variable is displayed using the form:
-[DBDBDB]

If you type a DBCS value in this format on the Modify Row panel
or the Add Row panel, only the DBCS characters are stored,
regardless of the DBCS column specification.

Option
The number of one of the functions displayed on the Tables panel.

Note: The option names (for example, Display row) are
point-and-shoot fields; however, if an option is already
specified at the Option prompt, it takes precedence over
your point-and-shoot selection.

Once you specify a table name, it is retained until you change it or until you leave
Dialog Test.

For the Display row (1), Delete row (2), Modify row (3), and Add row (4) options
of the Tables option (7.4), you must identify the row you want to display, delete,
modify, or add. To do this, you can specify a row number in the “By row number”
field, or you can use the Variable and Value fields to specify a list of search
operands. To show the current row, leave the asterisk in the “By row number”
field. If you specify both a row number and a search operand, the row number is
used and the search operand is ignored.

The current row pointer in the table can be changed only at your request or by
your dialog.

The list of search operands consists of variable names and values that allow you to
specify the values that specific variables have in a row. You can specify the
complete value, abbreviate the value with an asterisk to find a row containing a
variable beginning with specified characters, or leave the row blank. The search
begins with the row following the current row. If a row matching the search
operand is not found, the current row pointer is set to the top. You can repeat the
search, if necessary.

Tables panel options
Subsequent topics describe the options at the top of the Tables panel.

1—display row
You can use the Display row option to display the contents of an existing row in
an open table. When you select the Display row option, perform these tasks on the
Tables panel:
• Specify the name of a table in the Table Name field. If the table is not open,
specify NOWRITE or WRITE in the “Open tables” field.
• Specify a row number or a search operand list to identify a row.

Note: Use the View action bar choice on the Tables panel to specify whether this
display is to be in a pop-up or full-screen.

When you press Enter, you are shown the table row data on a display that you can
scroll (Figure 221 on page 393). The pop-up window can also be resized using the
RESIZE command. In the figure, the variables constitute one table row.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of variable:</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYLISTN</td>
<td>K ISPTEST</td>
</tr>
<tr>
<td>KEY1DEF</td>
<td>N HELP</td>
</tr>
<tr>
<td>KEY1LAB</td>
<td>N Help</td>
</tr>
<tr>
<td>KEY1ATR</td>
<td>N SHORT</td>
</tr>
<tr>
<td>KEY2DEF</td>
<td>N SPLIT</td>
</tr>
<tr>
<td>KEY2LAB</td>
<td>N Split</td>
</tr>
<tr>
<td>KEY2ATR</td>
<td>N LONG</td>
</tr>
<tr>
<td>KEY3DEF</td>
<td>N EXIT</td>
</tr>
<tr>
<td>KEY3LAB</td>
<td>N Exit</td>
</tr>
<tr>
<td>KEY3ATR</td>
<td>N SHORT</td>
</tr>
<tr>
<td>KEY4DEF</td>
<td>N</td>
</tr>
<tr>
<td>KEY4LAB</td>
<td>N</td>
</tr>
<tr>
<td>KEY4ATR</td>
<td>N</td>
</tr>
</tbody>
</table>

Display row panel (ISPYTPD)

Each line on the display shows:

**Variable**  Variable name

**T**  Type of variable:

K  Key variable.

N  Name variable; non-key.

S  Save (extension) variable.

**A**  Attribute of each variable:

T  Truncated to 58 characters for display.

**Value**  The first 58 characters of the variable value.

Display row commands: The Display Row option uses the END and LOCATE commands described in "Commands" on page 375.

2—delete row

You can use the Delete row option to remove an existing row from an open table. When you select the Delete row option, perform these tasks on the Tables panel:

- Specify the name of a table in the Table Name field. If the table is not open, specify NOWRITE or WRITE in the “Open tables” field.
- Specify a row number or a search operand list to identify a row.

When you press Enter, a panel is displayed (Figure 222 on page 394) to allow you to confirm the delete request.
The fields on the panel are:

- **Table name**: Name of an open table
- **Row number**: Number of the row to be deleted.

Press Enter to delete the row, or enter the END or CANCEL command to cancel the deletion.

### 3—modify row

You can use the Modify row option to change the contents of an existing row of an open table. When you select the Modify row option, perform these tasks on the Tables panel:

- Specify the name of a table in the Table Name field. If the table is not open, specify NOWRITE or WRITE in the “Open tables” field.
- Specify a row number or a search operand list to identify a row.

**Note**: Use the View action bar choice on the Tables panel to specify whether this display is to be in a pop-up or full-screen.

When you press Enter, a display that you can scroll is shown. The pop-up window can also be resized using the RESIZE command.
Tables (option 7.4)

Each line on the panel represents a variable in row 6 of the table and contains a line command field and these fields:

- **Variable**: Variable name, modifiable only for save variables.
  - **T**: Type of variable, non-modifiable:
    - **K**: Key variable.
    - **N**: Name variable; non-key.
    - **S**: Save (extension) variable.
- **A**: Attribute of each variable, non-modifiable:
  - **T**: Truncated to 2048 characters for display.
- **Value**: Value of the variable, up to 2048 characters.

Type in new values or change the current values for the key, name, and save variables in the Value column. Enter new save variables by typing over the underscores in the Name column with the variable names and specifying the desired values. The underscores are pad characters; you do not need to blank them out.

When using the Modify row option, be aware that:
- If the table has keys, the values for the keys in the added row must be different from those in the existing rows when you leave the Modify row option. Otherwise, a message is displayed and the row is displayed again so you can change the keys.
- If the table was sorted using the TBSORT dialog service and a sort field is modified, the row's position in the table can change to preserve the search order.
- You cannot change the variable name for a key variable or name variable; if you do, an error message is displayed and the original name is restored.
- You cannot delete a key or name variable and its value from the display or table row.

Figure 223. Modify row panel (ISPYTPM)
Tables (option 7.4)

- If you delete a save variable, assume that the variable no longer exists in this row.
- If more than one variable entry has the same name, all instances of that variable are assigned the value of the last occurrence of the variable; that is, the occurrence closest to the bottom of a display that you can scroll.
- Blank save names are ignored and do not need to be deleted, even if data is left in the value.
- Hexadecimal data that usually cannot be displayed is converted to characters that can be displayed or is typed by using the form:
  \[ X'nnnnnnnn' \]
  where:
  - \( n \) An integer 0-9 or an alphabetic character A-F. There must be an even number of characters within the quotation marks.
- Variables defined with the VDEFINE service as non-character are shown in converted form; do not change them by using the hexadecimal representation. A format or length error causes a message to be displayed when you use the END command.
- When you leave the Modify row option by using the END command, the row is replaced, and the message Row modified is issued.

Modify row commands: The Modify row option uses the CANCEL, END, and LOCATE commands, and the D (delete), I (insert), and R (repeat) Dialog Test line commands described in ["Commands" on page 375]. Inserted and repeated lines always have a type of S, because only save variables can be added to (or deleted from) a row of an existing table.

4—add row
You can use the Add row option to add a new row after a selected row of an opened table. When you select the Add row option, perform these tasks on the Tables panel:
- Specify the name of a table in the Table Name field. If the table is not open, specify NOWRITE or WRITE in the “Open tables” field.
- Specify a row number or a search operand list to identify a row.

Note: Use the View action bar choice on the Tables panel to specify whether this display is to be in a pop-up or full-screen.
When you press Enter, a scrollable display is shown (Figure 224), containing all the key and name variables in the table. The pop-up window can also be resized using the RESIZE command.

Each row of the display contains a line command field and these fields:

**Variable** Variable name.

**T** Type of variable, non-modifiable:
- **K** Key variable.
- **N** Name variable; non-key.
- **S** Save (extension) variable.

**A** Attribute of each variable. This attribute is non-modifiable and is not used for this option.

**Value** Space for the variable value to be added, up to 2048 characters.

Type the values for the key and name variables in the Value column, which is originally initialized to all nulls. You cannot change the names of the key and name variables because they were established when the table was created.

You can enter save variables, identified as TYPE S, by typing over the underscores with the save variable names and specifying the desired values. The underscores are pad characters; you do not need to blank them out.

You can add a row with no values to the table, but you are asked to confirm such an action to guard against inadvertent use of the END command.

When using the Add row option, be aware that:
- The position of the new row in the table depends on whether the table was previously sorted using the TBSORT dialog service. If the table was sorted, the new row is placed in sort order; if it has not been sorted, the new row is placed after the row you specified.
You cannot delete a key or name variable and its value from the display or table row.

You cannot change the variable name for a key or name variable; if you do, an error message is displayed and the original name is restored.

If more than one variable entry has the same name, all instances of that variable are assigned the value of the last occurrence of the variable; that is, the occurrence closest to the bottom of the display that you can scroll.

If the table has keys, the values for the keys in the added row must be different from those in all the existing rows when you leave the Add Row option. Otherwise, a message is displayed and the row is displayed again so you can change the keys.

Blank save names are ignored and do not need to be deleted, even if data is left in the value.

Hexadecimal data that usually cannot be displayed is converted to characters that can be displayed or is typed by using the form:

\[X'nnnnnnnn'\]

where:

\[n\]  An integer 0-9 or an alphabetic character A-F. There must be an even number of characters within the quotation marks.

Variables defined with the VDEFINE service as non-character are shown in converted form; do not change them by using the hexadecimal representation. A format or length error causes an error message to be displayed when you use the END command.

**Add row commands:** The Add row option uses the CANCEL, END, and LOCATE commands, and the D (delete), I (insert), and R (repeat) Dialog Test line commands described in "Commands" on page 375. Inserted and repeated lines always have a type of S, because only save variables can be added to (or deleted from) a row of an existing table.

**5—display structure**

When you select the Display structure option on the Tables panel, you are shown a display of the table structure for the table specified in the Table Name field. You can scroll this display [Figure 225 on page 399](#) using the scroll commands. The table name appears in the panel header.
The display contains these fields:

**Number of keys**
Number of key variables in a row.

**Number of names**
Number of name variables in a row.

**Number of rows**
Number of rows currently in the table.

**Current row pointer**
Current row pointer value.

**KEYS**
A list of the names of all the key variables.

**NAMES**
A list of the names of all the name variables.

**Display structure command:** The KEYS and NAMES lists can be scrolled, and you can use the LOCATE command to find a specific variable name. See “Finding a character string” on page 377 for information about its use.

### 6—display status

If you select the Display status option from the Tables panel, one of two data information panels is displayed for the table specified in the Table Name field. The information reflects all operations using the specified table, including those done at your request by the Tables options under Dialog Test.

**Table not open:** If the table is not open for your user ID, you are shown a Status of Table panel (Figure 226 on page 400) with the value NOT OPEN in the “Status for this screen” field.
### Status of Table Panel

The panel contains these fields:

- **Status for this screen**: Shows that the table is NOT OPEN for this logical screen.
- **Table available**: YES or NO; whether you can open the table.
- **Date created**: Date the table was created; shown in national format.
- **Time created**: Time the table was created.
- **Last date modified**: Date the table was last modified; shown in national format.
- **Last time modified**: Time the table was last modified.
- **Last modified by**: User ID of the user who last changed the table.
- **Original row count**: The number of rows that were added to a newly created table before closing the table for the first time.
- **Current row count**: The number of rows currently in the table.
- **Modified row count**: The number of rows in the table that have been changed at least once. A row that has been added to an existing table is also considered a changed row.
- **Update count**: Number of times the table has been modified. One or more updates during any table open or close sequence increments this counter by one.
- **Virtual storage**: The number of bytes of virtual storage required by the table when it is open.

---

*Figure 226. Status of table panel with table not open (ISPYTPS1)*

The panel contains these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status for this screen</td>
<td>Shows that the table is NOT OPEN for this logical screen.</td>
</tr>
<tr>
<td>Table available</td>
<td>YES or NO; whether you can open the table.</td>
</tr>
<tr>
<td>Date created</td>
<td>Date the table was created; shown in national format.</td>
</tr>
<tr>
<td>Time created</td>
<td>Time the table was created.</td>
</tr>
<tr>
<td>Last date modified</td>
<td>Date the table was last modified; shown in national format.</td>
</tr>
<tr>
<td>Last time modified</td>
<td>Time the table was last modified.</td>
</tr>
<tr>
<td>Last modified by</td>
<td>User ID of the user who last changed the table.</td>
</tr>
<tr>
<td>Original row count</td>
<td>The number of rows that were added to a newly created table before closing</td>
</tr>
<tr>
<td></td>
<td>the table for the first time.</td>
</tr>
<tr>
<td>Current row count</td>
<td>The number of rows currently in the table.</td>
</tr>
<tr>
<td>Modified row count</td>
<td>The number of rows in the table that have been changed at least once. A row</td>
</tr>
<tr>
<td></td>
<td>that has been added to an existing table is also considered a changed row.</td>
</tr>
<tr>
<td>Update count</td>
<td>Number of times the table has been modified. One or more updates during any</td>
</tr>
<tr>
<td></td>
<td>table open or close sequence increments this counter by one.</td>
</tr>
<tr>
<td>Virtual storage</td>
<td>The number of bytes of virtual storage required by the table when it is open.</td>
</tr>
</tbody>
</table>

---

*Option ===> 7  
F1=Help  F2=Split  F3=Exit  F7=Backward  F8=Forward  F9=Swap  F10=Actions  F12=Cancel*
The Modify row option on the Tables panel allows you to change a key of a keyed table by adding the new row and deleting the old row. The row counts thus reflect this processing when changing a key value.

**Table open:** If the table is open for your user ID, you are shown a Status of Table panel (Figure 227) with the value OPEN in the Status for this screen field.

---

**Status for this screen**
Shows that the table is OPEN for this logical screen.

**Open option**
Option used to open the table; this value can be WRITE, NOWRITE, SHR WRITE, or SHR NOWRITE.

**Table on disk**
Whether the table has been saved on disk; this value can be YES or NO.

**Last table service**
Name of the last table service called.

**Last service return code**
Last table services return code.

**Current row pointer**
Current position in the table.

**Date created**
Date the table was created; shown in national format.

**Time created**
Time the table was created.

**Last date modified**
Date the table was last modified; shown in national format.
Tables (option 7.4)

Last time modified
Time the table was last modified.

Last modified by
User ID of the user who last changed the table.

Original row count
The number of rows that were added to a newly created table
before closing the table for the first time.

Current row count
The number of rows currently in the table.

Modified row count
The number of rows in the table that have been changed at least
once. A row that has been added to an existing table is also
considered a changed row.

Update count
Number of times the table has been modified. One or more
updates during any table open or close sequence increments this
counter by one.

Virtual storage
The number of bytes of virtual storage required by the table.

The Modify row option on the Tables panel allows you to change a key of a keyed
table by adding the new row and deleting the old row. The row counts thus reflect
this processing when changing a key value.

Log (option 7.5)

The Log option (7.5) allows you to display and browse data recorded in the ISPF
transaction log, as shown in Figure 228.
You can use all the Browse commands, except BROWSE, while looking at the ISPF log.

**ISPF transaction log not available**

Sometimes the log is not available for browsing. This can occur when:

- The log data set is empty.
- The log data set was not created for this session because 0 was entered in the “Primary pages” field on the Log Set Defaults and List Set Defaults pop-ups, which can be reached by selecting Option 0 from the ISPF Primary Option Menu and then selecting the Log Data set defaults and List Data set defaults choices from the Log/List pull-down.
- No data has been written to the log during this session, and although the log data set exists and is not empty, you did not end the last ISPF session normally; for example, an abend can have ended the session. You can browse the log if you take an action that causes a log entry to be written.
- The log data set was previously allocated with a disposition of OLD. It must be allocated with a disposition of MOD.
- The log data set has been previously allocated to SYSOUT.

**Trace output in ispf log**

This trace output is written to the ISPF log:

- Trace header entries
- Function trace entries
- Variable trace entries.

Each type of entry follows the format of other log entries: a short summary on the left, and a detailed entry on the right.

**Trace header entries**

The first line of trace data is a trace header that identifies the trace and shows the current application ID, the current function, and the current screen. For split-screen mode, the original screen is 1 and the screen generated by the SPLIT command is 2. The summary section of the header entry identifies the entry as a dialog trace. The trace header entry is written during the test session whenever a function or variable trace entry is to be written for an application, function, or screen that differs from the last.

For example, a trace of logical screen 1 of function TESTF1 in application ISR would place this line in the ISPF log:

```
DIALOG TRACE ---- - APPLICATION(ISR) FUNCTION(TESTF1) SCREEN(1)
```

**Function trace entries**

A pair of function trace entries, a BEGIN entry and an END entry, is generated during a function trace for each traced dialog service that is called. A service can be called from a user dialog that is currently processing, or from a Dialog Test action for the user. The summary portion of each of these entries shows the name of the dialog service, whether it is the beginning or the end of its processing, and whether it was called indirectly from a Dialog Test panel. If the word TEST does not appear, the user dialog called the service directly. For END entries, the service return code is shown on a second line.

The detailed section of the log entries contains an image of the service call and the parameters used to call that service, using two lines if necessary. For example:
Log (option 7.5)

```flex
DISPLAY .. BEGIN ... TEST - DISPLAY PANEL(XYZ)
  :
DISPLAY .. END... ... TEST - DISPLAY PANEL(XYZ)
   ..RETURN CODE (0)
```

There can be many log entries between the begin and end entries. For example, any active variable traces can cause log entries during a SELECT trace.

Note these aspects about the service call image:
- The image is truncated after the second line.
- ISPEXEC calls are shown as typed in the dialog.
- ISPLINK and ISPLNK calls (except for the ISREDIT service) are displayed with their parameter values separated by commas. Name-lists are shown as typed in the dialog, in either string or structure format. Structure format includes the count, element length, and list of names. For a variable services parameter whose context is defined by the name-list parameter on the service call, the first four bytes of the parameter value are displayed in hexadecimal format (X'nnnnnnnn').
- Dialog Test calls are shown using the command call format without the ISPEXEC prefix.

**Variable trace entries**

Two variable trace entry lines are generated for each variable trace log entry. The variable can be referred to or set by a user dialog directly or indirectly by a dialog service, or explicitly set by a Dialog Test option for a user. The summary parts of these entry lines identify the trace. Line one shows the name of the variable, the pool that contains it (F for function, S for shared, P for profile), and an indicator (TEST) if a Dialog Test option set the value. Line two shows the operation done for the variable (GET, PUT, or CHG) and the name of the dialog service that did the operation for non-TEST entries.

The current value of the variable is printed in the detail section of the log entry and can span two lines. For example:

```flex
LIB1.... POOL(P) .... - VALUE(FLAG)
  ...GET by EDIT -
```

The value is truncated after the second line.

If the variable value contains characters that cannot be displayed, the value is displayed in hexadecimal format (X'nnnnnnnn').

**Dialog services (option 7.6)**

The Dialog Services option (7.6) allows you to call a dialog service by entering the service call with or without the ISPEXEC characters.

[Figure 229 on page 405](#) shows the Invoke Dialog Service panel.
On this panel, if you want to display panel XYZ, enter:

===> DISPLAY PANEL(XYZ)

or

===> ISPEXEC DISPLAY PANEL(XYZ)

The service is called when you press the Enter key. You are informed of the service's completion and return code.

You can call any dialog service that is valid in the command environment except CONTROL at a breakpoint or before calling a function.

The Invoke Dialog Service panel has a saved command area (the bottom portion of the screen) that contains a list of up to 10 commands that you have saved. These commands are point-and-shoot fields. The mode you specify from the Mode pull-down menu on the action bar determines what happens when you select a command.

**Invoke dialog service panel action bar**

The Invoke Dialog Service panel action bar choices function as follows:

**Note:** The Invoke Dialog Service panel action bar contains three pull-down choices that let you control the saved command area.

- List
- Mode
- Functions.

**Menu** For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I.

**List** The List pull-down offers you these choices:
Dialog services (option 7.6)

**Note:** The current setting is shown as an unavailable choice; that is, it is displayed in blue (the default) with an asterisk as the first digit of the selection number (if you are running in GUI mode, the choice will be grayed).

**Update On** Makes the list of commands in the saved command area *live*; that is, new commands are appended to the list automatically.

**Update Off** Makes the list of commands in the saved command area *static*; that is, new commands are not appended to the list automatically.

**Mode** The Mode pull-down offers you these choices:

**Note:** The current setting is shown as an unavailable choice; that is, it is displayed in blue (the default) with an asterisk as the first digit of the selection number (if you are running in GUI mode, the choice will be grayed).

**Retrieve** Allows commands to be retrieved from the saved command area and placed on the TSO Command Entry field (==>) so that you can edit them before they are executed. This mode is the default.

**Execute** Allows commands to be retrieved from the saved command area and executed in one step.

**Delete** Allows you to delete commands from the saved command area without executing the commands. Place the cursor on the command to be deleted and press Enter. The command will be blanked out.

**Functions** The Functions pull-down offers you this choice:

**Note:** The choice is unavailable when you initially enter the panel and after you compress the list; that is, it will display in blue (the default) with an asterisk as the first digit of the selection number (if you are running in GUI mode, the choice will be grayed).

**Compress List** Compresses the saved command area by removing deleted entries.

**Utilities** For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the [z/OS ISPF User's Guide Vol I](#).

**Help** The Help pull-down offers you these choices:

1. General
2. General Dialog Test

**Special display panel** If you issue the DISPLAY service call with only a message parameter, or with no parameter at all, the Special Display Panel is shown [Figure 230 on page 407](#).
Traces (option 7.7)

The Traces option (7.7) allows you to define, change, and delete trace specifications. You can trace processed dialog services, except for the VPUT or VGET service issued from a panel, and dialog variables to which are referred during dialog processing. Trace data is placed in the transaction log, where you can browse it by using the Log option (7.5) or print it when you leave ISPF. You can also print the log data set during an ISPF session by using the ISPF LOG command.

Since tracing can degrade dialog performance and create large amounts of output, you should be careful in setting the scope of trace definitions.

When you select this option, a selection panel is displayed on which you can show the type of trace you want to define.
Subsequent topics describe the options shown at the top of the Traces panel.

1—function traces

The Function Traces option on the Traces panel is used to establish criteria for recording the names of dialog service calls, the service parameters, and return code in the ISPF log. If either a dialog or Dialog Test processing causes a service call, that call is recorded in the trace. An example of Dialog Test processing that causes a service call is the use of the Panels option to display a panel. Whenever a new application or function causes data to be recorded, a header is placed in the trace.

When you select the Function Traces option, you are shown a panel that you can scroll (Figure 232 on page 409). The pop-up window can also be resized using the RESIZE command. The panel lists all currently defined function traces.

You can add, delete, and change function trace definitions by using this panel, either before calling a function or at a breakpoint.
Each line defines a function trace, showing a line command area and these fields:

**Function**
The name of the user function that should contain the trace, or ALL to trace every dialog function. Initially, ALL is presented on the display but is not started. Change the NO to a YES in the Active column to start such a trace. If you want to trace a function whose name is ALL, enclose the name in single quotes to distinguish it; that is, type ‘ALL’, not ALL.

**Active**
Whether the trace is to be active now:
- **YES**: The trace is currently active.
- **NO**: The trace is currently not active.
- **Blank**: The trace is currently active.

**Dialog services to be traced**
Names of dialog services to be traced. No entry in this field shows all calls to dialog services for the function are to be traced.

All function traces exist until you leave Dialog Test, or until you delete them from this panel. Enter new information by typing over the existing data. The underscores are pad characters to show the starting and ending positions for each field; you do not need to blank them out. You can create several function traces before you press the Enter key.

During dialog processing, to determine whether the criteria for a function trace have been met, Dialog Test processes a logical AND of the Function, Active, and Dialog services fields specified for that function trace. Dialog Test also processes a logical OR within the Dialog services field to determine whether a particular dialog service has been matched. Therefore, if you want more than one trace for a function, you should create multiple rows.
Traces (option 7.7)

**Function traces commands**
The Function Traces option uses the CANCEL, END, and LOCATE commands, and the D (delete), I (insert), and R (repeat) Dialog Test line commands described in “Commands” on page 375.

**2—variable traces**
The Variable Traces option on the Traces panel is used to establish criteria for recording variable usage. A variable's usage is recorded if an ISPF service is directly asked to operate on the variable (such as VGET, VPUT, and VCOPY), or if an ISPF service is indirectly asked to operate on the variable (such as DISPLAY). Variables changed under the Variables option (7.3) are also recorded if the trace specifications are met.

When you select the Variable Traces option, you are shown a display that you can scroll (Figure 233). The pop-up window can also be resized using the RESIZE command. The display lists all currently defined variable traces. You can add, delete, and change variable trace definitions at a breakpoint, or by using this panel before calling a function.

```
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pool</th>
<th>Operation</th>
<th>Function</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

*Figure 233. Variable traces panel (ISPYRVP)*

Each line defines a variable trace, showing a line command area and these fields:

**Variable** Name of the variable to be traced, or ALL to show tracing of all variables. Initially, ALL is presented on the display but is not started. Change the NO in the Active column to YES to start such a trace. If you want to trace a variable whose name is ALL, enclose that name in single quotes to distinguish it; that is, type 'ALL', not ALL.

**Pool** Pool of interest for variable tracing:
- F Function variable pool.
- S Shared variable pool.
- P Profile variable pool.
Traces (option 7.7)

- **Operation**: Type of variable reference to trace:
  - **GET**: Accesses to the variable's value.
  - **PUT**: Stores to the variable's value.
  - **CHG**: Changes to the variable's value.
  - **Blank**: All references to variable are traced.

- **Function**: If there is no entry, this variable is traced for all functions.

- **Active**: Indication of whether the trace is to be active:
  - **YES**: The trace is currently active.
  - **NO**: The trace is currently not active.
  - **Blank**: The trace is currently active.

All variable trace definitions exist until you leave Dialog Test, or until you delete them from this panel. Enter new information by typing over the existing data. The underscores are pad characters to show the start and end of each field; you do not need to blank them out. You can create several variable traces before you press the Enter key.

During dialog processing, to determine whether the criteria for a variable trace have been met, Dialog Test processes a logical AND of the Variable, Pool, Operation, Function, and Active fields specified for that variable trace. Therefore, if you want more than one trace for a variable, you should create multiple rows.

**Variable traces commands**
The Variable Traces option uses the CANCEL, END, and LOCATE commands, and the D (delete), I (insert), and R (repeat) Dialog Test line commands described in "Commands" on page 375.

Breakpoints (option 7.8)

A **breakpoint** is a location at which the processing of your dialog is suspended so that you can use Dialog Test facilities. The Breakpoints option (7.8) allows you to show where such temporary suspensions should occur. At a breakpoint, you can examine and manipulate dialog data such as tables and variables. You can also specify new test conditions, such as traces and other breakpoints.

Breakpoints are located immediately before a dialog service receives control or after it relinquishes control. Breakpoint definitions cause special handling within the ISPLINK, ISPLNK, or ISPEXEC interfaces to dialog services; no user dialog code is modified. When the criteria for a breakpoint are satisfied, your dialog is suspended. You can then do any of the functions shown on the Breakpoint Primary Option Panel. You cannot use as a breakpoint the VPUT or VGET service issued from a panel, nor will breakpoints occur for selections from a menu (selection) panel. Breakpoints occur only for dialog service calls that use the ISPLINK, ISPLNK, or ISPEXEC interfaces.

Along with several menu bar items common across ISPF Version 4.1, the Breakpoints panel has added the Qualify pull-down. You can now display the qualification parameter values from the Breakpoints panel in two ways:
- Enter the QUAL primary command
- Select the Qualifications choice from the Qualify pull-down.
Breakpoints (option 7.8)

The Function and Active columns are overlaid with a column of data titled Qualification Parameter Values; this column was logically off the screen to the right of the first Breakpoints panel. To resume the format of the Breakpoints panel, you can either:
- Enter the RESUME primary command, or
- Select the Breakpoints choice from the Qualify pull-down

Specifying breakpoints
When you select the Breakpoints option, you are shown a display that you can scroll (Figure 234). The pop-up window can also be resized using the RESIZE command. The display lists all currently defined breakpoints for this session. You can use this panel to add, delete, or change breakpoint definitions, either before calling a function or at a breakpoint.

![Breakpoints panel (ISPYBP1)](image)

Figure 234. Breakpoints panel (ISPYBP1)

Breakpoints panel action bar
The Breakpoints panel action bar choices function as follows:

<table>
<thead>
<tr>
<th>Menu</th>
<th>For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualify</td>
<td>Displays the Qualification parameter values field on the Breakpoints panel so that you can further constrain the conditions under which a breakpoint is to occur.</td>
</tr>
<tr>
<td>Utilities</td>
<td>For more information, see the details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User's Guide Vol I</td>
</tr>
<tr>
<td>Help</td>
<td>The Help pull-down offers you these choices: 1 General, 2 Definitions, 3 Breakpoints Panel</td>
</tr>
</tbody>
</table>
Breakpoints panel fields

Each line defines a breakpoint and includes a line command area and these fields:

- **Service**: Name of the dialog service at which to interrupt dialog processing. This field is required.
- **When**: Indication of when the breakpoint should occur:
  - BEFORE: Before the service receives control.
  - AFTER: After the service finishes processing.
  - Blank: Before and after service processing.
  - **Rnn**: After the service finishes processing, but only if the return code is the integer \( nn \).
- **Function**: The program function or command function that must be processing for the breakpoint to be taken. No entry in this field shows that the breakpoint can occur for all functions.
- **Active**: Indication of whether the breakpoint is to be active now:
  - YES: It is currently active.
  - NO: It is currently not active.
  - Blank: It is currently active.
- ***QUAL***: If present at the end of a row, shows that qualification data exists for the breakpoint. This field is non-modifiable. See “Qualification parameter values” for additional information.

All input fields contain underscores. Empty lines are added to the first display to fill up the screen. If you delete all the lines used for defining breakpoints, the display is automatically refreshed with enough empty lines to fill the screen again.

All breakpoints exist until you end or cancel your Dialog Test session, or until you delete them from this panel. Enter new information by typing over the existing data. The underscores are pad characters to show the starting and ending positions for each field; you do not need to blank them out. You can create several breakpoints before you press the Enter key.

**Breakpoints commands**

From the Breakpoints panel, you can use the CANCEL, END, LOCATE, QUAL, and RESUME commands, and the D (delete), I (insert), and R (repeat) Dialog Test line commands described in “Commands” on page 375.

**Qualification parameter values**

A different part of the Breakpoints panel allows you to further constrain the conditions under which a breakpoint is to occur by entering qualification parameter values. On this part of the panel, you can list parameter data with which the named service must have been called.

The Breakpoints panel with the Qualification parameter values field is displayed if you enter the QUAL primary command on the first part.
of the Breakpoints panel or if you select the Qualifications choice from the Qualify pull-down. The Function and Active columns are overlaid with a column of data titled Qualification parameter values; this column was logically off the screen to the right of the first Breakpoints panel. To resume the format of the Breakpoints panel, use the RESUME primary command or select the Breakpoints choice from the Qualify pull-down.

### Breakpoints panel with qualification parameter values (ISPYBP2)

The lines on the Breakpoints panel with qualification parameter values correspond to the lines on the first Breakpoints panel; [“Specifying breakpoints” on page 412](#) describes the Service and When fields. In the Qualification parameter values field, for all services except SELECT, you can enter any combination of:

- One or more parameter values, separated by blanks, that the dialog passes to the service. No order is implied by the specification of the parameter values.
  
  For example, if you want a breakpoint to occur when message ABC0001 is included on a DISPLAY service request, specify ABC0001. If the breakpoint should occur only when message ABC0001 and panel XYZ are both included, specify ABC0001 XYZ.

- One or more command call keywords, separated by blanks, that have values that are not blank when a dialog calls the service. For ISPLINK or ISPLNK calls, the keywords matching the calling sequence parameter positions are used.
  
  For example, if you want a breakpoint to occur whenever the DISPLAY service is called with a message, then specify MSG.

For ISPF’s SELECT and ISREDIT services, you can enter one or more parameter strings that would be entered on these two service calls. A parameter string is a series of characters delimited by a blank, a comma, a single quotation mark, or a left or right parenthesis.

For example, if a SELECT call is:

```
SELECT PGM(ABC) PARM(1 2 3 5 '6'),
```
then all or any of these strings can be used: SELECT, PGM, ABC, 1, 2, 3, 5, 6.

For a breakpoint to be taken, all qualification data listed must be matched.

All line commands and change capabilities are still available on the Breakpoints panel with qualification parameter values.

During dialog processing, to determine whether the criteria for a breakpoint have been met, Dialog Test processes a logical AND of the Service, When, Function, Active, and Qualification fields specified for that breakpoint. Therefore, if you want more than one breakpoint for an ISPF service, you should create multiple rows.

When you use the Breakpoints option (7.8), be aware of these items:

**Qualification**

If you plan to qualify several breakpoints, it can be more efficient to specify all breakpoint data on the Breakpoints panel with qualification parameter values.

**END command**

You can use the END primary command from either the first Breakpoints panel or the Breakpoints panel with qualification parameter values.

**Input errors**

You must correct input errors before leaving any display using the END, QUAL, or RESUME command. You can use the CANCEL command to end the Breakpoints option, even if input errors remain on the display.

**Syntax checking**

A dialog service call must pass a basic syntax check before a breakpoint is honored.

**Control display**

If any CONTROL service settings for DISPLAY LINE or DISPLAY SM (Session Manager) were in effect before the breakpoint, such settings are lost.

**Finding a breakpoint**

If you call a dialog function or selection panel and find a breakpoint, the Breakpoint Primary Option Panel is displayed. Figure 236 on page 416 shows this selection panel at a breakpoint just after the ISPF DISPLAY service was called while processing the TEST function in application PAY.
Breakpoints (option 7.8)

Like the Dialog Test Primary Option Panel, the Breakpoint Primary Option Panel allows you to use the RETURN command from any one of the selected test options to display the Breakpoint Primary Option Panel again. At the Breakpoint Primary Option Panel, the END and RETURN commands have no effect. You must use the Go option (G) to end processing at this breakpoint and continue processing the dialog being tested, or the Cancel option (C) to cancel the Dialog Test option (7). This protects against inadvertent loss of data.

The Breakpoint Primary Option Panel contains all the options of the Dialog Test Primary Option Panel except Exit (7.x) and, as such, presents all but one of the Dialog Test functions to you.

This panel also contains two options not shown on the Dialog Test Primary Option Panel: Go (G) and Cancel (C). When a breakpoint occurs, these options allow you to continue processing or stop processing, respectively:

G  The Go option continues dialog processing from a breakpoint. The user dialog resumes processing from the point at which it was suspended.

C  The Cancel option ends dialog testing and displays the first primary option panel you displayed at the beginning of your ISPF session again. All trace and breakpoint definitions are lost when you leave Dialog Test.

When a user dialog finds a breakpoint, the current dialog environment is saved. When you select the Go option, the environment is restored, except that:

- If you change variable, table, and file tailoring data at a breakpoint, these actions are an extension of the suspended dialog; it is as though the dialog had taken all the actions itself during processing.
- If you change the service return code on the Breakpoint Primary Option Panel, the new return code is passed back to the dialog as though the service had set the new return code itself.
Breakpoints (option 7.8)

- If you process the PANELID command at the breakpoint, the last setting for displaying panel identifiers is retained.
- If any CONTROL service settings for DISPLAY LINE or DISPLAY SM (Session Manager) were in effect before the breakpoint, such settings are lost.

Note that the manipulation of one dialog part can cause a change to another dialog part. For example, if a panel is displayed, variables can be set.

All trace and breakpoint definitions are lost if you select the Cancel option.

The Breakpoint Primary Option Panel also displays this information:

AFTER or BEFORE
An indication of whether the dialog has been suspended after or before the service has processed.

Service Name
The name of the service at which the dialog has been suspended. In Figure 236 on page 416, the service name is DISPLAY.

Current status:
The application's current status when the breakpoint occurred. These fields show this status:

Application
The application identifier of the suspended user dialog.

Function
The program or command name of the suspended user dialog.

Return code
The dialog service return code. This field is displayed only if the breakpoint occurs after the dialog service has processed. The Return code field is modifiable; its value is passed back to the dialog (as the service's) when you select the Go option. This helps test dialog error handling.

Breakpoint
One scrollable line showing an image of the dialog service call. Place the cursor over the image and use LEFT, RIGHT, and EXPAND functions to scroll the area. < and > appear below the line to indicate in which direction more data may be available. A maximum of 2048 characters may be displayed.

ISPEXEC calls are shown as typed.

ISPLINK (ISPLNK) calls are displayed with their parameter values separated by commas. Name-lists are shown as typed in the dialog, in string format or in structure format. Structure format includes the count, element length, and list of names. For variable services parameters whose context is defined by the name-list parameter on the service call (for example, the variable value areas for a VDEFINE), the first four bytes of the parameter value are displayed in hexadecimal format (X'nnnnnnnn').

ISPEXEC calls from a program are the same as ISPEXEC calls from a command except that ISPEXEC is not displayed.
Tutorial (option 7.T)

The Tutorial option (7.T) allows you to display information about the Dialog Test facilities. Figure 237 shows the first panel displayed when you select the Tutorial option.

```
Tutorial ------------------- Dialog Test Tutorial ------------------- Tutorial
                   ▌ ISPF Dialog Test ▌
```

This tutorial provides information about the features and operation of Dialog Test.

The Dialog Test tutorial consists of two parts: one describes the Dialog Test option, as selected from the ISPF Primary Option Panel, and the other describes the Dialog Test facilities available when a user dialog encounters a "breakpoint" in its processing.

Beginning users should review the Dialog Test Option topic first.

The following topics are presented in sequence, or can be selected by number:

1 - Dialog Test Option
2 - At A User Dialog Breakpoint

------- Cur panel = ISP70000 Prev panel = ISPYXD1 Last msg = ISPYP014 -------

Option ==> F1=Help  F2=Split  F3=Exit  F4=Resize  F5=Exhelp  F6=Keyshelp
F7=PrvTopic  F8=NxtTopic  F9=Swap  F10=PrvPage  F11=NxtPage  F12=Cancel

Figure 237. Dialog Test Tutorial - first panel (ISP70000)

The default function key command assignments for a terminal with 12 function keys are shown at the bottom of the screen if you enter the PFSHOW command.

Exit (option 7.X)

The Exit option (7.X) ends your Dialog Test session. All trace and breakpoint definitions are lost.
Chapter 10. IBM products (option 9)

Option 9 provides an interface to other IBM program development products. It displays a panel that lists other IBM products that are supported as ISPF dialogs, as shown in Figure 238.

![Figure 238. Additional IBM Program Development Products Panel (ISRDIIS)](image)

When you select one of these products, ISPF tries to call it. However, the only way ISPF can determine whether a product is installed and available is to check for the existence of a single product-related panel in the panel library concatenation. No other check is made to ensure that the product is correctly installed or that it is completely available to you.

If the product is not installed or is unavailable, ISPF displays an informational panel that describes the product and shows how to obtain more information.

The names of the products on this panel are point-and-shoot fields. For more information on point-and-shoot fields, see the ISPF User Interface topic in the ISPF User's Guide Vol 1.
Chapter 11. SCLM (option 10)

Option 10 gives you access to the Software Configuration and Library Manager (SCLM), which is an extension of the ISPF library concept. You call SCLM functions by entering one of the options shown on the panel in Figure 239.

If SCLM does not appear on any of your menu panels or on the Menu pull-down, enter TSO SCLM on any ISPF command line. If SCLM is available to your terminal session, the SCLM Main Menu is displayed.

For more information about SCLM, refer to z/OS ISPF Software Configuration and Library Manager Guide and Reference.

The option names on this panel are point-and-shoot fields. See the Point-and-Shoot Text Fields section of the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I for more information.

SCLM Main Menu action bar

The SCLM Main Menu panel action bar choices function as follows:

**Menu**

For more information, see the details about the Menu Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.

**Utilities**

For more information, see details about the Utilities Action Bar Choice in the ISPF User Interface topic in the z/OS ISPF User’s Guide Vol I.
SCLM overview

SCLM is a library facility that supports projects in developing complex software applications. It does this by providing software configuration and library management support. SCLM supports the software development cycle of an application from the program design phase to release of the final product.

SCLM allows designers and programmers to define the architecture of an application (how the components fit together) and ensures that the architecture definition is followed by automatically controlling, maintaining, and tracking software components. By automatically enforcing guidelines and procedures for developing software, SCLM enhances software quality and improves programmer productivity. For complete information on using SCLM, refer to z/OS ISPF Software Configuration and Library Manager Guide and Reference.

SCLM addresses these software configuration and library management issues:
- Ensures that two programmers are not working on the same component at the same time.
- Allows users to integrate components only at the correct time and only by using the correct procedure.
- Logs and tracks software changes.
- Provides application integrity; all of the software components used to produce the final product are available, but controlled.
- Documents the interfaces between the software components.

SCLM provides these facilities for automating software configuration and library management tasks:

- **Project Definition** Establishes the database.
- **Edit** Uses the ISPF editor to create and modify the software components.
- **Build** Integrates the software components.
- **Promote** Moves software components through the library hierarchy.
- **Utilities** Maintain the database.
- **Reports** Generate information about the build and promote activities, and about the contents of the database.

Interactive dialogs, batch interfaces, and callable services provide access to the functions and capabilities of SCLM. These functions support the routine use of SCLM by:
- Allowing programmers to use the ISPF editor to create and modify software components
- Providing automated draw down and lockout functions without requiring special customizing to suit a particular installation.
Chapter 12. ISPF object/action workplace (option 11)

Option 11 gives you access to the ISPF Object/Action Workplace. The Workplace combines many of the ISPF functions onto one object-action interface. The idea of object-action is to specify an object (such as an ISPF library, data set name, or workstation file) and then specify an action to perform upon it. You can specify any of these objects:
- An ISPF Library—a cataloged partitioned data set (PDS) with a three-level data set name in the project.group.type format.
- A partitioned or sequential data set.
- A VSAM data set for use with the data set actions allocate, delete, or information.
- A DLIST level for data set list actions, for example, 'YOURID.*' for all data sets beginning with YOURID.
- A workstation file name for use with the actions edit or view.
- A volume serial number for uncataloged data sets to use with actions to retrieve volume information, print volume information, build a DLIST based on a volume serial number, or as a filter for a DLIST level.
- Personal data set lists or reference lists for use with action DL (DSLIST) only.

Additionally, Workplace provides ISPF Referral list fields to enable object selection through retrieval from personal lists (pre-packaged lists of data sets which you create) or reference lists (lists of recently referenced data sets which ISPF creates).

You can select an action by making a choice on an action bar or by using a command. Eighty-five ISPF functions are available as workplace actions.

There is a fast path system command for starting the Workplace. Type ISPFWORK on any ISPF command line and you are taken to the Workplace entry panel.

You can display the Workplace in GUI mode as well as standard mode. See “Workstation connection” on page 60 for information about how to start GUI mode for ISPF. All of the screens that appear in associated topics are shown in their standard mode.

Selecting objects

The first step in using the Workplace to perform ISPF functions is to specify the particular object that you want to perform an action on, for example, a sequential data set 'YOURID.SOURCE.DATA'. Object specification takes place on the Workplace entry panel.

Workplace entry panel

When you first enter the Workplace, the entry panel that appears is called ISPF Workplace. It is possible to display this panel in two distinct modes, called views: the Library View or the Data Set View.

The Library View panel has the words “Library View” as a heading just above the referral lists in the lower portion of the screen. This view enables you to work with ISPF library concatenations and library lists.

The Data Set View panel has the words “Data Set View” as a heading just above the referral lists in the lower portion of the screen. This view enables you to work
with data set lists, sequential files, or single partitioned data sets. You can choose to work with either entry panel view by using the command LISTVIEW, or the function key ChgView (F11) to toggle between the two panels.

**Library view**

You use the Library View to work with an ISPF library concatenations. The panel that appears is the Library View entry panel for the Workplace.

When using this Workplace entry panel, you can select a data set or a group of data sets to work with in one of these ways:

- Fill in the ISPF Library fields. These fields are used the same way as they are on other ISPF panels. You can use the traditional method of selecting a data set by entering its Project, Group, Type, and Member names in the ISPF Library fields. Omitting the Member name gives you a list of members to choose from.
- Select an object or list of objects using “ISPF Referral lists for object retrieval”. See “ISPF referral lists for object retrieval” on page 425 for more information. You can access personal and reference lists, and then select libraries from these lists.

**Data set view**

You use the Data Set View to work with a single data set, a list of data sets, a workstation file, or any action that requires a volume serial.

**Note:** Catalog, DSLIST, Volume information, Print volume, and Workstation file actions, are only available from the Data Set View.

The panel that appears is the Data Set View entry panel for the Workplace.
When using this Workplace entry panel, you can select a data set or a group of data sets to work with in one of these ways:

- You can use the traditional method of selecting a data set by entering its name in the Object Name field. For example, enter 'YOURID.SOURCE.DATA' to act upon a data set on the host, or D:\YOUR.FIL to act upon a workstation file (perhaps to edit it using the PDF editor).

**Note:** The Object Name field supports the inclusion of system symbols.

- Select an object or list of objects using “ISPF Referral lists for object retrieval”. You can access personal and reference lists, and select data sets, libraries, workstation files, VSAM files, and data set levels from each list.

**ISPF referral lists for object retrieval**

Both views of the ISPF Workplace entry panel enable you to use referral lists. The bottom of the ISPF Workplace panel contains a reference list entry field (REFLIST), followed by a list of personal lists. You can display either referral library lists or referral data set lists, depending on the view you choose.

All data sets and libraries referenced during an ISPF session are appended to the reference lists. You can use the input fields next to the referral lists to access a referral data set in one of these ways:

- Entering a slash (/) in this field causes the personal data set list or library list (depending on the selected view) to be displayed.
- Type DL in the input field and press Enter. This builds a DSLIST based on entries in the personal data set list, personal library lists, or Reflists.
- Enter a library entry number (from 1 to 8). If you know the list numbers of your libraries, for example, your panels library is number 1, you can type the number in this field and press Enter. ISPF retrieves the respective library entry from the library reference list.
- Enter a data set entry number (from 1 to 30). If you know the order of your data sets, you can type the number in this field and press Enter. ISPF retrieves the respective data set entry from the data set reference list.
Specifying actions

After you select the object you want to work with, choose the action to perform on it. You can select an action by making a choice on an action bar or by using a command.

Choices on the Workplace action bar

The Workplace action bar makes available these choices.

**File**

The File action bar choice enables you to manipulate files. The pull-down choices for File are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>List</td>
<td>Displays a pop-up menu that enables you to choose either a member list, a data set list, a list of personal data set lists or a list of personal library lists. You can perform any of the File actions except DLIST against the resulting member list.</td>
</tr>
<tr>
<td>Member list</td>
<td>Displays a list of members for a partitioned data set. To display a member list:</td>
</tr>
<tr>
<td></td>
<td>1. Type the library or data set information in the appropriate fields of the Workplace entry panel (library view).</td>
</tr>
<tr>
<td></td>
<td>2. Specify blank or a pattern for the member name to display a member list.</td>
</tr>
<tr>
<td></td>
<td>3. Select the List action from the File action bar choice.</td>
</tr>
<tr>
<td></td>
<td>4. Select “Member list” from the List Action prompt panel.</td>
</tr>
</tbody>
</table>

Note: All member lists displayed by the ISPF Workplace are enhanced member lists, all supported member list actions and commands are available on any member list display.

**Data Set list**

Displays a list of data sets based on a DLIST level and, optionally, a volume serial number. The data set list initial view can be set from the Workplace Settings panel. To create a data set list:

1. Type the data set level in the Object name field on the Workplace entry panel (data set view). If you do not fully qualify the data set level (by enclosing it in single quotes), your TSO prefix is set as the first level. Optionally, you can enter a volume to view just the data sets that match the DLIST level on the volume entered. You can also optionally enter just a volume name to list all data sets on the volume entered.
2. Select the List action from the File action bar choice.
3. Select Data Set List from the List Action prompt panel.

**Personal Data Set lists**

Displays a list of your personal data set lists. All valid personal list actions can be performed against any selected personal list. The personal data set list you used most recently is the current active list. The currently active list cannot be directly deleted from the list dialog, however all other list actions are valid. To list your personal data set lists:

1. Select the List action from the File action bar choice.
2. Select Personal Data Set List from the List Action prompt panel. You can perform this action from either view of the Workplace entry panel.

**Personal Library lists**
Displays a list of your personal library lists. All valid personal list actions can be performed against any selected personal list. The personal library list you used most recently is the current active list. The currently active list cannot be directly deleted from the list dialog, however all other list actions are valid. To list your personal library lists:
1. Select the List action from the File action bar choice.
2. Select Personal Library List from the List Action prompt panel. You can perform this action from either view of the Workplace entry panel.

**Edit**
Starts Edit action for a member or a sequential file. The Edit action prompt panel is presented when you choose the Edit pull-down choice on the action bar. Select a file type and an editor and press Enter. The Edit function is used to edit a member of a partitioned data set, a sequential data set, or a workstation file.

**Type of File**
Select the type of file you want to edit.

1. **Host File**
   Edit a host file using ISPF Edit or a workstation-defined editor. The selection of host or workstation editors is based on the Editor Choice option setting on the Edit Entry panel. To start the member list function, enter a pattern or leave the member field blank on the Workplace entry panel. To edit a single member on the host:
   1. Type the library or data set information in the appropriate fields of the Workplace entry panel.
   2. Type the member name in the member field (for library view) or in parentheses after the data set name (for data set view).
   3. Select Edit under the File action bar choice.
   4. Select Host File and ISPF Editor on the Edit Action prompt panel.

   To edit a single member on the workstation:
   1. Type the library or data set information in the appropriate fields of the Workplace entry panel.
   2. Type the member name in the member field (for library view) or in parentheses after the data set name (for data set view).
   3. Select Edit under the File action bar choice.
   4. Select Host File and Workstation Editor on the Edit Action prompt panel.

2. **Workstation File**
   To edit a workstation file using the ISPF editor:
   1. Type the file path and name in the Object name field on the Workstation entry panel (data set view).
   2. Select Edit from the File action bar choice.
   3. Select Workstation File and ISPF Editor from the Edit Action prompt panel.
To edit a workstation file using a workstation editor:
1. Type the file path and name in the Object name field on the Workstation entry panel (data set view).
2. Select Edit from the File action bar choice.
3. Select Workstation File and Workstation Editor from the Edit Action prompt panel.

Editor Choice
1. ISPF Editor
   Selects the ISPF editor.
2. Workstation Editor
   Selects the workstation editor.

View
Starts View action for a member or a sequential file. The View prompt panel is presented when you choose the View pull-down choice on the File action bar. The View function is used to view a member of a partitioned data set, a sequential data set, or a workstation file.

Type of File
Select the type of file you want to view.
1. Host File
   View a host file using ISPF View or a workstation-defined editor/browser. The view mechanism used is based on the View Choice setting found on the View entry panel. To enter the member list function, type a pattern or leave the member field blank on the Workstation entry panel. To view a single member on the host:
   1. Type the library or data set information in the appropriate fields on the Workplace entry panel.
   2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
   3. Select View from the File action bar choice.
   4. Select Host File and ISPF View from the View Action prompt panel.

To view a single member on the workstation:
   1. Type the library or data set information in the appropriate fields on the Workplace entry panel.
   2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
   3. Select View from the File action bar choice.
   4. Select Host File and Workstation View from the View Action prompt panel.

2. Workstation File
   To view a workstation file using ISPF View:
   1. Type the file path and name in the Object name field of the Workstation entry panel (data set view).
   2. Select View from the File action bar choice.
   3. Select Workstation File and ISPF View from the View Action prompt panel.

To view a workstation file using a workstation editor or browser:
1. Type the file path and name in the Object name field of the Workstation entry panel (data set view).
2. Select View from the File action bar choice.
3. Select Workstation File and Workstation View from the View Action prompt panel.

View Choice

1. ISPF View
   Selects the ISPF view function.

2. Workstation View
   Selects the workstation editor or browser.

Browse

Starts Browse action for a member or a sequential file.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select a member to Browse by typing s next to the member name.

To browse a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Browse from the File action bar choice.

Delete

Displays a pop-up prompt window with member or data set as the choices.

If you specify an asterisk (*) as the member name, all members of the PDS are deleted without a member list being displayed.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select members to delete by typing s next to the member name.

Note: You can change how member name patterns are handled in your Workplace Settings. See "Show status for M,C,D,G actions" on page 448 for more information.

To delete a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Delete under the File action bar choice for member delete.

To delete a PDS or a sequential data set:
1. Enter the data set name in the Object name field, or enter a library in the ISPF Library field on the Workplace panel.
2. Select Delete under the File action bar choice for data set delete.

Rename

Displays a pop-up prompt window with member or data set as the choices.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select a member to Rename by typing s next to the member name.

To rename a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Rename under the File action bar choice for member rename.

To rename a PDS or a sequential data set:
1. Type the data set name in the Object name field, or type a library in the ISPF Library field on the Workplace panel.
2. Select Rename under the File action bar choice for data set rename.

For more information, see “Rename” on page 443.

Move
Starts the move action for a member or a sequential file. A Move entry panel is presented.

If you specify an asterisk (*) as the member name, all members of the PDS are moved without a member list being displayed.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select members to move by typing s next to the member name.

Note: You can change how member name patterns are handled in your Workplace Settings. See “Show status for M,C,D,G actions” on page 448 for more information.

To move a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Move from the File action bar choice.

For more information, see “Move or copy” on page 442.

Copy
Starts the copy action for a member or a sequential file. A Copy entry panel is presented.

If you specify an asterisk (*) as the member name, all members of the PDS are copied without a member list being displayed.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select members to copy by typing s next to the member name.

Note: You can change how member name patterns are handled in your Workplace Settings. See “Show status for M,C,D,G actions” on page 448 for more information.

To copy a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Copy from the File action bar choice.

For more information, see “Move or copy” on page 442.

Reset
Starts reset action for a member. A Reset prompt panel is presented for the member.

If you specify an asterisk (*) as the member name, all members of the PDS are reset without a member list being displayed.
Workplace (Option 11)

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select members to reset by typing `s` next to the member name.

**Note:** You can change how member name patterns are handled in your Workplace Settings. See “Show status for M,C,D,G actions” on page 448 for more information.

To reset a single member:
1. Type the library or data set information in the appropriate fields of the ISPF Workplace panel.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Reset from the File action bar choice.

For more information, see “Resetting member statistics” on page 437.

**Open**

Is defined on the Workplace Settings panel, making it a user customizable action. After you set this action, it is performed automatically each time you open a member. The Open action can be set to these actions:

- **User** Any TSO command, REXX exec, or CLIST set by the Open Command field on the Workplace Settings panel.
- **E** Edit
- **V** View
- **B** Browse
- **D** Delete member
- **R** Rename member
- **M** Move
- **C** Copy
- **G** Reset
- **P** Print member
- **J** Submit
- **T** TSO command action

To open a single member:
1. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
2. Select Open from the File action bar choice. When you press the ENTER key, the action for open runs against the member, or a member list is displayed. See “Changing workplace settings” on page 447 for more information.

**Submit**

Submits the member or sequential file to TSO for job execution.

If you do not specify a member name or if you specify a pattern and the specified data set is a PDS, a member list is displayed. Select a member to submit by typing `s` next to the member name.

To submit a single member, fill in these fields of the ISPF Workplace panel:
1. Type the library or data set information in the appropriate fields.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Submit from the File action bar choice.

**Print**

The Print selection enables you to print information. The pull-down choices on the Print action prompt panel are:

- **Data Set**
  Prints the entire data set. To print a data set:
Workplace (Option 11)

1. Type the data set name in the Object name field (for the data set view) or enter an ISPF library name in the ISPF Library fields (for the library view).
2. Select the Print action from the File action bar choice.
3. Select Data Set from the Print Action prompt panel.

Data Set index
Prints the data set index for the selected data set. To print a data set index:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the Print action from the File action bar choice.
3. Select Data Set Index from the Print Action prompt panel.

Data Set List
Prints the list of data sets for the selected data set name level. To print a data set list:
1. Type a data set level, or optionally a volume serial, in the appropriate fields on the ISPF Workplace panel.
2. Select Print from the File action bar choice.
3. Select Data set List from the Print Action prompt panel.

VTOC
Prints the VTOC information for the selected volume. To print a VTOC summary:
1. Type a volume serial in the proper field on the ISPF Workplace panel.
2. Select Print from the File action bar choice.
3. Select VTOC from the Print Action prompt panel.

Member
Prints the selected member. To print a member:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the Print action from the File action bar choice.
3. Select Member from the Print Action prompt panel.

Command
Enables you to enter TSO, Workstation, or ISPF commands. You are prompted to choose between types of commands. The pull-down choices on the Command prompt are:

**TSO Cmd**
The TSO Cmd action is used to run a TSO command, passing the data set and member name and any additional parameters to the TSO command entered. To run a TSO command against a single member, fill in these fields of the ISPF Workplace panel:
1. Type the library or data set information in the appropriate fields.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Command from the File action bar choice.
4. Select TSO from the Command Action prompt panel.

**WS Cmd**
The WS Cmd action is used to run a WS command, passing the data set and member name and any additional parameters to the WS command entered.
To run a WS command against a single member, fill in these fields of the ISPF Workplace panel:
1. Type the library or data set information in the appropriate fields.
2. Type the member name in the member field (for ISPF library view) or in parentheses after the data set name (for data set view).
3. Select Command from the File action bar choice.
4. Select WS command from the Command Action prompt panel.

Note: The ISPF Client/Server must be connected to run the WS command.

**ISPF Command Shell**
The ISPF command shell option enables TSO commands, CLISTs, and REXX execs to be run under ISPF. You can enter the TSO commands, CLISTs, and REXX execs in the command input field of any panel.

ISPF also enables Workstation commands to be entered in the command input field of any panel.

You can enter a long command that wraps to the next line if you want to. For more information about the ISPF Command Shell, see "ISPF command shell" on page 440.

**ISPF Command Table**
The command table utility allows you to create or change application command tables.

A command table contains the specification of general commands that can be entered from any panel during the execution of an application. Command tables are identified by application id, and are maintained in the ISPF table input library.

**Exit**
Ends the Workplace, returning to the primary option panel.

**View**
The View action bar choice displays the object views that are available to you. The currently selected view is unavailable.

The pull-down choices for View are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Set View</strong></td>
<td>Changes the current view to reference data set list, personal data set lists, and Object name view.</td>
</tr>
<tr>
<td></td>
<td>To change to the data set view:</td>
</tr>
<tr>
<td></td>
<td>1. Select the View action bar choice.</td>
</tr>
<tr>
<td></td>
<td>2. Select Data Set View from the pull-down menu.</td>
</tr>
<tr>
<td><strong>Library View</strong></td>
<td>Changes the current view to reference library list, personal library lists, and ISPF Library view.</td>
</tr>
<tr>
<td></td>
<td>To change to the ISPF Library view:</td>
</tr>
<tr>
<td></td>
<td>1. Select the View action bar choice.</td>
</tr>
<tr>
<td></td>
<td>2. Select Library View from the pull-down menu.</td>
</tr>
<tr>
<td><strong>By name</strong></td>
<td>Changes the current view of the personal list by sorting on the name field.</td>
</tr>
</tbody>
</table>
Workplace (Option 11)

By description
Changes the current view of the personal list by sorting on the description field.

By created
Changes the current view of the personal list by sorting on the created field.

By referenced
Changes the current view of the personal list by sorting on the referenced field.

Options
The Options action bar choice displays the settings available. The pull-down choices for Options are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace Settings</td>
<td>Displays the Workplace Settings panel. See &quot;Changing workplace settings&quot; on page 447 for more information.</td>
</tr>
<tr>
<td>ISPF Settings</td>
<td>Displays the ISPF Settings panel. See Chapter 2, “Settings (option 0),” on page 23 for more information.</td>
</tr>
<tr>
<td>CUA Attributes</td>
<td>Starts the ISPF CUA Attribute Change Utility dialog. See &quot;CUA attributes&quot; on page 54 for more information.</td>
</tr>
<tr>
<td>Keylists</td>
<td>Starts the ISPF Keylist Utility dialog. See &quot;Working with function keys and keylists (the Function Keys action bar choice)” on page 37 for more information.</td>
</tr>
<tr>
<td>Point-and-Shoot</td>
<td>Starts the ISPF CUA Attribute Change Utility dialog indexed to the point-and-shoot entry. See &quot;CUA attributes” on page 54 for more information.</td>
</tr>
<tr>
<td>Colors</td>
<td>Starts the ISPF Global Color Change Utility dialog. See &quot;Changing default colors (the Colors action bar choice)” on page 51 for more information.</td>
</tr>
</tbody>
</table>

Space
The Space action bar choice enables you to create and maintain data sets. The pull-down choices available for Space are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocate</td>
<td>Displays a pop-up menu for the allocate action. The choices on the prompt are:</td>
</tr>
</tbody>
</table>
| Data Set | The allocate action is used to allocate a partitioned or sequential data set. To allocate a data set:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the Allocate action from the Space action bar choice.
3. Select Data Set from the Allocate Action prompt panel. |
| Enhanced Data Set | The enhanced allocate action is used to allocate an SMS-managed partitioned or sequential data set. To allocate an SMS data set:
1. Type the data set name in the Object name field or enter an ISPF library name in the ISPF Library fields. |
Workplace (Option 11)

2. Select the Allocate action from the Space action bar choice.
3. Select Enhanced Data Set from the Allocate Action prompt panel.

VSAM Data Set
The VSAM action is used to define, delete, or retrieve information for a VSAM data set. To define, delete, or retrieve information for a VSAM data set:
1. Type the VSAM data set name in the Object name field or enter an ISPF library name in the ISPF Library fields.
2. Select the Allocate action from the Space action bar choice.
3. Select VSAM Data Set from the Allocate Action prompt panel.

Compress The Compress action is used to recover unused space in a partitioned or sequential data set. To compress a data set:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the Compress action from the Space action bar choice.

Catalog The Catalog action is used to catalog a partitioned or sequential data set on a direct access device. To catalog a data set:
1. Type the data set name in the Object name field.
2. Type the volume name in the volume field.
3. Select the Catalog action from the Space action bar choice.

Note: You cannot catalog an SMS-managed data set.

Uncatalog The Uncatalog action is used to uncatalog a partitioned or sequential data set from a direct access device. To uncatalog a data set:
1. Type the data set name in the Object name field.
2. Select the Uncatalog action from the Space action bar choice.

Note: You cannot uncatalog an SMS-managed data set.

A confirmation dialog appears if specified in the Workplace Settings panel. See “Changing workplace settings” on page 447 for more information.

Information The Data Set Information action is used to retrieve information about a partitioned or sequential data set. To retrieve data set information:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select Information from the Space action bar choice.
3. Select one of these choices from the Information Action prompt panel:
   Data Set Long Displays information about the selected data set.
   Data Set Short Displays a subset of information about the selected data set.
   VTOC summary Displays VTOC information about the selected volume. You must type the volume serial of the VTOC in the volume serial field of the Workplace entry panel.
SuperC
The SuperC action bar choice gives you access to SuperC compare and search dialogs for your data sets. The data set you specify on the Workplace panel is automatically filled in for you in the SuperC dialog you choose. For more information, see “SuperC utility (option 3.12)” on page 206.

The SuperC pull-down choices are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
</table>
| SuperC | Compare two data sets. To SuperC compare two data sets:
1. Type the first data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the SuperC action from the SuperC action bar choice. The SuperC Compare Utility—New Data Set Specification panel appears with the data set information entered in it. Make sure the panel is filled in the way you want it to be.
3. Press Enter to display the Old SuperC comparison panel, and fill in the panel.
4. Press Enter again to submit the comparison. For more information, see “SuperC utility (option 3.12)” on page 206. |
| SuperCE | Compare two data sets using extended options. For more information, see “SuperCE utility (option 3.13)” on page 216. |
| Search-For | Search data sets for strings of data. To SuperC search for strings of data:
1. Type the data set name in the Object name field or type an ISPF library name in the ISPF Library fields.
2. Select the Search-For action from the SuperC action bar choice. The Search-For Utility panel appears with the data set information entered in it. Make sure the panel is filled in the way you want it to be. For more information, see “Search-For utility (option 3.14)” on page 229. |
| Search-ForE | Search a data set using extended options. For more information, see “Search-ForE utility (option 3.15)” on page 235. |

Test
The Test action bar choice gives you access to the ISPF services that help you test dialogs, such as Chapter 9, “Dialog test (option 7),” on page 371. For more information, refer to the z/OS ISPF Dialog Developer’s Guide and Reference and the z/OS ISPF Edit and Edit Macros.

The Test pull-down choices are:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions</td>
<td>Displays the Dialog Test Function/Selection panel. Select the Functions action from the Test action bar choice. For more information, see “Functions (option 7.1)” on page 379.</td>
</tr>
<tr>
<td>Panels</td>
<td>Displays the Dialog Test Display panel. Select the Panels action from the Test action bar choice. For more information, see “Panels (option 7.2)” on page 383.</td>
</tr>
<tr>
<td>Variables</td>
<td>Displays the Dialog Test Variables panel. Select the Variables action</td>
</tr>
</tbody>
</table>
from the Test action bar choice. For more information, see “Variables (Option 7.3)” on page 385.

**Tables**
Displays the Dialog Test Tables panel. Select the Tables action from the Test action bar choice. For more information, see “Tables (option 7.4)” on page 390.

**Log**
Displays the ISPF Transaction Log panel. Select the Log action from the Test action bar choice. For more information, see “Log (option 7.5)” on page 402.

**Services**
Displays the Invoke Dialog Service panel. Select the Services action from the Test action bar choice. For more information, see “Dialog services (option 7.6)” on page 404.

**Traces**
Displays the Dialog Test Traces panel. Select the Traces action from the Test action bar choice. For more information, see “Traces (option 7.7)” on page 407.

**Break Points**
Displays the Dialog Test Breakpoints panel. Select the Break Points action from the Test action bar choice. For more information, see “Breakpoints (option 7.8)” on page 411.

**Dialog Test**
Displays the Dialog Test Primary Option panel. Select the Dialog Test action from the Test action bar choice. For more information, see Chapter 9, “Dialog test (option 7),” on page 371.

**Dialog Test appl ID**
Displays the Dialog Test Application ID panel for changing the Dialog Test application ID. Select the Dialog Test appl ID action from the Test action bar choice.

**Help**
The Help action bar choice provides access to the program tutorials.

### Actions that require prompt windows for more information

Some actions that you call from the Workplace require additional information. You provide this information through the use of pop-up prompt windows. Some common actions of this type are:

- Resetting member statistics
- Using TSO commands
- Using WS commands
- Using the ISPF command shell
- Moving or copying data
- Renaming data sets

Following are the actions and the pop-up windows that accompany each one.

#### Resetting member statistics

Figure 242 on page 438 shows the pop-up prompt window that appears when you choose Reset from the File action bar, after you choose a member to work with.
Workplace (Option 11)

Figure 242. Reset statistics panel (ISRURSET)

For more information about how the Reset statistics option works, see “Reset ISPF statistics utility (option 3.5)” on page 179. You can set these items from this window:

Options
Select 1 to Reset ISPF statistics, or 2 to Delete ISPF statistics.

New Userid
Sets the ID field in the statistics. If you want to change the ID the statistics are kept under, enter the new ID here. If you do not specify a new version number, this field is required to be filled in.

New Version
Enter a number here is you want to change the version number. This field is required if you do not enter a new userid. It is ignored if you have chosen the delete action.

New Mod
Enter a number here to change the version number.

“/” to select
Select this option with a “/” to record extended ISPF statistics.

TSO command
Figure 243 on page 439 shows the pop-up prompt window that appears when you choose Command, from the File action bar choice, then select TSO Command from the Command Action prompt panel.
You can set these items from this window:

**TSO Command**

The name of the TSO command you want to use. The command name can be followed by command parameters with the `/` character appearing anywhere within the parameter string.

**WS command**

*Figure 244 on page 440* shows the pop-up prompt window that appears when you choose Command, from the File action bar choice, then select WS Command from the Command Action prompt panel. You must have a workstation connection in place in order to use WS commands.
You can set these items from this window:

**WS Command**

The name of the WS command you want to use. The command name can be followed by command parameters with the / character appearing anywhere within the parameter string.

**ISPF command shell**

shows the pop-up prompt window that appears when you enter the ISPF command shell. To get to this window, choose Command from the File action bar choice, then choose ISPF Command Shell on the Command Action prompt panel.
Workplace (Option 11)

The ISPF Command Shell option enables you to run TSO commands, CLISTs, and REXX execs under ISPF. This panel has one input field. Type the command and its parameters into the input field, leaving at least one space between the command name and the first parameter. The input field continues for two full lines below the start of the input field. The maximum number of characters that you can enter is 234. For example:

Enter TSO or Work Station commands below

```=> SEND 'THIS MESSAGE DEMONSTRATES THAT A TSO COMMAND ENTERED UNDER ISPF CAN EXCEED ONE LINE ON THE 3270' USER(ALICE)
```

You can also enter ISPF commands, such as END or RETURN, in this field.

**Note:** If you enter HELP or CANCEL, it is interpreted as the ISPF Help or Cancel command. To issue TSO Help, enter:

```=> TSO HELP xxxxx
```

To issue TSO Cancel, enter:

```=> TSO CANCEL xxxxx
```

The ISPF command shell option enables you to enter most TSO commands under ISPF. Following is a list of commands that are not supported:

- LOGON
- LOGOFF
- ISPSTART, PDF, and ISPF
- TEST
- Commands that you are restricted from using by TSO
- Commands requiring large parameter lists (234 characters is the maximum allowed, including command name)

You can run command procedures under ISPF, subject to these restrictions:

- CLISTs and execs must not invoke restricted commands listed previously.
Workplace (Option 11)

- TERMIN command procedure statements are not supported.

These restrictions also apply to commands entered from other panels.

After you type a command in the input field, press ENTER to start the command. If you are not operating in Session Manager mode, the cursor is positioned below the command input field. Line-at-a-time I/O from the command, if any, starts at the cursor position. When the command finishes, three asterisks (*** ) may appear on the screen. To return to ISPF full-screen mode, press ENTER.

The ISPF command shell panel is then redisplayed with the command you entered displayed in the command list (unless you entered the TSO or WS prefix, or List mode is set to update off).

**Move or copy**

Figure 246 shows the pop-up prompt window that appears when you choose Move from the File action bar, after you choose a member to work with. The panel that appears when you choose Copy is similar to this one.

---

**Figure 246. Move panel (ISRUMVC)**

For more information about the Move/Copy utility, see "Move/Copy utility (option 3.3)" on page 133. You can set these items from this window:

**To Library**

The library to which you want to move or copy the selected data.

**To Other Data Set Name**

The data set to which you want to move or copy the selected data.

**NEW member name**

If the "To" and "From" data sets are the same, you can rename the member here.
Replace like-named members
Select this option to allow replacement of a member in the "To" data set with a like-named member in the "From" data set.

Process member aliases
Select this option to allow the primary member and all alias members to be moved together.

Sequential disposition
Select 1 if Mod, 2 if Old
1  Mod adds new data at the end of data currently contained in the data set.
2  Old begins placing new data at the beginning of the data set, writing over existing data.

Pack option
Indicates how you want the data to be stored in the "To" data set.
1  Data set is packed according to your default settings.
2  Data set is packed.

SCLM setting
Indicates how you want the data to be stored in the "To" data set.
1  SCLM
2  Non-SCLM
3  As is

Rename
Figure 247 shows the pop-up prompt window that appears when you choose Rename from the File action bar, after you choose a member to work with.

You choose to rename either a data set or a member from this panel. If you choose data set, the panel in Figure 248 on page 444 appears.
You can set these items from this window:

**New name**

The name that you want to use for the renamed data set.

If you choose member, the panel in Figure 249 appears.
New name
The name that you want to use for the renamed member.

Commands
You can use primary commands in the command area (Action line) of the Workplace entry panels.

You must be connected to the workstation to use any workstation file actions. You can configure your workstation editor choice by selecting the Workstation action bar from the Edit or View entry prompt panel or from the Workplace Settings panel.

Table 22. Workstation commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Valid For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Allocate</td>
<td>Data sets</td>
</tr>
<tr>
<td>ACTBAR or NOACTBAR</td>
<td>Display or do not display action bar on panel</td>
<td>Action prompt</td>
</tr>
<tr>
<td>AP</td>
<td>Allocate</td>
<td>Action prompt</td>
</tr>
<tr>
<td>B</td>
<td>Browse Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Copy Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>COLOR</td>
<td>Global color change</td>
<td>Action prompt</td>
</tr>
<tr>
<td>CP</td>
<td>Command</td>
<td>Action prompt</td>
</tr>
<tr>
<td>CUAATTR</td>
<td>CUA attributes</td>
<td>Action prompt</td>
</tr>
<tr>
<td>D</td>
<td>Delete Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>DF</td>
<td>Delete Data sets</td>
<td>Data sets</td>
</tr>
<tr>
<td>DL</td>
<td>DDLIST</td>
<td>Data set name level</td>
</tr>
<tr>
<td>DP</td>
<td>Delete Action prompt</td>
<td>Action prompt</td>
</tr>
<tr>
<td>DVT</td>
<td>VTOC summary</td>
<td>Data summary</td>
</tr>
<tr>
<td>E</td>
<td>Edit Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>EP</td>
<td>Edit</td>
<td>Action prompt</td>
</tr>
<tr>
<td>G</td>
<td>Reset member statistics</td>
<td>Members</td>
</tr>
<tr>
<td>I</td>
<td>Full information</td>
<td>Data sets</td>
</tr>
<tr>
<td>ICS</td>
<td>ISPF command shell</td>
<td>Action prompt</td>
</tr>
<tr>
<td>ICT</td>
<td>ISPF command table</td>
<td>Action prompt</td>
</tr>
<tr>
<td>IP</td>
<td>Information</td>
<td>Action prompt</td>
</tr>
<tr>
<td>J</td>
<td>Submit Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Catalog</td>
<td>Data sets</td>
</tr>
<tr>
<td>KEYLIST</td>
<td>Keylist utility</td>
<td>Action prompt</td>
</tr>
<tr>
<td>L</td>
<td>Print data set</td>
<td>Data sets</td>
</tr>
<tr>
<td>LOCATE, LOC, or L</td>
<td>Find a specified referral list in the</td>
<td>Referral lists</td>
</tr>
<tr>
<td></td>
<td>scrollable display of referral lists</td>
<td></td>
</tr>
<tr>
<td>LP</td>
<td>List</td>
<td>Action prompt</td>
</tr>
<tr>
<td>LV or LISTVIEW</td>
<td>List view</td>
<td>Action prompt</td>
</tr>
<tr>
<td>M</td>
<td>Move Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>ML</td>
<td>Member list</td>
<td>Partitioned data sets</td>
</tr>
<tr>
<td>N</td>
<td>Rename Data sets</td>
<td>Data sets</td>
</tr>
<tr>
<td>O</td>
<td>Open Members and non-PDS data sets</td>
<td></td>
</tr>
<tr>
<td>OPD</td>
<td>Personal data set lists</td>
<td>Referral lists</td>
</tr>
<tr>
<td>OPL</td>
<td>Personal library lists</td>
<td>Referral lists</td>
</tr>
<tr>
<td>P</td>
<td>Print Members and non-PDS data sets</td>
<td></td>
</tr>
</tbody>
</table>
### Table 22. Workstation commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Valid For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDL</td>
<td>Print data set list</td>
<td>Data sets</td>
</tr>
<tr>
<td>PP</td>
<td>Print</td>
<td>Action prompt</td>
</tr>
<tr>
<td>PSOCOLOR</td>
<td>Point and shoot</td>
<td>Action prompt</td>
</tr>
<tr>
<td>PVT</td>
<td>Print VTOC information</td>
<td>Data sets</td>
</tr>
<tr>
<td>Q</td>
<td>VSAM</td>
<td>Data sets</td>
</tr>
<tr>
<td>R</td>
<td>Rename</td>
<td>Members and non-PDS data sets</td>
</tr>
<tr>
<td>RP</td>
<td>Rename</td>
<td>Action prompt</td>
</tr>
<tr>
<td>S</td>
<td>Short information</td>
<td>Data sets</td>
</tr>
<tr>
<td>SC</td>
<td>SuperC</td>
<td>Data sets</td>
</tr>
<tr>
<td>SCE</td>
<td>SuperC extended</td>
<td>Data sets</td>
</tr>
<tr>
<td>SELECT, SEL, or S</td>
<td>Select a specified referral list in the scrollable display of referral lists</td>
<td>Referral lists</td>
</tr>
<tr>
<td>SETTINGS</td>
<td>ISPF settings</td>
<td>Action prompt</td>
</tr>
<tr>
<td>SF</td>
<td>SearchFor</td>
<td>Data sets</td>
</tr>
<tr>
<td>SFE</td>
<td>SearchFor extended</td>
<td>Data sets</td>
</tr>
<tr>
<td>T</td>
<td>TSO command</td>
<td>Members and non-PDS data sets</td>
</tr>
<tr>
<td>U</td>
<td>Uncatalog</td>
<td>Data sets</td>
</tr>
<tr>
<td>V</td>
<td>View</td>
<td>Members and non-PDS data sets</td>
</tr>
<tr>
<td>VP</td>
<td>View</td>
<td>Action prompt</td>
</tr>
<tr>
<td>W</td>
<td>WS command</td>
<td>Members and non-PDS data sets</td>
</tr>
<tr>
<td>WE</td>
<td>Workstation file, edit on host</td>
<td>Workstation files</td>
</tr>
<tr>
<td>WEW</td>
<td>Workstation file, edit on workstation</td>
<td>Workstation file</td>
</tr>
<tr>
<td>WPSET</td>
<td>Workplace settings</td>
<td>Action prompt</td>
</tr>
<tr>
<td>WV</td>
<td>Workstation file, view on host</td>
<td>Workstation files</td>
</tr>
<tr>
<td>WVW</td>
<td>Workstation file, view on workstation</td>
<td>Workstation files</td>
</tr>
<tr>
<td>X</td>
<td>Print data set index</td>
<td>Data sets</td>
</tr>
<tr>
<td>Y</td>
<td>Allocate SMS (enhanced)</td>
<td>Data sets</td>
</tr>
<tr>
<td>Z</td>
<td>Compress</td>
<td>Data sets</td>
</tr>
<tr>
<td>= (equal sign)</td>
<td>Repeat last command. If no previous action, view is the default.</td>
<td>Members and non-PDS data sets</td>
</tr>
</tbody>
</table>

### Default CUA function key settings

Table 23 shows how the function keys are defined for the main Workplace panel when the mode is set to keylist ON and function keys are set to primary LOWER.

### Table 23. Workplace function key settings

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Help</td>
<td>Workplace help</td>
</tr>
<tr>
<td>F2</td>
<td>Split</td>
<td>Split screen</td>
</tr>
<tr>
<td>F3</td>
<td>Exit</td>
<td>Exit Workplace</td>
</tr>
<tr>
<td>F4</td>
<td>Settings</td>
<td>ISPF Workplace settings</td>
</tr>
<tr>
<td>F5</td>
<td>PrvObj</td>
<td>Recall last object</td>
</tr>
<tr>
<td>F6</td>
<td>PrvAct</td>
<td>Repeat last action</td>
</tr>
<tr>
<td>F7</td>
<td>Backward</td>
<td>Scroll up Reclist</td>
</tr>
</tbody>
</table>
### Workplace (Option 11)

**Table 23. Workplace function key settings (continued)**

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>F8</td>
<td>Forward</td>
<td>Scroll down Reflist</td>
</tr>
<tr>
<td>F9</td>
<td>Swap</td>
<td>Swap screen</td>
</tr>
<tr>
<td>F10</td>
<td>Actions</td>
<td>Cursor to action bar</td>
</tr>
<tr>
<td>F11</td>
<td>ChgView</td>
<td>Change Workplace view</td>
</tr>
<tr>
<td>F12</td>
<td>Cancel</td>
<td>Exit Workplace</td>
</tr>
<tr>
<td>F13</td>
<td>Help</td>
<td>Help</td>
</tr>
<tr>
<td>F14</td>
<td>Split</td>
<td>Split</td>
</tr>
<tr>
<td>F15</td>
<td>End</td>
<td>End</td>
</tr>
<tr>
<td>F16</td>
<td>Return</td>
<td>Return</td>
</tr>
<tr>
<td>F17</td>
<td>Rfind</td>
<td>Repeat find</td>
</tr>
<tr>
<td>F18</td>
<td>Rchange</td>
<td>Repeat change</td>
</tr>
<tr>
<td>F19</td>
<td>Up</td>
<td>Up (Scroll up)</td>
</tr>
<tr>
<td>F20</td>
<td>Down</td>
<td>Down (Scroll down)</td>
</tr>
<tr>
<td>F21</td>
<td>Swap</td>
<td>Swap</td>
</tr>
<tr>
<td>F22</td>
<td>Left</td>
<td>Left (Scroll left)</td>
</tr>
<tr>
<td>F23</td>
<td>Right</td>
<td>Right (Scroll right)</td>
</tr>
<tr>
<td>F24</td>
<td>Cretriev</td>
<td>Cursor/retrieve</td>
</tr>
</tbody>
</table>

### Changing workplace settings

Figure 250 on page 448 shows the pop-up prompt window that appears when you choose the Workplace Settings pull-down from the Options choice on the Workplace action bar. You can also start this function by entering WPSET on the command line. The workplace settings determine how your particular workplace behaves for various functions.
You can set these items from this window:

**Display Edit/View entry panel**
When selected, causes the Edit/View prompt panel to appear before you can start an edit or view action for a sequential data set. If you want to display a member list, the prompt panel is only displayed if a slash (/) is entered in the Prompt field of the member list.

The default for this setting is selected.

**Automatically Update reference lists**
When selected, specifies that any data set or library, or both, is added to the respective reference list.

The default for this setting is selected.

**Update REFLIST with Dsname Level**
When selected, specifies that the ISPF Reference List is updated with the Dsname pattern entered in Object Name.

**Keep member field value**
When selected, specifies that the member name field for ISPF Library is not to be cleared upon return from a library action.

The default for this setting is selected.

**Member List for M,C,D,G actions**
When selected, specifies that the actions Move, Copy, Delete, and Reset result in a member list. When not selected, these actions act upon all members that match the pattern without displaying a member list.

The default for this setting is selected.

**Show status for M,C,D,G actions**
When selected, displays a status panel for the actions Move, Copy, Delete, and Reset. When not selected, no status panel is displayed.
Workplace (Option 11)

The default for this setting is selected.

Confirm Member delete
When selected, specifies that the delete confirmation panel is displayed before a member is deleted.
The default for this setting is selected.

Confirm Data Set delete
When selected, specifies that the delete confirmation panel is displayed before a data set is deleted.
The default for this setting is selected.

Show Workplace Action bar
When selected, specifies that the action bar appears on the workplace panels.
The default for this setting is selected.

Frame ISPF Referral list area
When selected, specifies that the ISPF referral list area be framed, using the character specified in the Reflist Frame Char field.

Smart Action Retrieve Entry
When selected, specifies that ISPF executes the smart action option against the retrieved data set.

Display Catalog Name
When selected, specifies that the Total view of a Data Set List displays the catalog name in which the data set was located.

Display Total Tracks
When selected, specifies that a Total Tracks header line is displayed on the data set list above the column headings for the Space and Total view.

View Options
Specifies how to display the data set list.

  volume
  Displays data set list with a volume view.

  space
  Displays data set list with a space view.

  attrib
  Displays data set list with an attribute view.

  total
  Displays data set list in total view.

Member List View
Specifies how to display the member list

  standard
  Displays a member list with a 1-character command entry field.

  extended
  Displays a member list with an 8-character command entry field.

Reflist Frame Char
The character used to frame the ISPF referral list area on your workstation panels.

Workplace Settings panel action bar
These action bar choices appear on the Workplace Settings panel:

File
The file pull-downs give you the options to either cancel or exit the current file.
Workplace (Option 11)

Defaults
You can choose the default enter or open actions from these pull-downs:

Default Enter action
You can select a default action to perform automatically whenever you do an Enter action. The available actions are:

- **Smart Action**
  The Smart Action enables ISPF to choose the action needed based on the characteristics of the object you are using. ISPF chooses the appropriate action according to these rules:

<table>
<thead>
<tr>
<th>Object type</th>
<th>Action selected by ISPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISPF Library</td>
<td>Member list</td>
</tr>
<tr>
<td>Partitioned Data Set</td>
<td>Member list</td>
</tr>
<tr>
<td>Pattern containing &quot;*&quot; or &quot;%&quot;</td>
<td>Data Set List</td>
</tr>
<tr>
<td>Volume (with no object name)</td>
<td>Data Set List</td>
</tr>
<tr>
<td>Member Object</td>
<td>User selectable *</td>
</tr>
<tr>
<td>Sequential Data Set</td>
<td>User selectable *</td>
</tr>
<tr>
<td>Workstation File</td>
<td>User selectable *</td>
</tr>
</tbody>
</table>

  * Use the Smart Action action bar choice to select the action for member objects, sequential data sets and workstation files.

  - Member List
  - Data Set List
  - Edit
  - View
  - Browse
  - Rename member
  - Move
  - Copy
  - Reset Stats
  - Open
  - Repeat action

Default Open action
You can select a default action to perform automatically whenever you do an Open action from the Workplace or workplace member lists. The available actions are:

  - User command (a user defined command)
  - Edit
  - View
  - Browse
  - Delete member
  - Rename member
  - Move
  - Copy
  - Reset member
  - Print member
  - WS Cmd
  - TSO Cmd

Colors
You can choose the colors for the member list or the data set list from this action bar.

Workstation
You can connect your host and workstation with these choices:
1. Configure ISPF Workstation Tool Integration
2. ISPF C/S Install
Workplace (Option 11)

Help  Provides general workplace settings help, and default enter and open help.

Workplace example scenario

The scenario here illustrates some of the advantages provided by the ISPF Workplace function. To provide you with a reference point of view, the scenario includes points on how you can accomplish the same task using ISPF in the traditional way.

For this example, say that your task is to:
1. Copy a sequential data set into a member of a concatenated ISPF Library.
2. SuperC compare it to another member.
3. Rename the member.

Subtask 1

Your first step is to copy a sequential data set into a member of a concatenated PDS.

Traditional ISPF:  Use the 3.3 Move/Copy Utility.

Workplace:  Use the Copy Action against the sequential data set object.

Choose the Workplace option (Option 11) on the main menu. Use the PF11 key to toggle to the data set view. In the Workplace you have a choice of working from a data set list or issuing commands against a single data set.

If you are list-oriented you can specify a wildcard character in the Object Name field (such as, 'USERID.*') to generate a data set list containing the sequential data set.

If you prefer to specify the sequential data set directly you can type it into the Object Name field either with or without single quotes (that is, SEQ.FILE or 'USERID.SEQ.FILE').

In either case these accelerated methods can be alternatives to remembering and typing the input:
- You might be able to retrieve a recently referenced data set name or pattern from the REFLIST in the bottom half of the Workplace.
- You might be able to retrieve a recently referenced data set name or pattern using the recall key PF5.
- You might be able to retrieve a data set name or pattern from a personal list you previously created. These also appear in the bottom half of the Workplace.

Now that the Object has been specified you must specify the Action. In this example, the action is COPY. You can do this several ways, depending on your preferences.
- If you are in a list, you can use the CO line command to copy the data set, or you can put a slash (/) in the line command field to be prompted with a list of available commands to select.
- If you specified the "from" data set directly (not from a list) you can use the Copy option from the File action bar choice, or you can type the C fast path command in the Action ==> field to copy the data set.
Workplace (Option 11)

In either case, a pop-up panel prompts you for the target data set, member name, and other parameters.

Subtask 2

The second step is to SuperC compare one member of a concatenated PDS to another.

Traditional ISPF: Use the 3.13 SuperC compare utility.

Workplace: Use the Workplace-to-SuperC Interface.

Using PF11, toggle back to the Workplace ISPF Library View.

Specify the ISPF library concatenation and member name of the new member you just created by the COPY action. These accelerated methods can be used as alternatives to remembering and typing the input:

- You might be able to retrieve a recently referenced ISPF Library concatenation from the REFLIST in the bottom half of the Workplace.
- You might be able to retrieve a recently referenced ISPF Library concatenation using the recall key PF5.
- You might be able to retrieve an ISPF Library concatenation from a personal list you previously created. These also appear in the bottom half of the Workplace.

Now that the Object has been specified you must specify the Action. The action at this point is SuperCE. Again, specifying this action can be done several ways depending on your preferences.

- You can use the SuperCE option from the SuperC action bar.
- You can type the "SCE" fast path command in the Action ==> field and press Enter.

In either case, Workplace enters the SuperCE dialog. Note that your ISPF Library concatenation is transferred to the correct New DSN fields in the SuperCE concatenation panel, so you do not have to type it yourself.

After running your compare, exit the SuperC Utility to return to Workplace.

Subtask 3

The next step is to rename a member of an ISPF Library.

Traditional ISPF: Use the 3.1 Library Utility.

Workplace: Use the Rename member Action.

The ISPF library concatenation and member name of the new member you just compared remains on the Workplace panel. Now you must specify the Rename Action.

How do you prefer to do this?

- You can use the Rename option from the File action bar.
- You can type the "R" fast path command in the Action ==> field and press Enter.
- You can work from a member list and issue the "R" line command to rename the member.
Member lists can be created a number of ways in Workplace:
• Just press Enter if your default enter action is Smart Action, a mode that analyzes the object and selects an appropriate action. Select the Workplace Settings option from the Options action bar to view or change your defaults.
• Enter the List option from the File action bar.
• Enter the "ML" fast path command.

In any case, Workplace displays a pop-up panel to prompt you for the new member name.

Subtask 4

The final step in this scenario is to change a member's Version number in the ISPF statistics.

Traditional ISPF: Use the 3.5 Reset Statistics Utility.

Workplace: Use the Reset Action.

The ISPF library concatenation and member name of the new member you just compared remains on the Workplace panel. Now you must specify the Reset Action.

Again you have a choice about how to do this:
• You can use the Reset option from the File action bar.
• You can type the "G" fast path command in the Action ==> field and press Enter.
• You can work from a member list and issue the "G" line command to rename the member or specify the "/" line command to be prompted with an action selection list.

In all cases, Workplace displays a pop-up panel to prompt you for Reset parameters.
Appendix A. SuperC reference

This topic provides information about the SuperC return codes, process options, update data set control options, and process statements.

ISPF contains two utilities, SuperC (option 3.12) and SuperCE (option 3.13), that allow you to compare data sets for differences. Also, ISPF contains two other utilities, Search-For (option 3.14) and Search-ForE (option 3.15), that allow you to search data sets for strings of data.

All four of these utilities combine two major components to do their respective functions. The first component is a dialog that provides the data entry panels, selection panels, and messages. The second component is the program module, ISRSUPC. The CPI interface is through a standard parameter list.

You can use the SuperC program without the ISPF utilities. To do this, however, your installation must customize a CLIST or REXX exec (for interactive use), or a PROCLIB procedure (for batch processing of a catalog procedure). A sample CLIST has been provided to show line command processing. A sample PROCLIB JCL catalog procedure has also been provided to show batch submission. The sample CLIST and PROCLIB JCL are located in the ISPISPSAMP PDS data set as members ISRSCLST and ISRSPROC, respectively.

Utility differences

The standard utilities, SuperC (option 3.12) and Search-For (option 3.14), are easy to use with somewhat reduced function. The extended utilities, SuperCE (option 3.13) and Search-ForE (option 3.15), fully exploit the SuperC program's capabilities.

Standard utilities

The standard utilities are useful for ordinary comparisons and searches. The SuperC utility (option 3.12) uses a two-panel sequence: you specify the new input data set on the first panel and the old input data set on the second. The Search-For utility (option 3.14) uses an optional two-panel sequence: you can specify the input data set and one search string on the first panel, and use the second panel if you need to specify more than one search string.

You can enter additional information on these panels as they are displayed. If you are using the SuperC utility, you can enter the name of a previously prepared profile data set that contains additional information to specify the comparison.

Search-For does not use a profile data set. Also, Search-For finds all occurrences without case distinction when searching for a data string.

Extended utilities

The primary intent of the extended utilities is to provide maximum flexibility and access to all SuperC functions. Input fields are provided to allow you to use process options and statements. Also, the Search-ForE utility’s ASIS fields allow you to specify mixed-case search strings.

The input data set name fields differ from standard ISPF format because Project, Group, Type, and Member fields are not provided. Instead, you can enter input
data set names horizontally using standard TSO naming conventions. This includes
the use of a PDS member name, if desired, as part of a data set name.

The concatenation of input data sets is also different. Up to four data set names, as
opposed to the standard four ISPF library groups, can be entered as new or old
data sets. This allows data sets with the same attributes to be concatenated. For
example, PANELS and MSGS data sets could be concatenated for searching.

Besides compare functions, the SuperCE Utility panel provides access to the
Search-ForE utility (option 3.15). This gives you the added advantage of the ability
to search for a data string without having to leave SuperCE, in addition to access
to more functions than Search-For (option 3.14) provides.

**Program description**

The SuperC program is a fast and versatile program that can process:

- Two sequential data sets
- Two complete partitioned data sets
- Members of two partitioned data sets
- Concatenated data sets.

In fact, any data set that can be processed by ISPF can be processed by the SuperC
program.

**Note:** SuperC does not support tape data sets.

SuperC can compare data sets even when there are many differences and
redundant data. Some examples of redundant data are blank lines, duplicate
words, and binary data with many duplicate characters.

Unlike many compare programs, SuperC is not limited to comparing data sets on a
line-by-line basis. Instead, it allows you to choose between the four comparison
levels listed. The compare type you select determines which kinds of data
differences are presented by SuperC. See "Reasons for differing comparison
results" on page 492 for more information about comparison results.

- File comparisons produce summary information about the differences between
  the data sets being compared.
- Line comparisons are record-oriented and show matching, inserted, deleted, and
  reformatted lines. This level is most useful for comparing lines of program
  source code. It provides the least output difference information and is least
  sensitive to resynchronization.
- Word comparisons show differences between data strings that are delimited by
  blanks or nonalphanumeric characters, such as commas. Matching words are
  found, even if they are not on the same line. This level is most useful for
  comparing text data sets.
- Byte comparisons determine byte differences. It is most useful for comparing
  unformatted and machine-readable data.

The SuperC program requires only the names of the input data sets. However, the
utility you are using may require other information, such as a listing type. Also,
you can enter these types of processing information and options on the utility data
entry panels:

- Compare type
- Listing data set name or destination
- Process options
The SuperC program allows you to create two kinds of output:
- A listing that shows the results of the comparison or search and
- A structured data set that contains update information.

Within these two categories, you can create many kinds of output that make it easy to see where your data differs. To see your comparison results, you can generate listings that show:
- An overall summary of total changes
- The actual source code where deltas (differences) were found
- The deltas plus up to 10 (the default) matching lines before and after
- The deltas plus all matching lines.

You can format the listings to show differences either sequentially or side-by-side.

In an update data set, output lines are identified and results are put in specific columns. An update data set is especially useful as input to a user-written application program. It allows a program to customize what you see, changing generalized output to information that is specific to a particular application.

The SuperC utility (options 3.12, 3.13, and 3.14) CLISTs allocate or free space under these DDNAMEs: SYSIN, SYSIN2, OLDDD, NEWDD, OUTDD, and DELDD.

### SuperC features for the year 2000 transition

SuperC includes features designed to help manage the Year 2000 transition:
- Specify a 100-year period (or “year window”) so that, for dates that have only a 2-digit year, the century can be determined. This can be based on either:
  - A “fixed” year window (with a fixed starting year), or
  - A “sliding” year window (starting at a specified number of years before the current year).
- Compare 2-digit year values in one data set with 4-digit year values in another data set.
- Compare compressed year values in one data set with uncompressed year values in another data set.
- Filter cosmetic differences caused by adding century digits to 2-digit years, so that you can more easily identify real differences in content.

### Applications

You can use the SuperC program for many applications other than comparing two source data sets. This topic lists some specific applications for general users, writers and editors, and programmers and systems administrators.

General users can:
- Compare two data sets that have been reformatted. Reformatted data sets contain such differences as indentation level changes, spaces inserted or deleted, or lines that have been reformatted and moved to other parts of the data set. SuperC detects and classifies reformatted lines as special changes. You can list these lines in the output, along with the normal insert/delete changes, or eliminate them from the listing. Reducing the number of flagged lines may help you focus on real, rather than cosmetic, changes.
SuperC - applications

• Determine whether two PDSs, or a concatenation of PDSs, have corresponding like-named members.
  Members absent from one data set but present in the other are listed, as is all change activity between like-named members. The comparison can show changes caused by creating or deleting PDS members.

Writers and editors can:
• Detect word changes within documents.
  SuperC finds word differences even if the words have moved to different lines.
• Verify that only designated areas are changed.
  SuperC comparison results show all areas affected. Changes made to restricted areas may be invalid. Therefore, unintended changes can be detected so that a complete document need not be checked for errors again.
• Create a utility that automatically inserts SCRIPT revision codes.
  You could write a program that uses Word compare to find where words in the new data set are different, makes a copy of the new data set, and then inserts SCRIPT revision codes (.RC) before and after the changed words. This utility could eliminate the need to insert SCRIPT revision codes manually.

Programmers and systems administrators can:
• Generate management reports that show the quantity and type of changes in program source code.
  SuperC can count the changed and unchanged lines of code in an application program. Therefore, comparison results could be used to summarize the changes between different versions of a program.
• Retain a record of change activity.
  Listing data sets can be collected and retained as a permanent record of the changes made before a new program is released. Source code differences can help detect regressions or validate the appropriateness of any code modifications.
• Rewrite a listing data set, including additional headers or change delimiters.
  Some SuperC listings may need to be rewritten before you accept the results. For example, some installations may require security classifications. Others may require a listing created using the WIDE process option to have box delimiters surrounding changed sections.
• Compare data sets across nonconnected systems.
  SuperC can generate a 32-bit hash sum per data set or member using the File compare type. Data sets compared on a nonconnected processor, using SuperC, should have the same hash sums if they are identical. A File comparison of any data set to determine a hash sum can be done by specifying the same data set as both new and old.
• Develop additional uses for update data sets.
  SuperC produces general results with generalized reports. However, your installation may have additional requirements. There are many specialized update formats that you can use to produce listings that match these requirements. Normal SuperC listings may not fit this type of application, but the update data sets are more structured and should be easier to use as data input. See Appendix C, “Update files,” on page 523 for explanations and examples of the update data sets.
Process options

Option P on either the SuperCE Utility panel or the Search-ForE Utility panel provides one or more panels from which you can select process options. For SuperCE, the options displayed are compatible with the compare type (File, Line, Word, or Byte) that you specified in the Compare Type field. The compare type that you select determines the available process options [Table 24].

Table 24. Summary of process options

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Description</th>
<th>Valid For</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLMEMS</td>
<td>All members</td>
<td>FILE LINE WORD BYTE</td>
</tr>
<tr>
<td>ANYC</td>
<td>Any case</td>
<td></td>
</tr>
<tr>
<td>APNDLST</td>
<td>Append listing output</td>
<td></td>
</tr>
<tr>
<td>APNDUPD</td>
<td>Append update</td>
<td></td>
</tr>
<tr>
<td>CKPACKL</td>
<td>Check for packed format</td>
<td></td>
</tr>
<tr>
<td>CNPML</td>
<td>Count non-paired member/file lines</td>
<td></td>
</tr>
<tr>
<td>COBOL</td>
<td>For COBOL source files</td>
<td></td>
</tr>
<tr>
<td>COVSUM</td>
<td>Conditional summary</td>
<td></td>
</tr>
<tr>
<td>DLMDUP</td>
<td>Do not list matching duplicate lines</td>
<td></td>
</tr>
<tr>
<td>DLREFM</td>
<td>Do not list reformatted lines</td>
<td></td>
</tr>
<tr>
<td>DPACMT</td>
<td>Do not process asterisk (*) comment lines</td>
<td></td>
</tr>
<tr>
<td>DPADCMT</td>
<td>Do not process ADA-type comments</td>
<td></td>
</tr>
<tr>
<td>DPBLKCL</td>
<td>Do not process blank comparison lines</td>
<td></td>
</tr>
<tr>
<td>DPCBCMT</td>
<td>Do not process COBOL-type comment lines</td>
<td></td>
</tr>
<tr>
<td>DPCPCMT</td>
<td>Do not process C++-type comment lines</td>
<td></td>
</tr>
<tr>
<td>DPFTCMT</td>
<td>Do not process FORTRAN-type comment lines</td>
<td></td>
</tr>
<tr>
<td>DPMACMT</td>
<td>Do not process PC Assembly-type comment lines</td>
<td></td>
</tr>
<tr>
<td>DPPLCMT</td>
<td>Do not process PL/I-type comments</td>
<td></td>
</tr>
<tr>
<td>DPPSCMT</td>
<td>Do not process Pascal-type comments</td>
<td></td>
</tr>
<tr>
<td>FINDALL</td>
<td>Require all strings found for return code 1</td>
<td></td>
</tr>
<tr>
<td>FMSTOP</td>
<td>Stop immediately a difference found</td>
<td></td>
</tr>
<tr>
<td>FMVLNS</td>
<td>Flag moved lines</td>
<td></td>
</tr>
<tr>
<td>GWCBL</td>
<td>Generate WORD/LINE comparison change bar listing</td>
<td></td>
</tr>
<tr>
<td>IDPFX</td>
<td>Identifier-prefixed listing lines</td>
<td></td>
</tr>
<tr>
<td>LMCSFC</td>
<td>Load module CSECT file compare</td>
<td></td>
</tr>
<tr>
<td>LMTO</td>
<td>List group member totals</td>
<td></td>
</tr>
<tr>
<td>LNFMTO</td>
<td>List not-found member totals only</td>
<td></td>
</tr>
<tr>
<td>LOCS</td>
<td>List only changed entries in summary</td>
<td></td>
</tr>
<tr>
<td>LONGLN</td>
<td>Long lines</td>
<td></td>
</tr>
<tr>
<td>LPSF</td>
<td>List previous-search-following lines</td>
<td></td>
</tr>
<tr>
<td>LTO</td>
<td>List totals only</td>
<td></td>
</tr>
</tbody>
</table>
Compare - process options

Table 24. Summary of process options (continued)

<table>
<thead>
<tr>
<th>Process Option</th>
<th>Valid For</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyword</td>
<td>Description</td>
</tr>
<tr>
<td>MIXED</td>
<td>Mixed input (single/double byte) text</td>
</tr>
<tr>
<td>NARROW</td>
<td>Narrow (side-by-side) listing</td>
</tr>
<tr>
<td>NOPRTCC</td>
<td>No printer control columns</td>
</tr>
<tr>
<td>NOSEQ</td>
<td>No sequence numbers</td>
</tr>
<tr>
<td>NOSUMS</td>
<td>No summary section</td>
</tr>
<tr>
<td>REFMovr</td>
<td>Reformat override</td>
</tr>
<tr>
<td>SDUPM</td>
<td>Search duplicate members</td>
</tr>
<tr>
<td>SEQ</td>
<td>Ignore standard sequence number columns</td>
</tr>
<tr>
<td>SYsin</td>
<td>Provide alternative DD name for process statements.</td>
</tr>
<tr>
<td>Updcms8</td>
<td>Update CMS8 format</td>
</tr>
<tr>
<td>Updcntl</td>
<td>Update control</td>
</tr>
<tr>
<td>UpdlDel</td>
<td>Update long control</td>
</tr>
<tr>
<td>Updmv8</td>
<td>Update MVS8 format</td>
</tr>
<tr>
<td>UpdpDel</td>
<td>Update prefixed delta lines</td>
</tr>
<tr>
<td>Updrev</td>
<td>Update revision</td>
</tr>
<tr>
<td>Updrev2</td>
<td>Update revision (2)</td>
</tr>
<tr>
<td>Updseq0</td>
<td>Update sequence 0</td>
</tr>
<tr>
<td>Updsum0</td>
<td>Update summary only</td>
</tr>
<tr>
<td>Wide</td>
<td>Wide (side-by-side) listing</td>
</tr>
<tr>
<td>Xref</td>
<td>Cross reference strings</td>
</tr>
<tr>
<td>Xwdcmp</td>
<td>Extended word comparison</td>
</tr>
<tr>
<td>Y2Dtonly</td>
<td>Compare Dates Only</td>
</tr>
</tbody>
</table>

Note:
1. Valid for group LINE comparisons only.
2. COBOL, SEQ, and NOSEQ are mutually exclusive.
3. Not supported for PDSE data sets.
4. LMTO, LNFMT, LPSF, and LTO are mutually exclusive.
5. LONGLN, NARROW, and WIDE are mutually exclusive.
6. All update (UPD) process options are mutually exclusive. Also, they cannot be used with the process option Y2DTONLY.
7. Y2DTONLY is not supported for change bar listing (process option GWCBBL).

Here are the SuperC process options, listed alphabetically:

ALLMEMS       Process all members in a PDS including ALIAS members. Without this process option, when performing a PDS compare, SuperC does not include members with the ALIAS attribute unless explicitly specified by a SELECT process statement. The ALLMEMS process option indicates that all directory entries including those with the ALIAS attribute are to be processed.

ANYC          Any case. Lowercase alphabetic characters (a to z) in source files
Compare - process options

are translated to uppercase (A to Z) before comparison processing.
(The actual input files are not modified.)
Use this option to cause strings such as “ABC”, “Abc”, “Abc”, to compare equally.
Valid for LINE and WORD compare types and Search.

APNDLST
The APNDLST process option appends the listing output to the specified or default listing file. If the file does not exist, it is created.
APNDLST allows you to collect updates from multiple comparisons into one listing file.
Valid for FILE, LINE, WORD, and BYTE compare types and Search.

Notes:
1. You can also do this by using the SELECT process statement (and, on CMS, SELECTF) that identifies different files/members and produces a single listing.

APNDUPD
The APNDUPD process option appends the update output to the specified or default update file. If the file does not exist, it is created.
APNDUPD allows you to collect updates from multiple comparisons into one update file.
Valid for LINE, WORD, and BYTE compare types and Search.

Notes:
1. You can also do this by using the SELECT process statement (and, on CMS, SELECTF) that identifies different files/members and produces a single listing.

CKPACKL
Check for packed format. This option determines if the member or sequential data set has the standard ISPF/PDF packed header format. If required, SuperC unpacks the input data set or member during the comparison.
Valid for LINE and WORD compare types.

CNPML
Count non-paired member/file lines for the group summary list. Use this option to inventory the total number of processed and not-processed lines. Otherwise, only the paired entries are listed with line counts.
Valid for LINE compare type.

Note: CNPML is only used when comparing a group of files.

COBOL
Ignore columns 1 to 6 in both COBOL source files. Data in columns 1 to 6 is assumed to be sequence numbers.
Valid for LINE and WORD compare types and Search.

COVSUM
Conditional summary section. List the final summary section and/or the update file for the option UPDSUMO only if there are differences. This is useful when used in combination with APNDLST or APNDUPD.
Valid for FILE, LINE, WORD, and BYTE compare types.
## Compare - process options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Valid for</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLMDUP</td>
<td>Do not list matching duplicate lines. Old file source lines that match new file source lines are omitted from the side-by-side output listing.</td>
<td>LINE compare type.</td>
</tr>
<tr>
<td>DLREFM</td>
<td>Do not list reformatted lines. Old file source lines that have the same data content (that is, all data is the same except the position and number of space characters) as the new file lines are omitted from the listing. Only the new file reformatted lines are included in the output.</td>
<td>LINE compare type.</td>
</tr>
<tr>
<td>DPACMT</td>
<td>Do not process asterisk (<em>) comment lines. Lines with an “</em>” in column 1 are excluded from the comparison set. Other forms of assembler comments are unaffected.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPADCMT</td>
<td>Do not process ADA type comments. ADA comments are whole or partial lines that appear after the special “--” sequence. Blank lines are also considered part of the comment set. This option produces a comparison listing with comments removed and part comments blanked.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPBLKCL</td>
<td>Do not process blank comparison lines. Source lines in which all the comparison columns are blank are excluded from the comparison set.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPCBCMT</td>
<td>Do not process COBOL-type comment lines. COBOL source lines with an “*” in column 7 are excluded from the comparison set.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPCPCMT</td>
<td>Do not process C++ end-of-line type compiler comments. These are “//” delimited comments. DPPLCMT may also be used with DPCPCMT when the source file contains “/ * ... */” comments delimiters.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPFTCMT</td>
<td>Do not process FORTRAN-type comment lines. FORTRAN source lines with a “C” in column 1 are excluded from the comparison set.</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPMACMT</td>
<td>Do not process PC Assembly-type comments. This uses the IBM PC definition for assembler comments: comments begin with either the COMMENT assembler directive or a semi-colon (;).</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td>DPPLCMT</td>
<td>Do not process PL/I-type comments. PL/I, C++, C, REXX</td>
<td>LINE and WORD compare types and Search.</td>
</tr>
</tbody>
</table>
Compare - process options

Comments (/* ... */) and blank lines are excluded from the comparison set. This option produces a listing with all comments removed and blanked.

Valid for LINE and WORD compare types and Search.

**DPPSCMT**
Do not process Pascal-type comments. Comments of the type (/* ... */ and blank lines are excluded from the comparison. DPPSCMT and DPPLCMT may be required for some Pascal compiler comments. This option produces a comparison listing with comments removed and part comments blanked.

Valid for LINE and WORD compare types and Search.

**FINDALL**
All strings must be satisfied for the search to be considered successful, whereupon the return code is set to one.

**Notes:**
1. If all searches are not satisfied, there is NO message to indicate this, other than RC=0. To find which searches failed, specify the XREF process option.
2. If the FMSTOP option is specified, the search will stop once it has satisfied all search strings.

**FMSTOP**
Immediately a difference is found between files, stops the compare with a return code of 1. This option provides a quicker way of telling if two files are different.

Valid for FILE compare type.

**FMVLNS**
Flag moved lines. Identify inserted lines from the *new* file that match deleted lines from the *old* file. Inserted-moved lines are noted with “IM” and deleted-moved lines are noted with “DM” in the listing.

Valid for LINE compare type.

**Notes:**
1. Maximum length for lines is 256 characters.
2. Maximum length for a contiguous block of moved lines is 32K.

**GWCBL**
Generates WORD/LINE comparison change bar listings. SuperC lists new file lines with change bars (“|”) in column 1 for lines that differ between the *new* and *old* files. Deleted lines are indicated by flagging the lines following the deletion.

Valid for LINE and WORD compare types.

**Notes:**
1. LINE comparison and WORD comparison may give slightly different results due to their sensitivity to word and line boundaries. For further details, see “Reasons for differing comparison results” on page 492.
2. GWCBL cannot be used with the process option Y2DTONLY.

**IDPFX**
Identifier prefixed. File ID or member name is prefixed to the search string lines of the listing. See Figure 273 on page 519 for an example of a IDPFX listing.

Valid for Search.

**LMCSFC**
Load module CSECT file compare list. Lists the name, number of
**Compare - process options**

bytes, and hash sum for each load module CSECT. Unchanged paired CSECTs are omitted when you specify the LOCS process option.

**Notes:**
1. LMCSFC is not supported for PDSE.

Valid for FILE compare type.

**LMTO**
List group member totals. Lists the member summary totals and the overall summary totals for the entire file/group. See Figure 275 on page 520 for an example of an LMTO listing.

Valid for Search.

**LNFMTO**
List “not found” member totals only. Lists the members that have no strings found for the entire file/group.

Valid for Search.

**LOCS**
List only changed entries in summary. Normally, for groups of files/members being compared, SuperC lists all paired entries in the Member Summary Listing section of the listing file. Preceding the names of these pairs is a CHNG field to indicate whether the comparison found any differences or not. Figure 262 on page 511 shows a FILE comparison without LOCS. Figure 263 on page 512 shows a FILE comparison with LOCS.

When LOCS is specified, only those pairs which have changes are listed in the summary section.

Valid for group FILE, LINE, WORD, and BYTE compare types.

**LONGLN**
Long lines. LONGLN causes SuperC to create a listing with 203 columns, reflecting up to 176 columns from the source files. This file may exceed the maximum number of columns handled by many printers.

Valid for LINE compare type and Search.

**LPSF**
List previous-search-following lines. Lists the matched string line and up to 6 preceding and 6 following lines for context. The preceding and following count may be changed by using the LPSFV process statement. This allows a count range of 1 to 50 lines. A value of 0 is invalid, since this produces a normal search without any options.

Valid for Search.

**LTO**
List totals only. List the overall summary totals for the entire file/member group. See Figure 277 on page 521 for an example of an LTO listing.

Valid for Search.

**MIXED**
Mixed input. Indicates that the input text may be a mixture of both single-byte and double-byte (DBCS) text. Double-byte strings are recognized and handled differently than if MIXED were not specified. For instance, single byte characters are not valid within double-byte strings. Special terminal devices (for example, 5520) allow entry of DBCS characters.

Valid for LINE and WORD compare types.
### Compare - process options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NARROW</strong></td>
<td>Narrow side-by-side listing. Creates a 132/133 variable listing file with only 55 columns from each source file. Insertions and deletions are flagged and appear side-by-side in the listing output. Refer to Figure 259 on page 508 and Figure 260 on page 509 for examples of NARROW listings. Valid for LINE comparison.</td>
</tr>
<tr>
<td><strong>NOPRTCC</strong></td>
<td>No printer control columns. SuperC generates “normal” or NARROW listing files with record lengths of 133 columns, or WIDE or LONGLN listing with 203 columns. These listings contain printer control columns and page separators. NOPRTCC eliminates both the page separators and page header line. With NOPRTCC, “normal” and NARROW listings are 132 columns, and WIDE and LONGLN listings are 202. Section separators and title lines are still generated. This file may be preferred for on-line “browsing”. Valid for FILE, LINE, WORD, and BYTE compare types and Search.</td>
</tr>
<tr>
<td><strong>NOSEQ</strong></td>
<td>No Sequence numbers. Process fixed-length 80-byte record standard sequence number columns (73 to 80) as data. This option is extraneous for any record size other than 80. Valid for LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td><strong>NOSUMS</strong></td>
<td>No Summary Section. Eliminates the group and final summary section from the output listing. This allows the user to generate a better “clean” copy for program inspection. Conversely, it eliminates the all-problem information in case of errors and option identification. Valid for LINE, WORD, and BYTE compare types and Search.</td>
</tr>
<tr>
<td><strong>REFMOVR</strong></td>
<td>Reformat override. Reformatted lines are not flagged in the output listing. They are, however, counted for the overall summary statistics and influence the return code since they are a special case of an insert/delete pair. Valid for LINE compare type.</td>
</tr>
<tr>
<td><strong>SDUPM</strong></td>
<td>Search duplicate members. Searches all members found in concatenated PDS data sets, even if more than one member is found to have the same name. Searches duplicate names even if the search is for a single member or if members are specified using the SELECT process statement. Valid for Search.</td>
</tr>
<tr>
<td><strong>SEQ</strong></td>
<td>Sequence numbers. Ignore fixed-length 80-byte record standard sequence number columns. Sequence numbers are assumed in columns 73 to 80 for such records. This option is invalid for any record size other than 80. Valid for LINE and WORD compare types and Search.</td>
</tr>
<tr>
<td><strong>SYSIN</strong></td>
<td>Provide alternate DD name for process statements. Syntax is SYSIN(DDNAME). The default ddname is SYSIN. If this option is used, SuperC only accesses process statements via the supplied ddname. It does not attempt to access additional process statements via the SYSIN2 DD card.</td>
</tr>
</tbody>
</table>
Valid for FILE, LINE, WORD, and BYTE compare types and Search.

**UPDCMS8**
Update CMS 8 format. UPDCMS8 produces an update file that contains both control records and source lines from the new input file. UPDCMS8 requires that the old file has fixed-length 80-byte records with sequence numbers. The new file may have a variable or fixed length format with an LRECL ≤ 80.

SuperC may change the status of match lines to insert/delete pairs, enlarging the sequence number gaps of the old file. The update file (when properly named) can be used as input to CMS XEDIT. For information and an example of this update file, see “Update CMS sequenced 8 file” on page 525.

Valid for LINE compare type.

**UPDCNTL**
Update Control. Produces a control file which relates matches, insertions, deletions, and reformattings using relative line numbers (for LINE compare type), relative word positions (for WORD compare type), or relative byte offsets (for BYTE compare type) within the new and old file. No source or data from either input file is included in the output file. “Do not” process options/statements are compatible selections for the LINE compare type. For information and an example of this update file, see “Update control files” on page 526.

Valid for LINE, WORD, and BYTE compare types.

**UPDLDEL**
Update Long Control with all matches and delta changes. This reflects the comparison’s matches, inserts, and deletes. You can edit this update file accepting, rejecting, or modifying the changes.

There are control records preceding each change and matching section. After the changes have been audited, optionally modified, and the control records removed, you should be able to reuse this control file as a composite new file.

Valid for LINE compare type.

**UPDMVS8**
Update MVS8 format. Produces a file that contains both control and new file source lines. Sequence numbers from columns 73 to 80 of the new file are used (when possible) as insert references, while deletes use sequence numbers from columns 73 to 80 of the old file. Both files must have fixed-length 80-byte records. The format of the generated data may be suitable as z/OS IEBUPDTE input. For information and an example of this update file, see “Update MVS sequenced 8 file” on page 530.

Valid for LINE compare type.

**UPDPDEL**
Update prefixed delta lines. Produces a control data set containing header records and complete (up to 32K line length limit) delta lines from the input source files. Each output record is prefixed with identification and information. The update data set is a variable-length data set reflecting the input source files’ characteristics.

Valid for LINE compare type.

**UPDREV**
Update Revision. UPDREV produces a copy of the new file with
Compare - process options

SCRIPT/VS .rc on/off or BookMaster :rev/:erev revision codes delimiting most script lines that contain changes.

You may wish to contrast the source lines delimiting by the UPDREV option and a similar flagging of the lines with changes from the output listing file as produced by the GWCBBL process.

**Note:** The revision character used is controlled by using the REVREF process statement. For details, see “Revision code reference” on page 483.

A REVREF process statement (for example, REVREF REFID=ABC or REVREF RCVAL=1) defines the revision level (SCRIPT/VS tags) or reference ID (BookMaster tags). Alternatively, SCRIPT/VS .rc delimiters may be controlled by the first record in the new file. (For example, .rc 2 as the first record causes level 2 to be used).

**Note:** BookMaster requires the REFID value to be defined with a :revision tag and “RUN=YES” attribute to have the change character inserted in the processed document.

For information and an example of this update file, see “Revision file” on page 524.

Valid for LINE and WORD compare types.

**UPDREV2**

Update Revision (2). UPDREV2 is identical to UPDREV with the exception that data between the following BookMaster tags are not deleted in the update file:

:cgraphic.
:ecgraphic.

:fig.
:efig.

:lblbox.
:elblbox.

:nt.
:ent.

:screen.
:escreen.

:table.
:etable.

:xmp.
:exmp.

Valid for LINE and WORD compare types.

**UPDSEQ0**

Update Sequence 0 (zero). UPDSEQ0 produces a control file that relates insertions and deletions to the relative line numbers of the old file. Both control records and new file source lines are included in the output file. This option is like UPDCMS8 except that it uses relative line numbers (starting with zero) instead of the sequence numbers from columns 73 to 80. The control field after a “$” designates the number of new source lines that follow in the update file.
Both fixed and variable record length lines are allowed. Fixed-length records shorter than 80 bytes are padded with spaces to 80. Insertion lines are full fixed or variable length copies of the new input data set lines. For information and an example of this update file, see “Update sequenced 0 file” on page 532.

Valid for LINE compare type.

**UPDSUMO**
Update Summary only. UPDSUMO produces an update file of 4 lines (new file ID, old file ID, totals header, single summary line). The summary line is tagged with a “T” in column 1 and the summary statistics are located at fixed offsets in the output line. The file has a record length of 132. For information and an example of this update file, see “Update summary only files” on page 533.

Valid for LINE, WORD, and BYTE compare types.

**WIDE**
Wide side-by-side listing. Creates a 202/203 variable-length listing file with 80 columns from each source file. Inserts and deletes are flagged and appear side-by-side in the listing output. For an example of a WIDE side-by-side listing, see Figure 261 on page 510.

Valid for LINE compare type.

**XREF**
Cross reference strings. Creates a cross reference listing by search string. Can be used with IDPFX, LMTO LNFMTO, and LTO. Not implemented for LPSF.

The XREF option can be useful when more than one search string (or search condition) is specified. The XREF listing is implemented using a multiple pass operation for listing the “lines found” for each individual string. Be aware that XREF adds some additional processing overhead to the normal search process. For an example of a search XREF listing, see Figure 269 on page 516.

Valid for Search.

**XWDCMP**
Extended WORD comparison. The word delimiter set is extended to include non-alphanumeric characters (including spaces). For example, “ABCD(EFGH) JKL” is 2 words using normal WORD compare type, but 5 (3 words and 2 pseudo-words) with the XWDCMP process option.

Valid for WORD compare type.

**Y2DTONLY**
Compare Dates Only. Indicates that the comparison process is to be performed only on the dates defined by the Date Definition process statements. That is, all data in the input files is ignored in the comparison process apart from that defined by NY2C, NY2Z, NY2D, NY2P, OY2C, OY2Z, OY2D, and OY2P process statements. For further details on these process statements, see “Date definitions” on page 489.

Notes:
1. Y2DTONLY causes a “record-for-record” comparison to be performed between the two input files, whereby dates are checked for being equal or unequal. (The “high/low” comparison logic that SuperC normally uses is not applied in the case of Y2DTONLY and, as such, the relative values of the dates have no bearing on the result of the comparison.)
Compare - process options

2. Y2DTONLY is not supported for the process option GWCBL (change bar listing).

Valid for LINE compare type.

Process statements

You can use process statements to tailor your comparison or search according to your requirements. Process statements provide a powerful and flexible way of ensuring that only relevant data is compared (or searched) and that meaningful results are produced.

Broadly speaking, the two major functions that process statements perform are:

- To select the data that is to be compared (or searched) and,
- To handle various date formats.

All process statements require a keyword followed by one or more operands. They are supplied to SuperC in the Process Statements File.

Table 25 lists each of the process statement keywords and shows for which compare type each keyword can be used. The table also shows whether the keyword is valid for the SuperC Search.

Note: The sequence in which each of the process statements is listed (in Table 25 and the pages following) is primarily alphabetic according to the process statement keyword.

However, in the interest of keeping associated “pairs” and “sets” of process statements together, the prefixes “N” and “O” (indicating the process statement applies to the new or old file respectively) have been ignored when sequencing the process statements alphabetically.

Table 25. Summary of process statements

<table>
<thead>
<tr>
<th>Process Statement</th>
<th>Valid For</th>
<th>Compare Type</th>
<th>Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyword</td>
<td>Description</td>
<td>FILE</td>
<td>LINE</td>
</tr>
<tr>
<td>NCHGT</td>
<td>Change text: new or search file</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>OCHGT</td>
<td>Change text: old file</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CHNGV</td>
<td>Change listing value</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPBOFS</td>
<td>Compare byte offsets</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPCOLM</td>
<td>Compare (search) columns: new, old, search files</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPCOLMN</td>
<td>Compare columns: new file</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPCOLMO</td>
<td>Compare columns: old file</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPLINE</td>
<td>Compare lines</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CMPSECT</td>
<td>Compare sections</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>COLHEAD</td>
<td>Define column headings</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DPLINE</td>
<td>Do not process lines (containing a string)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DPLINEC</td>
<td>Do not process lines continuation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NEXCLUDE</td>
<td>Exclude data: new file</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Table 25. Summary of process statements (continued)

<table>
<thead>
<tr>
<th>Process Statement</th>
<th>Description</th>
<th>Valid For</th>
<th>Compare Type</th>
<th>Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEXCLUDE</td>
<td>Exclude data: old file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFOCUS</td>
<td>Focus on data: new file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFOCUS</td>
<td>Focus on data: old file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNCT</td>
<td>Line count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPSFV</td>
<td>List previous-search-following value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSTCOLM</td>
<td>List columns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REVFRE</td>
<td>Revision code reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECT</td>
<td>Select PDS members (z/OS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECT</td>
<td>Select members/files (CMS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECT</td>
<td>Select members (z/VSE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLIST</td>
<td>Statements listing option</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRCHFOR</td>
<td>Search for a string</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRCHFORC</td>
<td>Search for a string continuation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTITLE</td>
<td>Alternative listing title: new file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTITLE</td>
<td>Alternative listing title: old file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY2AGE</td>
<td>Aging option: new file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OY2AGE</td>
<td>Aging option: old file</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY2C</td>
<td>Date definition: new file, character format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY2Z</td>
<td>Date definition: new file, zoned decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY2D</td>
<td>Date definition: new file, unsigned packed decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NY2P</td>
<td>Date definition: new file, packed decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OY2C</td>
<td>Date definition: old file, character format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OY2Z</td>
<td>Date definition: old file, zoned decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OY2D</td>
<td>Date definition: old file, unsigned packed decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OY2P</td>
<td>Date definition: old file, packed decimal format</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORKSIZE</td>
<td>Maximum number of units for comparison</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2PAST</td>
<td>Global date option</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>Process Statement comment to be printed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.*</td>
<td>Process Statement comment not to be printed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 25. Summary of process statements  (continued)

<table>
<thead>
<tr>
<th>Process Statement</th>
<th>Valid For</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Compare Type</td>
</tr>
<tr>
<td></td>
<td>FILE</td>
</tr>
</tbody>
</table>

Note:
1. Not supported on CMS.
2. Valid only for listing types DELTA and LONG.
3. Supported only on z/VSE.
4. FILE compare type is valid only with ROWS option of NEXCLUDE, OEXCLUDE, NFOCUS, and OFOCUS.
5. Supported only on CMS.

The following sections describe each process statement in detail.

**Change listing value**

The CHNGV process statement specifies the number of match lines listed before and after a line with a change: insert, delete, or reformat.

**Compare Types:** LINE, WORD, and BYTE

```
CHNGV number
```

*number*  
A decimal number between 1 and 1000.

**Example**  
CHNGV 3  
**Description**  
Lists up to 3 lines before and after change.

**Change text**

There are two Change Text process statements:

**NCHGT**  
Change new (or search) input text string

**OCHGT**  
Change old input text string

These process statements change the input source image before performing the comparison.

The relative input file (“new” or “old”) is scanned for text that matches a *search_string*. If matching text is found, it is replaced by a corresponding *output_string* before the comparison process is performed. Question marks (“?”) may be used as “wildcard” characters in the *search_string* or *output_string*.

The *search_string* and *output_string* need not be the same length. The *output_string* may even be a null string.

**Compare Types:** LINE, WORD, and Search. OCHGT cannot be used for Search.
**Change text**

- **search_string**: A character or hexadecimal string to be replaced in the input file. For one embedded apostrophe, use two consecutive apostrophes ("'").
- **output_string**: The replacement string to be used in the comparison. For one embedded apostrophe, use two consecutive apostrophes ("'").
- **start_column**: The column in or after which the search_string must start. Must be greater than zero.
- **last_start_column**: The last column in which the search_string may start. Must be separated from the start_column by a colon, and must be equal to or greater than the start_column value. If not supplied, is the equivalent of setting the value to start_column. To search from the start_column to the end of a variable length row, set the last_start_column to a value larger than the length of the longest row.

**Example**

<table>
<thead>
<tr>
<th>Description</th>
<th>Process Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes all strings “ABCD” in the new file to “XXXX” before performing the comparison.</td>
<td>NCHGT 'ABCD','XXXX'</td>
</tr>
<tr>
<td>Changes all strings “ABCD” in the old file, that start within columns 1 to 50, to “XXXX” before performing the comparison.</td>
<td>OCHGT 'ABCD','XXXX',1:50</td>
</tr>
<tr>
<td>Changes all strings “ABCD” in the old file, that start within columns 1 to 50, to a null string before performing the comparison.</td>
<td>OCHGT 'ABCD','',1:50</td>
</tr>
<tr>
<td>Changes all strings “ABCD” in the new file to “AB” before performing the comparison.</td>
<td>NCHGT 'ABCD','AB'</td>
</tr>
<tr>
<td>Changes all hexadecimal strings X'7B01' in the new file, that start in column 6, to the character string “:1” before performing the comparison.</td>
<td>NCHGT X'7B01',':1',6</td>
</tr>
<tr>
<td>Changes all 7-character strings with the prefix “PREF” in the new file, to the 5-character string “NPREF” before performing the comparison.</td>
<td>NCHGT 'PREF???','NPREF'</td>
</tr>
<tr>
<td>Changes the first 5 characters of all 7-character strings with the prefix “PREF” in the new file, to “NPREF” before performing the comparison.</td>
<td>NCHGT 'PREF???','NPREF??'</td>
</tr>
</tbody>
</table>

**Comment lines**

There are two tags that if found at the start of a line turn it into a comment line:

* An asterisk as the first character on a process statement line begins a printable comment line.
Comment lines

A period-asterisk as the first two characters on a process statement line begins a comment that is not printed in the SuperC listing.

**Compare Types:** FILE, LINE, WORD, BYTE, and Search

```
[*]  comment
```

* Must be in column 1.
.* Must be in columns 1 and 2.

**Example**

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>This comment prints in the SuperC listing.</td>
</tr>
<tr>
<td>This comment does not print in the SuperC listing.</td>
</tr>
</tbody>
</table>

**Compare byte offsets**

The CMPBOFS process statement compares a file between byte limits. The start and stop reference values must be hex values. The statement may be specified on one complete line or may have separate CMPBOFS statements for each of the six keyword operands: TOP, BTM, NTOP, NBTM, OTOP, and OBTM.

**Compare Type:** BYTE

```
CMPBOFS
```

**keyword** The keyword may be one of the following:

- **TOP**
  Top. Defines the first byte offset position in the new and old byte compare file. Means both NTOP and OTOP. The lowest byte position is at offset zero.

- **NTOP**
  New Top. Defines the first byte offset position in the new file for the byte compare.

- **OTOP**
  Old Top. Defines the first byte offset position in the old file for the byte compare.

- **BTM**
  Bottom. Defines the last byte position in the new and old byte compare file. Means both NBTM and OBTM.

- **NBTM**
  New Bottom. Defines the ending point in the new file for the compare.
Compare byte offsets

<table>
<thead>
<tr>
<th><strong>OBTM</strong></th>
<th>Old Bottom. Defines the ending point in the <strong>old</strong> file for the compare.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>hex_offset</strong></td>
<td>A hexadecimal value. Do not put in apostrophes, or 'bracket' it within “X'...'”.</td>
</tr>
</tbody>
</table>

**Example** | **Description** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPBOFS NTOP 1000 OTOP 5E00</td>
<td>Compare the new file from hex offset X'1000' (to the end of file) with the old file from hex offset X'5E00' (to the end of file).</td>
</tr>
<tr>
<td>CMPBOFS NTOP 1000 CMPBOFS OTOP 5E00</td>
<td>These two separate process statements have the same effect as the “combined” statement above.</td>
</tr>
</tbody>
</table>

**Compare (search) columns**

There are three Compare Columns process options:

- **CMPCOLM** Applies to both the new and old files, or search file
- **CMPCOLMN** Applies to the new file
- **CMPCOLMO** Applies to the old file

These options compare (or search) the data between column limits of the input files (or search file). Up to 15 compare ranges or individual columns are allowed and may be entered on additional CMPCOLM, CMPCOLMN, or CMPCOLMO statements. All specified ranges of columns must be in ascending order.

**Compare Types:** LINE and WORD CMPCOLM is also valid for Search.

**Notes:**
1. Some process options (SEQ, NOSEQ, and COBOL) also specify columns. The CMPCOLM, CMPCOLMN, CMPCOLMO process statements override all these process options.
2. CMPCOLM, CMPCOLMN, CMPCOLMO cannot be used for WORD compare type or Search if the input contains a mixture of DBCS and non-DBCS data.

**start_column** The starting column number to be compared or searched.

**end_column** The ending column number of the range of columns to be compared or searched. (Must be separated from the **start_column** by a colon.)

**Example** | **Description** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPCOLM 25:75</td>
<td>Compare columns 25 through 75 in both files (or search columns 25 through 75 in the search file).</td>
</tr>
<tr>
<td>CMPCOLM 30:60,75</td>
<td>Compare columns 30 through 60 and column 75 in both files (or search columns 30 through 60 and column 75 in the search file).</td>
</tr>
<tr>
<td>CMPCOLMN 48:54</td>
<td>Compare columns 48 through 54 in the new file.</td>
</tr>
</tbody>
</table>
### Compare (search) columns

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPCOLMO 87</td>
<td>Compare column 87 in the old file.</td>
</tr>
<tr>
<td>CMPCOLMN 17:22</td>
<td>Compare columns 17 through 22 in the new file with columns 15 through 20 in the old file.</td>
</tr>
</tbody>
</table>

### Compare lines

The CMPLINE process statement compares two files (or search) between line limits. The statement may be specified on one complete line or may have separate CMPLINE statements for each of the six keyword operands: TOP, BTM, NTOP, NBTM, OTOP, and OBTM. The reference values may be line numbers or data strings.

**Compare Types:** LINE, WORD, and Search

**Note:** Keyword operands OTOP and OBTM are invalid for Search.

#### String operands:

```
,_,search_string_,_,start_column_,_,last_start_column_
```

<table>
<thead>
<tr>
<th>keyword</th>
<th>The keyword may be one of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP</td>
<td>Top. Defines the beginning line in the new (or search) file and old compare file. Means both NTOP and OTOP.</td>
</tr>
<tr>
<td>NTOP</td>
<td>New Top. Defines the beginning line in the new (or search) file.</td>
</tr>
<tr>
<td>OTOP</td>
<td>Old Top. Defines the beginning line in the old file.</td>
</tr>
<tr>
<td>BTM</td>
<td>Bottom. Defines the ending line in the new (or search) file and old compare file. Means both NBTM and OBTM.</td>
</tr>
<tr>
<td>NBTM</td>
<td>New Bottom. Defines the ending line in the new (or search) file.</td>
</tr>
<tr>
<td>OBTM</td>
<td>Old Bottom. Defines the ending line in the old compare file.</td>
</tr>
</tbody>
</table>

**line number** The relative number of the record in the file.
Compare lines

**search_string**  A character or hexadecimal string enclosed within apostrophes. For one embedded apostrophe, use two consecutive apostrophes (".

**start_column**  The column in or after which the search_string must start.

**last_start_column**  The last column in which the search_string may start. Must be separated from the start_column by a colon.

**Example**  **Description**

<table>
<thead>
<tr>
<th>CMPLINE TOP 55 BTM 99</th>
<th>Compare from line 55 to line 99 in both files.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPLINE NTOP 55 NBTM 99</td>
<td>Compare from line 55 to line 99 in the new file.</td>
</tr>
<tr>
<td>CMPLINE NTOP 'ABCD',5:66</td>
<td>Compare from where “ABCD” starts within columns 5 to 66 in new file (that is, is found within columns 5 to 69).</td>
</tr>
<tr>
<td>CMPLINE OTOP 'ABCD'</td>
<td>Compare from where “ABCD” first found in old file.</td>
</tr>
<tr>
<td>CMPLINE TOP X'40E2',1:1</td>
<td>Compare from where “S” is found for both files.</td>
</tr>
</tbody>
</table>

**Compare sections**

The CMPSECT process statement compares multiple sections from one sequential data set or PDS member to another sequential data set or PDS member. It is not valid for a PDS group comparison of more than one member. It is functionally similar to CMPLINE but allows you to divide the input into one or more sections for subsequent comparison or searching. A section ID name is needed to associate all keyword operands to a particular section. Thus, multiple sections of the input can be compared (or searched) in a single execution of SuperC.

**Compare Types:** LINE, WORD, and Search

**Notes:**

1. CMPSECT is not supported for CMS.
2. Keywords OTOP and OBTM are invalid for Search.
Compare sections

**section_ID**
A character string identifier (up to 8 alphanumeric characters, no embedded spaces, can start with a numeric) relating to a section (group of lines). It allows multiple keywords to be associated with the same section.

**keyword**
The keyword may be one of the following:

- **TOP**
  Top. Defines the beginning line in the *new* (or search) file and *old* compare section. Means the same as NTOP and OTOP.

- **NTOP**
  New Top. Defines the beginning line in the *new* (or search) section.

- **OTOP**
  Old Top. Defines the beginning line in the *old* section.

- **BTM**
  Bottom. Defines the ending line in the *new* (or search) file and *old* compare section. Means both NBTM and OBTM.

- **NBTM**
  New Bottom. Defines the ending line in the *new* (or search) section.

- **OBTM**
  Old Bottom. Defines the ending line in the *old* compare section.

**line_number**
The line number associated with the **keyword**.

**string**
A character or hexadecimal string enclosed within apostrophes. For one embedded apostrophe, use two consecutive apostrophes ("").

**start_column**
The column in or after which the **search_string** must start.

**last_start_column**
The last column in which the **search_string** may start. Must be separated from the **start_column** by a colon.

**Note:** If a “top” condition is not found (for example, a pattern is incorrect), the compare continues but usually reports zero lines processed for this data set.

**Example**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPSECT SECT01 TOP 25 BTM 50</td>
<td>Compares lines 25 through 50 in both data sets or members.</td>
</tr>
<tr>
<td>CMPSECT SECT02 NTOP 60 NBTM 70</td>
<td>Compares lines 60 through 70 in the new data set to lines 65 through 75 in the old data set.</td>
</tr>
<tr>
<td>CMPSECT SECT02 OTOP 65 OBTM 75</td>
<td></td>
</tr>
<tr>
<td>CMPSECT SECTX TOP 'PART1: ',2:10</td>
<td>Starts the comparison of both data sets when SuperC detects the string “PART1:” starting in columns 2 through 10 and ends the comparison when SuperC detects the string “END PART1:” starting in columns 2 through 10.</td>
</tr>
<tr>
<td>CMPSECT SECTX BTM 'END PART1: ',2:10</td>
<td></td>
</tr>
<tr>
<td>CMPSECT SECTY NTOP 'PART2: ',2:10</td>
<td>Compares a section in the new data set to a section in the old data set. The section in the new data set begins with the string “PART2:” in columns 2 through 10 and ends with the string “END PART2:” in columns 2 through 10.</td>
</tr>
<tr>
<td>CMPSECT SECTY OTOP 'PART2: ',6:20</td>
<td></td>
</tr>
<tr>
<td>CMPSECT SECTY BTM 'END PART2: '</td>
<td></td>
</tr>
</tbody>
</table>
Define column headings

The COLHEAD process statement defines column headings and specifies the location and format of the corresponding data to be displayed. For an example of a listing with column headings, see Figure 258 on page 508.

Note: COLHEAD is not available for side-by-side listings. (See "NARROW" process option" on page 465).

Compare Type: LINE

heading1 The heading to appear on the first line for the print column.

heading2 The heading to appear on the second line for the print column.

start_print_column The starting print column for the heading specified.

end_print_column The ending print column for the heading specified. (Must be separated from the start_print_column by a colon.)

Note: If the print-column range is shorter than the heading specified, the heading is truncated.

Notes:
1 N and O must be followed by a space.
2 C, B, D, P, or Z must be preceded by a space.
Define column headings

N Indicates the operands following relate to the new file.

_start_column_ The starting position in the new file of the data to be displayed.

_last_start_column_ The ending position in the new file of the data to be displayed. (Must be separated from the _start_column_ by a colon.)

Data Format Indicator The format of the data in the new file to be displayed:
C Character
B Binary
D Unsigned packed decimal
P Packed decimal
Z Zoned decimal

O Indicates the operands following relate to the old file.

_start_column_ The starting position in the old file of the data to be displayed.

_last_start_column_ The ending position in the old file of the data to be displayed. (Must be separated from the _start_column_ by a colon.)

Data Format Indicator The format of the data in the old file to be displayed (as for the new file).

Example COLHEAD 'START', 'DATE', 1:7, N 1:6 P, O 11:16

Description Defines a print column with a heading of “START” in the first line and “DATE” in the second heading line, headings to start in print column 1. The data to be displayed from the new file is in positions 1 through 6 and is in packed format. The data to be displayed from the old file is in positions 11 through 16 and is in (the default) character format.

Do not process lines

There are two Do Not Process Lines process statements:

DPLINE Do not Process Lines

DPLINEC Do not Process Lines Continuation

These options remove from the compare (or search) set all lines that can be recognized by either a unique character string or combination of related strings all appearing on the same input line. DPLINEC is the continuation of the immediately preceding DPLINE or DPLINEC process statement. All the strings in a DPLINE/DPLINEC group must be found on the same input line.

A start_column or start-range can also be used to restrict the columns. Relative start_columns and start-ranges are valid only on DPLINEC statements.

Compare Types: LINE, WORD, and Search
string  A character or hexadecimal string enclosed within apostrophes. For one embedded apostrophe, use two consecutive apostrophes ("").

start_column  The column in, or after which, the string must start.

last_start_column  The last column in which the string may start. (Must be separated from the start_column by a colon.)

+start_column  The relative column, following the location of the previous string (as specified in the previous DLINE or DLINEC statement), in, or after which, this string must start.

last_start_column  The relative last column, following the location of the previous string (as specified in the previous DLINE or DLINEC statement), in which this string may start.

+  The specified string may appear anywhere following the location of the previous string (as specified in the previous DLINE or DLINEC statement).

---

**Example**

<table>
<thead>
<tr>
<th>Description</th>
<th>DLINE</th>
<th>DLINEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scans all columns for string “ABCDE”</td>
<td>‘ABCDE’</td>
<td></td>
</tr>
<tr>
<td>Scans only column 2 for start of string “AbCde”</td>
<td>‘AbCde’,2</td>
<td></td>
</tr>
<tr>
<td>Same as above example.</td>
<td>‘AbCde’,2:2</td>
<td></td>
</tr>
<tr>
<td>String “BDEF” must be on the same line as the string “AbCde”</td>
<td>‘BDEF’</td>
<td></td>
</tr>
<tr>
<td>Scans only columns 2 through 50 for start of string “ABCDE”</td>
<td>‘ABCDE’,2:50</td>
<td></td>
</tr>
<tr>
<td>Scans only columns 2 to 50 for start of string “AB’CD”</td>
<td>‘AB’’CD’,2:50</td>
<td></td>
</tr>
<tr>
<td>Scans only columns 2 to 50 for start of hexadecimal string X’C1C27BF1’</td>
<td>X’C1C27BF1’,2:50</td>
<td></td>
</tr>
<tr>
<td>Scans for string “ABC”; if found, then scans for string “BDEF” in the same line (following “ABC”)</td>
<td>‘ABC’</td>
<td>‘BDEF’,+</td>
</tr>
<tr>
<td>Scans for string “ABC”; if found, then scans for string “BDEF” starting in the 5th column after the starting column of “ABC”</td>
<td>‘ABC’</td>
<td>‘BDEF’,+5</td>
</tr>
<tr>
<td>Scans for string “ABC”; if found, then scans for string “BDEF” starting anywhere in the 5th to 12th columns after the starting column of “ABC”</td>
<td>‘ABC’</td>
<td>‘BDEF’,+5:12</td>
</tr>
</tbody>
</table>
Exclude data

There are two Exclude Data process statements:

**NEXCLUDE** Exclude applies to the new file

**OEXCLUDE** Exclude applies to the old file

These statements exclude rows or columns of data from the comparison. Up to 254 "exclude" statements can be entered for each file.

**Notes:**
1. NEXCLUDE and OEXCLUDE statements are mutually exclusive to NFOCUS and OFOCUS statements respectively if using the same operand keyword (ROWS or COLS).
2. Do not use the NEXCLUDE or OEXCLUDE process statement if the Y2DTONLY process statement has been specified.

**Compare Types:** FILE (ROWS option only) and LINE

```
- NEXCLUDE - ROWS - start_position -- end_position
- OEXCLUDE - COLS
```

**start_position**
- If ROWS operand used, the first row (record) to be excluded from the comparison.
- If COLS operand used, the first column to be excluded from the comparison.

**end_position**
- If ROWS operand used, the last row (record) to be excluded from the comparison.
- If COLS operand used, the last column to be excluded from the comparison.
  (Must be separated from the start_position by a colon.)

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEXCLUDE ROWS 5:900</td>
<td>Excludes rows (records) 5 through 900 on the new file.</td>
</tr>
<tr>
<td>OEXCLUDE ROWS 1:900</td>
<td>Excludes rows (records) 1 through 900 on the old file.</td>
</tr>
<tr>
<td>OEXCLUDE COLS 100:199</td>
<td>Excludes columns 100 through 199 on the old file.</td>
</tr>
</tbody>
</table>

Focus on data

There are two Focus on Data process statements:

**NFOCUS**
- Focus applies to the new file

**OFOCUS**
- Focus applies to the old file

These two statements select (or "focus on") rows or columns of data to be compared. In other words, only these rows or columns are considered when performing the comparison (or search) process and all other rows or columns are ignored. Up to 254 "focus" statements can be entered for each file.
**Notes:**

1. NFOCUS and OFOCUS statements are mutually exclusive to NEXCLUDE and OEXCLUDE statements respectively if using the same operand keyword (ROWS or COLS).
2. Do not use the NFOCUS or OFOCUS process statement if the Y2DTONLY process statement has been specified.

**Compare Types:** FILE (ROWS option only) and LINE

```
 start_position                  end_position
NFOCUS ROWS start_position:end_position
```

**start_position**  
If ROWS operand used, the first row (record) to be selected for the comparison.  
If COLS operand used, the first column to be selected for the comparison.

**end_position**  
If ROWS operand used, the last row (record) to be selected for the comparison.  
If COLS operand used, the last column to be selected for the comparison.  
(Must be separated from the start_position by a colon.)

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFOCUS ROWS</td>
<td>Selects rows (records) 28 through 90 on the new file.</td>
</tr>
<tr>
<td>OFOCUS ROWS</td>
<td>Selects rows (records) 150 through 165 on the old file.</td>
</tr>
<tr>
<td>OFOCUS COLS</td>
<td>Selects columns 10 through 18 on the old file.</td>
</tr>
</tbody>
</table>

**Line count**

The LNCT process statement specifies the number of lines per page in the listing file.

**Compare Types:** FILE, LINE, WORD, BYTE, and Search

```
 LNCT number
```

**number**  
A decimal number between 15 and 999999.

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNCT 55</td>
<td>Lists up to 55 lines per page.</td>
</tr>
</tbody>
</table>

**List columns**

The LSTCOLM process statement selects a range of columns to be listed in the output. This statement overrides the defaults that SuperC generates. Column selections must be contiguous and can be no wider than the output listing line allocated (55/80/106/176).
Compare Types: LINE and Search

```
LSTCOLM—start_column—:—last_start_column
```

**start_column**  The starting column to be listed.

**last_start_column**  The ending column to be listed. (Must be separated from the **start_column** by a colon.)

**Example**  **Description**
LSTCOLM 275:355  Lists columns 275 through 355 in the output.

### List previous-search-following value

The LPSFV process statement specifies the number of lines preceding and following the search line found to be listed. The default value is 6.

**Compare Type:** Search

```
LPSFV—number
```

**number**  A decimal number between 1 and 50.

**Example**  **Description**
LPSFV 2  Lists up to 2 lines before and after the line found.

### Revision code reference

The REVREF process statement identifies the revision type (BookMaster or SCRIPT/VS) and level-ID for delimiting UPDREV and UPDREV2 output changes. The revision delimiter may, alternatively, be specified or indicated by using a SCRIPT/VS .rc definition statement as the first line of the new input file.

If either the UPDREV or UPDREV2 process option is specified and no REVREF process statement is in the statements file, or the first new file source line is not a .rc script definition statement, SuperC defaults the revision definition to a SCRIPT/VS specification of .rc 1 |.

**Note:** BookMaster requires the REFIN value to be defined with a :revision tag. Do not forget the “RUN=YES” attribute if you want your document to have the change-bar inserted in the processed document.

**Compare Types:** LINE and WORD
Revision code reference

| REFID=name | Name of the revision identifier for the BookMaster :rev/:erev tags. |
| RCVAL=number | Numeric revision code for SCRIPT/VS revision tags. |

Example Description

- REVREF REFID=ABC
  - BookMaster example :rev refid=ABC. and :erev refid=ABC. tags.
- REVREF RCVAL=5
  - SCRIPT/VS example .rc 5 on/off delimiters.

Search strings in the input file

There are two process options to search for strings in the input file:

- **SRCHFOR** Search a text string in the input file
- **SRCHFORC** Search a text string continuation

These statements search for a specified string in the input Search file. The string may be further qualified as a word, prefix, or suffix, and where it must be positioned on the line.

SRCHFORC is the continuation of the immediately preceding SRCHFOR or SRCHFORC process statement. In the case of a SRCHFOR/SRCHFORC group, all the specified strings must occur on the same line for the search to be successful.

**Compare Type:** Search

```plaintext
>>>SRCHFOR-"string",W,P,S
```

```plaintext
,,start_column::last_start_column
```
Search strings in the input file

**string**  
The character or hexadecimal string to be searched for (enclosed by apostrophes). Use two consecutive apostrophes (""') for one apostrophe within the search string.

**W**  
Word. String must appear as a separate word. That is, be delimited by one or more spaces or special characters.

**P**  
Prefix. String must appear as the first part of some other text.

**S**  
Suffix. String must appear as the last part of some other text.

**start_column**  
The column in which the string must start for the search to be successful. (If a last_start_column is also specified, see description for that operand.)

**last_start_column**  
The “latest” column in which the string can start for the search to be successful. (Must be separated from the start_column by a colon.)

**+start_column**  
The relative column (starting from the column where the string for the previous SRCHFOR/SRCHFORC was found) in which the string must start for the search to be successful. (A corresponding last_start_column operand can be specified in a similar way to that for the start_column.)

**+**  
The string specified can occur anywhere after the position of the previously found string for the search to be successful.

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRCHFOR 'ABC'</td>
<td>Searches for string “ABC”</td>
</tr>
<tr>
<td>SRCHFOR 'ABC',W</td>
<td>Searches for the word “ABC”</td>
</tr>
<tr>
<td>SRCHFOR X'4004'</td>
<td>Searches for the hexadecimal string X'4004'</td>
</tr>
<tr>
<td>SRCHFOR 'A''bc'</td>
<td>Searches for string “A’bc”</td>
</tr>
<tr>
<td>SRCHFOR 'ABC',5:10</td>
<td>Searches for string “ABC” starting in positions 5 to 10</td>
</tr>
<tr>
<td>SRCHFOR 'ABC',W,5</td>
<td>Searches for the word “ABC” starting in position 5</td>
</tr>
<tr>
<td>SRCHFOR 'ABC'</td>
<td>Searches for strings “ABC” and “DEF” in any order in the same line.</td>
</tr>
<tr>
<td>SRCHFOR 'DEF'</td>
<td></td>
</tr>
<tr>
<td>SRCHFOR 'ABC'</td>
<td>Searches for the string “DEF” following the string “ABC”</td>
</tr>
<tr>
<td>SRCHFOR 'DEF',+</td>
<td>Searches for the word “DEF” following the string “ABC”</td>
</tr>
<tr>
<td>SRCHFOR 'ABC',W,+</td>
<td>Searches for the string “DEF” in the 5th position after the string “ABC”</td>
</tr>
</tbody>
</table>
### Search strings in the input file

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRCHFOR 'ABC'</td>
<td>Searches for the string “DEF” in the 5th position after the string “ABC” with the string “GKL” also anywhere in the same line</td>
</tr>
<tr>
<td>SRCHFORC 'DEF',+5</td>
<td></td>
</tr>
<tr>
<td>SRCHFORC 'GKL'</td>
<td></td>
</tr>
</tbody>
</table>

### Select PDS members

The SELECT process statement selects members from a PDS for comparison or for being searched. You can specify as many member names as fit on one line. If you need to select additional members, enter a new SELECT statement.

For comparisons, the new members are normally compared with old members that have the same names. Use the colon character (:) to compare members that are not named alike.

Any number of SELECT statements may be specified.

**Compare Types:** FILE, LINE, WORD, BYTE, and Search

#### Example

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT NEW1,NEW2</td>
<td>For a comparison, compares member NEW1 from the new PDS with the member NEW1 from the old PDS and compares member NEW2 from the new PDS with the member NEW2 from the old PDS. For a search, selects members NEW1 and NEW2 from the PDS to be searched.</td>
</tr>
<tr>
<td>SELECT NEW1:OLD1, MEMBER2</td>
<td>Compares member NEW1 from the new PDS with the member OLD1 from the old PDS and compares member MEMBER2 from the new PDS with the member MEMBER2 from the old PDS.</td>
</tr>
</tbody>
</table>
**Statements file listing control**

The SLIST process statement turns the printing of process statements in the output listing on and off.

The initial setting of this control is ON.

**Compare Types:** FILE, LINE, WORD, BYTE, and Search

<table>
<thead>
<tr>
<th>SLIST</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Causes the lines in the process statements file following the SLIST statement to be listed in the output listing.</td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>Causes the lines in the process statements file following the SLIST statement to be suppressed in the output listing.</td>
<td></td>
</tr>
</tbody>
</table>

**Example Description**

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLIST OFF</td>
<td>Do not list following process statements.</td>
</tr>
<tr>
<td>SLIST ON</td>
<td>List following process statements.</td>
</tr>
</tbody>
</table>

**Title alternative listing**

There are two process statements that let you provide an alternative title:

**NTITLE**

New (or search) listing file title identification

**OTITLE**

Old listing file title identification

These statements allow an alternative file identification to be used in the output listing (instead of the default identifiers “New File ID” and “Old File ID”).

**Compare Types:** FILE, LINE, WORD, BYTE, and Search (NTITLE only)

<table>
<thead>
<tr>
<th>NTITLE</th>
<th>'title_name'</th>
</tr>
</thead>
<tbody>
<tr>
<td>title_name</td>
<td>The alternative title to be used on the output listing to identify either the “new” file (NTITLE) or the “old” file (OTITLE). The title name must be in apostrophes and may be up to 54 characters in length. Use two consecutive apostrophes for one apostrophe within the title name.</td>
</tr>
</tbody>
</table>

**Example Description**

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTITLE 'New Title'</td>
<td>Change title heading for new (or search) file to “NEW TITLE”</td>
</tr>
<tr>
<td>OTITLE 'Old Title'</td>
<td>Change title heading for old file to “OLD TITLE”</td>
</tr>
</tbody>
</table>
Work size

The WORKSIZE process statement allows the maximum size of the comparison set to be adjusted for comparing large files.

If WORKSIZE exceeds 99999, then the SuperC LINE comparison DELTA listing type may result in wider columns for LEN N-LN# and O-LN#. Typically, these columns contain 5-digit values. However, when WORKSIZE exceeds 5 digits, and providing the standard record length of the listing is not affected, the columns are extended to contain 7-digit values. If the length of the input source lines in the listing are such that 7-digit values cannot fit, the report outputs 5-digit values by default, and only reports 7-digit values when significant characters would otherwise be lost.

**Compare Type:** FILE, LINE, WORD, BYTE. It is ignored if specified on a SEARCH.

![WORKSIZE Diagram]

**max_size**
The maximum number of units for comparison. Maximum value is 9999999.

Year aging

There are two process statements for year aging:

**NY2AGE**
Aging applies to the new file

**OY2AGE**
Aging applies to the old file

These statements age all the defined dates in either the new or old file. That is, the number of years specified is added to the "year" portion of each defined date in the file concerned.

**Note:** Dates are defined by the Date Definition process statements NY2C, NY2Z, NY2D, NY2P, OY2C, OY2Z, OY2D, and OY2P; see "Date definitions" on page 489.

**Compare Type:** LINE

![NY2AGE Diagram]

**years** A number (0 to 999) indicating the number of years by which all defined dates in the file are to be aged.
Year aging

Example
OY2AGE 28

Description
Ages all defined dates in the “old” file by 28 years before being compared. The listing shows the original date. For example, a defined date in the “old” file with a value equating to March 1, 1997, is aged to March 1, 2025 before being compared to its equivalent in the “new” file.

Date definitions

There are eight process statements that set date definitions:
- **NY2C**  New file, date in character format
- **NY2Z**  New file, date in zoned decimal format
- **NY2D**  New file, date in unsigned packed decimal format
- **NY2P**  New file, date in packed decimal format
- **OY2C**  Old file, date in character format
- **OY2Z**  Old file, date in zoned decimal format
- **OY2D**  Old file, date in unsigned packed decimal format
- **OY2P**  Old file, date in packed decimal format

Notes:
1. If any Date Definition process statements are used, a Y2PAST process statement should also be used so that the “century” portion of the date can be determined where necessary. (If a Y2PAST process statement is not present, a default fixed window based on the current year is used.)
2. For a description of each date format (character, zone, decimal, and packed), see “Date formats (keyword suffixes: C, Z, D, P)” on page 491.
3. If any Date Definition process statements are used, an information line is generated on the listing output (see Figure 257 on page 507).
4. Do not use any Date Definition process statements if using the COLHEAD process statement.

Defines the location and format of a date field on the input file. Up to 254 date definition statements can be entered for each file. The matching of the new to the old dates is performed according to the sequence that the statements are entered. That is, the first defined old date is matched to the first defined new date.

If the number of date definition statements for one file differ from the number of date definition statements for the other file, the location and format details for the “missing” date definition statements are assumed to be the same as their counterpart date definition statements for the other file.

Compare Type: LINE
Date definitions

Notes:
1  The EMPTY keyword, when used, must be preceded by a space

start_column The first position of the date in the input file.

last_start_column The last position of the date in the input file. (Must be separated from the start_column by a colon.)

date_format A mask representing the format of the date.

For a Julian date, the mask must be either YYDDD or YYYYDDD.

For date formats other than Julian, the mask must contain 2 “D”s (representing the day part of the date field), 2 “M”s (representing the month), and either 2 or 4 “Y”s (representing the year) or, if the date contains a year only, it must contain either 2 or 4 “Y”s.

If the date is character, there may also be a separator between the different parts. In this case, you can represent the position of the separators by one of the following:
  S (indicates that this position within the date is not used in comparison)
  . (period, used in comparison)
  / (forward slash, used in comparison)
  : (colon, used in comparison)

Note: The length of the date_format mask must correspond to the length of the date in the input file as indicated by the values of start_column and last_start_column.

EMPTY This keyword is optional. If it is entered, the defined date field is checked for containing zeros, spaces, low-values, or high-values before commencing the comparison process. If any of these values are found, the date is not converted according to the Y2PAST criteria but instead is converted to an extended format with the initial value. For example, a date defined by the process
Date definitions

The statement OY2C YYMMDD which contains all zeros is compared as “YYYYMMDD” with a value of zeros.

Example

NY2C 1:8 MMDDYYYY 9:16 MMDDYYYY 21:28 YYYYMMDD

Description
The new file has dates in character format in columns 1 to 8, 9 to 16 and 21 to 28.

OY2P 5:8 YYMMDD 9:12 YYMMDD

The old file has dates in packed decimal format in columns 5 to 8 and 9 to 12.

OY2P 101:104 MMDDYY

The old file has a date in packed decimal format in columns 101 to 104.

NY2Z 101:108 YYYYMMDD

The new file has a date in zoned decimal format in columns 101 to 108.

NY2C 101:110 YYYY.MM.DD

The new file has a date in character format (with separators) in columns 101 to 110.

OY2C 93:98 DDMMYY EMPTY

The old file has a date in character format in columns 93 to 98. If the date field contains zeros, spaces, low-values, or high-values, the date in the old file is converted before being compared to an extended format (DDMYYYY) with a value of all zeros, spaces, low-values, or high-values respectively.

Date formats (keyword suffixes: C, Z, D, P)

C  Character date data.
Examples:
‘96’ is represented as hexadecimal X’F9F6’
If using a MMDDYY format, March 21, 1996 is represented as hexadecimal X’F0F3F2F1F9F6’

Z  Zoned decimal date data. The date can be represented as follows:
X’xyxy’ to X’xyxyxyxyxyxyxy’
y is hexadecimal 0 to 9 and represents a date digit.
x is hexadecimal 0 to F and is ignored.
Examples:
‘96’ is represented as hexadecimal X’F9C6’ or X’0906’
‘03211996’ is represented as hexadecimal X’F0F3F2F1F9F9C6’ or X’0003020101090906’

P  Packed decimal date data. The date can be represented as follows:
X’zyyx’ to X’zyyyyyyyyyx’
y is hexadecimal 0 to 9 and represents a date digit.
x is hexadecimal A to F and is ignored.
The z part is normally zero but is not ignored.
Examples:
‘96’ is represented as hexadecimal X’z96F’ or X’z96C’
‘1996’ is represented as hexadecimal X’z1996C’
**Date definitions**

'03211996' is represented as hexadecimal X'03211996x' (the x part is ignored).

'96203' (a Julian date) is represented as hexadecimal X'96203C'.

**Unsigned packed decimal date data.** The date can be represented as follows:

'y' to 'yyyyyyyy'

y is hexadecimal 0 to 9 and represents a date digit.

Examples:

- '96' is represented as hexadecimal X'96'
- '03211996' is represented as hexadecimal X'03211996'

**Global date**

The Y2PAST process statement specifies a 100-year period (used for determining the century-part of a date when only a 2-digit year has been specified). The Y2PAST process statement uses either a fixed or sliding window.

**Note:** The Y2PAST process statement should always be used if any of the Date Definition process statements (NY2C, NY2Z, NY2D, NY2P, OY2C, OY2Z, OY2D, OY2P) have also been used.

**Compare Type:** LINE

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y2PAST 1986</td>
<td>A fixed window specifying a 100-year period from 1986 to 2085.</td>
</tr>
<tr>
<td>Y2PAST 70</td>
<td>A sliding window specifying (based on the current year being 2001) a 100-year period from 1931 (70 years in the past) to 2030.</td>
</tr>
<tr>
<td>Y2PAST 5</td>
<td>A sliding window specifying (based on the current year being 2001) a 100-year period from 1996 (5 years in the past) to 2095.</td>
</tr>
</tbody>
</table>

**Reasons for differing comparison results**

When comparing two sets of input date, it is possible that different compare types (FILE, LINE, WORD, and BYTE) gives slightly different results.

In order for SuperC to detect only the types of differences that are of interest to you, make sure that you are using the most appropriate compare type and, if necessary, the appropriate process options and process statements to select only the data that you actually want compared.

Here are some of the reasons why different compare types can produce different results:
Reasons for differing comparison results

- FILE and BYTE comparisons inspect the complete file (every byte) for differences. LINE and WORD comparisons use designated columns that are either specified by you or are within the default range of columns assigned by SuperC.

  For example, a FILE comparison of a file with fixed-length records of eighty bytes compares all columns (that is, all bytes), whereas a LINE comparison of the same file compares columns 1 to 72 (the default). Since the sequence number columns in the file are ignored in the LINE compare, the final results can be different. In this case, for consistent results, you should specify the LINE compare type and the NOSEQ process option.

- LINE comparisons “pad” the shorter records with spaces when comparing files with different record lengths. However, BYTE comparisons only “recognize” spaces when they are already present in the input file.

- For files with input line lengths <= 256, a LINE comparison is performed after padding the lines to the longest line length. Consequently two lines, originally of unequal length, compare equally only if the spaces at the end of the longer line coincide with the shorter line’s space padding.

- For files with input line lengths > 256, a LINE comparison is performed on the lines without space padding. As a result, lines of unequal length are always a mismatch.

- Different compare types have different sensitivity to being resynchronized.
  Synchronization for a LINE comparison begins at the beginning of a line and ends at the end of a line. Synchronization for a WORD comparison begins anywhere on a line on any word boundary and ends at the end of a word. Synchronization for a BYTE comparison extends only one byte anywhere on a line.

- LINE comparisons detect lines that have been reformatted. However, reformatted lines have no effect on WORD comparisons as spaces and blank lines are ignored.

- Results may differ depending on which input file is specified as the “new” file and which is specified as the “old” file. The matching algorithm is sensitive to the largest matched set it finds between files. There may be occasions where more than one set of matched data meets this criteria. The rules for deciding which set to choose among the equals depends upon the contents of each file and which file was nominated as the “new” file.

Return codes

SuperC displays the completion message at the top of the Primary Comparison Menu or at the top of the Primary Search Menu. The message is an interpretation of the following return codes.

Table 26. SuperC return codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal completion. Comparison: The input files are the same. No differences found. Search: No matches found in the input file.</td>
</tr>
<tr>
<td>1</td>
<td>Normal completion. Comparison: Differences were found in the input files. Search: Matches found in the input file.</td>
</tr>
</tbody>
</table>
Return codes

Table 26. SuperC return codes (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>WARNING. Erroneous input was detected. Files were compared but results may not be as expected. Check listing for more information.</td>
</tr>
<tr>
<td>6</td>
<td>WARNING. Old file did not contain proper sequence numbers, or the sequence number intervals were not sufficiently large to contain insert activity (UPDCMS8 and UPDMVS8).</td>
</tr>
<tr>
<td>8</td>
<td>ERROR. Error on old input file. Files were NOT compared. Check listing for more details.</td>
</tr>
<tr>
<td>16</td>
<td>ERROR. Error on new or search source file. The operation was NOT performed. Check listing for more details.</td>
</tr>
<tr>
<td>20</td>
<td>ERROR. I/O error writing to update file, FILEDEF missing, or APNDUPD process option cancelled because of inconsistent file attributes.</td>
</tr>
<tr>
<td>24</td>
<td>ERROR. I/O error writing to the output listing file.</td>
</tr>
<tr>
<td>25</td>
<td>ERROR. The old output file attributes are not consistent with the new listing requirements. The APNDLST process option can not be accepted and the operation is immediately terminated.</td>
</tr>
<tr>
<td>26</td>
<td>ERROR. The output file caused a “disk full” condition. The output listing is incomplete.</td>
</tr>
<tr>
<td>27</td>
<td>ERROR. The output file is a “read-only” disk. All I/O operations to the disk is suppressed.</td>
</tr>
<tr>
<td>28</td>
<td>ERROR. No data was compared because of invalid file names, no commonly named members of both input file groups, or one or both input files were empty.</td>
</tr>
<tr>
<td>32</td>
<td>ERROR. Insufficient storage was available for SuperC to execute. Refer to output listing for more details.</td>
</tr>
<tr>
<td>36</td>
<td>ERROR. z/VSE file would not open.</td>
</tr>
<tr>
<td>40</td>
<td>ERROR. z/VSE label information not available.</td>
</tr>
<tr>
<td>48</td>
<td>ERROR. z/VSE Librarian member not found.</td>
</tr>
<tr>
<td>52</td>
<td>ERROR. z/VSE VSAM Showcat failed.</td>
</tr>
<tr>
<td>56</td>
<td>ERROR. z/VSE device type not supported.</td>
</tr>
<tr>
<td>60</td>
<td>ERROR. Wrong length record read on tape input.</td>
</tr>
</tbody>
</table>

SuperC and search-for technical overview

This topic describes these SuperC and Search-For processes:
- How SuperC and Search-For filter input file lines
- How SuperC matches input file lines
- How SuperC partitions and processes large files
- Why SuperC compare types may produce different results
- How to directly invoke the SuperC and Search-For programs.

How SuperC and search-for filter input file lines

The SuperC and Search-For utilities apply process options and process statements to the input file or files in a specific order. Figure 251 on page 495 shows schematically the effects, in the order that they occur, of the various “filtering” process options and process statements, on the compare and Search-For input lines. The options and statements nearer the top affect the input line before options or
How SuperC matches input files

When SuperC compares files, it determines matching and missing lines or words based only on the data content of the input files. It does not use any synchronization data, such as column or sequence numbers, to find matching file sections. It does not use the common “start at the top”, then look-ahead or look-back method to determine large sections of matching data. Neither does it sort the data before comparing.

SuperC is unique in that, except for files that are identical, it does not determine matching sections until it has completely read both files. Missing data units are units that are out of sequence, as opposed to units that have been deleted from a file. During a comparison, SuperC finds all matches, locates the largest set of matching data units, and recursively allows this compare set to divide the file into additional partitioned subsections. All new subsections are processed for corresponding matches. The subprocess ends when no more matches can be found within corresponding new and old file partitioned subsections. Sections classified as inserted or deleted are corresponding areas for which SuperC could not find a match.
How SuperC corrects false matches

Occasionally, SuperC reports that it has detected a false line or word match and has corrected the results in the listing and summary report. Any affected matched pair has been reclassified as an insert/delete pair. Any resulting error might be in the masking of potential matches that would be overlooked due to the early false match coupling. That is an equivalent yet undiscovered match may be overlooked due to the premature false matching. The condition should be of minor importance since it happens so rarely and the masking effect has a low probability of affecting the final results.

An equally important SuperC concern would be whether it finds the best match set and whether it finds all matches. Unfortunately, the match-finding algorithm is not perfect. Ignoring the false match masking problem, and the large number of duplicate source lines obscuring the match set possibilities, occasional matches can be overlooked.

Many Artificial Intelligence (AI) computer programs, like SuperC, only approximate the human intellect that can sometimes make a better match set selection. Furthermore, these same computer programs are designed for speed and efficiency. They necessarily make certain simplifying assumptions and contain
additional operational weaknesses. SuperC, however, does not fail to correctly classify mismatches and does not incorrectly classify a mismatch as a match.

**How SuperC partitions and processes large files**

In SuperC, there is no limit on the size of files processed in terms of lines, words or bytes. Yet it had an internal methodology based upon a maximum field size for each work area storage structure (for example, array size and precision of variables). A method was developed to do the overall comparison process by breaking very large files into smaller comparison partitions and combining the intermediate results into one overall result. The process had to be done carefully so that it did not look as if the file partitioning was determined after some arbitrary limit was reached. That could affect the results on either side of the break point. The partitioning had to be done heuristically based upon the comparison results from the previously inspected intermediate process.

A fixed partitioning size of 32K lines/words/bytes was selected that was based on some test studies. The compare processes up to this limit and iteratively adjusts the intermediate ending break point of the pass by an adaptive method. Continuation from the adjusted end point is the basis for the next pass. That end point might even be adjusted to some previous records that had already been processed. The objective is to achieve the next best compare set for future unprocessed records.

The overall process ends when both files reach the End-of-File during a pass. The results from the intermediate passes are combined into one user end result. Most large compares are never suspected to have been partitioned and recombined.

The unlimited file size solution may appear, at first, unnecessary for Line compare using a virtual address space that is nearly unlimited. Yet there often has to be some limit—even if it is a high value. Programs need to store data with predetermined precision limits and programs work better with limits that are reasonable. Word compare and Byte compare eventually needed a partitioning limit for the compare as the number of words and bytes become large even for small file sizes.

Because of this partitioning process, comparisons of large files may take a long time.

**Comparing and searching alias members**

When you compare or search all of the members of two partitioned data sets using the command $* (to select all entries in the directory) on the member list, any members that have alias entries are processed once for the real name, and once for each alias entry. For compare, unpaired aliases appear in the same list as unpaired real members as “NON-PAIRED NEW FILE MEMBERS” or “NON-PAIRED OLD FILE MEMBERS”.

When you compare or search entire data sets by using an asterisk (*) for a member name pattern, only real members, not aliases, are processed. For compare, all directory entries (for both real members and aliases) are analyzed. Messages appear at the end of the SuperC output listing that give information about unpaired alias entries for paired real members as follows:

"NEW" PAIRED MEMBERS WITH "NEW" ALIAS MEMBERS NOT PAIRED FOLLOW:
MEMBER1/ALIAS1  MEMBER1/ALIAS2  MEMBER2/ALIAS1 ...

or

"OLD" PAIRED MEMBERS WITH "OLD" ALIAS MEMBERS NOT PAIRED FOLLOW:
MEMBER1/ALIAS1  MEMBER1/ALIAS2  MEMBER2/ALIAS1 ...
followed by a listing of the unpaired member/alias entries.

Notes:
1. Consider the ALLMEMS process option if you want to compare all directory entries, including aliases, but do not want to select them from a member list. This is useful for batch comparisons of entire load modules.
2. This listing section is not created for non-load module data sets containing alias entries.

Comparing load modules
SuperC compare of load module data might show unexpected differences. This is because SuperC compares all the data in the load module as it is found on DASD, and does not attempt to decode which portions are executable, and which might contain uninitialized storage.

The complex data format on DASD is dependent on the load module data set block size, and defined storage definitions which are controlled by the linkage editor. The size stored by the linkage editor in the PDS directory may differ from the DASD data byte count reported by SuperC and Browse depending on the characteristics of the load module.

If load modules are exact copies of each other, SuperC should find no differences. If load modules have been link-edited from the same object but with different block sizes, SuperC will probably report they are different.

Because of the relative DASD addresses (TTRs) in load modules, the recommended procedure for comparing load modules which have not been reblocked is to use the AMBLIST utility with LISTLOAD OUTPUT=MODLIST against both load modules, then use SuperC to compare the two AMBLIST outputs. There is no easy way to compare load modules with different internal record sizes such as occurs when COPYMOD or LINKEDIT processes them.

Comparing CSECTs
SuperC compare of PDS Load Module Csects (using the LMCSFC Process Option) can return unexpected differences. SuperC looks at the length of the Csect from the control record immediately preceding the Csect data record in the load module. This physical data length can differ from the logical Csect data length in the load module header that the AMBLIST utility uses to report the length of the Csect.

SuperC always compares all of the physical data in each Csect. You can use SuperC Byte compare to examine the Csect data content in detail.

Note: This option is only valid for PDS load modules.

How to directly invoke SuperC and search-for
You can run the SuperC and Search-For programs directly without using the ISPF-provided utilities (Options 3.12, 3.13, 3.14, or 3.15). This requires an installation (or system programmer) to customize a CLIST (for interactive usage) or a PROCLIB procedure (for batch execution of a catalog procedure). Although these methods are not warranted by the ISPF product, a sample CLIST and a sample PROCLIB procedure are distributed as an aid in the SAMPLIB data set as members ISRSCLST and ISRSPROC.
The sample CLIST allows a TSO user to enter a line command to communicate the operational parameters directly to the SuperC program without displaying the ISPF panels. The sample CLIST will request entry of a search pattern or string. A sample SuperC call as entered on the terminal might look like:

```
superc newfile(.newdata.file) oldfile(ludlow.olddata.file)
```

or

```
exec clist(superc) 'new(.newdata.file) old(ludlow.olddata.file)'
```

where `superc` is the command and `newfile` and `oldfile` are the keywords for the input files.

The SuperC load module may be supported using a private library or a concatenated system library. The installation is responsible for making the corresponding changes to the sample CLIST.

The sample CLIST uses this format:

```
SUPERC NEW(dsn) OLD(dsn) {keyword(parameter) .... }
```

Note: Avoid using uninitialized data sets (that is, empty sequential data data sets with no end-of-file marker) in the concatenation of data sets to be compared. Including these data sets in the search can lead to unpredictable results.

The keywords and parameters are:

- **CTYPE**
  Specifies the compare type. The parameter can be one of the SuperC compare types (File, Line, Word, or Byte). To call the Search-For program, use CTYPE(SRCH).

- **LISTING**
  Specifies the listing type. The parameter can be one of the SuperC listing types.

- **OUTDD**
  Specifies the name of the Listing Data Set. Use a fully qualified `dsn` or use a period (.) to precede the `dsn` with SYSPREF. The use of the period is a compromise because fully qualified names enclosed in quotes are difficult to pass in CLISTS.

- **BROWSE**
  Specifies the auto display program.

- **SYSIN**
  Specifies whether SuperC prompts the user for the process statements or uses a statements data set. The parameters can be PROMPT or the name of the statements data set.

- **DELDD**
  Specifies the name of the update data set.

- **PROCESS**
  Specifies the process options. The parameter can be a SuperC or Search-For process option. Not all options are allowed with each compare type (for example, GWCBL is valid only with Line and Word compare) or with other options (for example, you cannot use SEQ with COBOL). See “Process options” on page 459 for more information.

**Examples**

This example shows a SuperC compare JCL sequence:
The sequence allows the SuperC program to compare two input data sets and generates a line compare CHANGE type listing to the spool output queue and a separate UPDCNTL update control data set output using source columns 2 through 72.

A catalog procedure is a set of “canned” JCL statements that you can invoke as an extension of your own JCL. Here is a simplified JCL sequence:

The keywords NEWFILE, OLDFILE, and LISTING cause symbolic substitution before the job submittal.

Note: A sample catalog procedure is contained in the SAMPLIB member ISRSPROC.

A simplified Search-For JCL sequence follows. The SRCHFOR process statement used in the search is part of the JCL instead of a separate SYSIN data set. Concatenated data sets are also shown as part of the JCL.

A very simplified Search-For sample CLIST follows:

```clist
PROC 0
FREE FI(NEWDD,SYN,OUTDD,SYN2)
ALLOC FI(NEWDD) DA('USERID.PDS(TEST1)') REUSE SHR
ALLOC FI(SYN) DA('USERID.SYSIN.DATA(STMTS)') REUSE SHR
DELETE 'USERID.USER.PDS'
ALLOC FI(OUTDD) DA('USERID.USER.LIST') SPACE(10,20) RECFM(F B) +
REUSE TRACKS RELEASE
CALL 'USERID.ISPF.LOAD(ISRSUPC)' 'SRCHCMP,ANYC'
*******************************************************************************/
/* SIMPLE CLIST WITH MINIMUM STATEMENTS. */
/* "USERID.SYSIN.DATA(STMTS)" MUST CONTAIN SRCH STMTS. */
*******************************************************************************/
```
Appendix B. Understanding the listings

SuperC allows you to produce a range of listings (reports) which provide detailed information about the results of your comparison or search.

General listing format

The format and content of each type of listing depends on:
• Whether you are using the SuperC Comparison or the SuperC Search
• The listing type used

Note: The NLIST listing type suppresses the generation of any listing output or listing file.
• Whether you are comparing (or searching) a single file or a file group
• The compare type used (in the case of the SuperC Comparison)
• The process options used
• The process statements used

Note: Dates in the heading lines on the sample listing output in this document appear in the format MM/DD/YYYY. The dates in the heading lines appear in the format YYYY/MM/DD.

How to view the listing output

The listing output is always written to a listing file (unless the NLIST listing type is used), from which you can print the listings.

The following pages contain:
• A description of the general format of the comparison listing (page 501), followed by examples of various listings produced by the SuperC Comparison.
• A description of the general format of the search listing (page 513), followed by examples of various listings produced by the SuperC Search.

The comparison listing

SuperC comparison listings consist of 4 basic parts (although not all parts are present for all types of listing output produced):
• Page Headings (see page 501)
• Listing Output Section (see page 502)
• Member Summary Listing (see page 504)
• Overall Summary Section (see page 506)

Page headings

SuperC generates a page heading at the top of each page. The heading consists of two lines of information.
Understanding the listings

Figure 253 shows typical page heading lines. The first line contains:

- Printer control page eject character ("1" in column one. Not present when the NOPRTCC process option is specified)
- "Platform-identifier". This shows "MVS".
- Program identification title including version and the version date: V1R6M0 (07/11/2008)
- The date and time of the compare
- The page number

Note: The program version and program date are important when reporting suspected SuperC problems.

The second heading line identifies the new and old files. Normally this line shows the file IDs of the new and old files. However, if the NTITLE and OTITLE process statements have been specified then the corresponding alternative file titles are shown instead of the file IDs.

Listing output section

The listing output section shows where and what the changes are. Figure 254 is an example of a Listing Output Section for a LINE comparison with a listing type of DELTA.

Listing output section (LINE COMPARE)

Section title line. It tells you that this is a LINE comparison. Possible compare types are BYTE, FILE, LINE, and WORD.

Column header line.

ID A two-column prefix code that identifies the status of the line. See "Listing prefix codes" on page 503.

SOURCE LINES The actual text or data from the source files. Under this heading, the actual data from the files is listed.

TYPE Further breakdown of the ID field. See "Type of difference codes" on page 504 for information about TYPE codes.

LEN The "length" or number of consecutive lines of the selected type.
Understanding the listings

N-LN# Indicates the relative record (line) number of this line (or where it is to be inserted) in the new source file. Numbers are in decimal.

O-LN# Indicates the relative record (line) number of this line (or where it was deleted from) in the old source file. Numbers are in decimal.

3 The scale of the column positions of the input source lines.
4 An inserted (I) line. The RPL in TYPE indicates that it is a replacement line. This replacement involves the line 00001 in both files.

Note: Occasionally, you may see some “unusual” characters on the inserted (I) and deleted (D) lines. These characters represent data that is in a non-character (and therefore not directly printable) format in the input record and should be ignored.

5 An information line that is generated on a comparison listing when a Date Definition process statement is used (see “Date definitions” on page 489) and when the preceding inserted (I) line or deleted (D) line contains a date. The information line shows you the content of the date field as it exists on the input file and the date as used in the comparison. For a full example, see Figure 257 on page 507.

6 A deleted (D) line.

Listing prefix codes
SuperC output lines are flagged with the following prefix codes listed under the ID column:

(space) Match No prefix code means the data is the same in both files.
I Insert Data that is in the new file, but is missing \(^5\) from the sequence in the old file.
D Delete Data that is in the old file, but is missing \(^5\) from the sequence in the new file.
DR Delete Replace For BYTE compare type only. The bytes in the old file that were replaced by the bytes shown in the preceding insert (I) line.
RN Reformat New For LINE compare type only. A reformatted line in the new file. This line contains the same data as the old file line, but with different spacing.
RO Reformat Old For LINE compare type only. A line in the old file that is reformatted in the new file. This line is not shown if the DLREFM process option is used.
MC Match Compose For WORD compare type only. A line containing words that match. The line may also contain spaces to show the relationship between the matching words and any inserted or deleted words. Inserted and deleted words are shown in following insert compose (IC) and delete compose (DC) lines. See Figure 264 on page 515 for an example using a WORD compare type.

---

\(^5\) “Missing” data is data that is missing from the data sequence but may exist in some other part of the file.
Understanding the listings

IC  Insert Compose For WORD compare type only. A line containing words from the new file that are not in the old file. This line usually follows a match compose (MC) line.

DC  Delete Compose For WORD compare type only. A line containing words from the old file that are not in the new file. This line usually follows a match compose (MC) or insert compose (IC) line.

IM  Insert Moved For comparison listings created using the FMVLNS (flag moved lines) process option. A line in the new file that also appears in the old file, but has been moved. If the line was reformatted, this is indicated by a flag to the right of the listing.

DM  Delete Moved For comparison listings created using the FMVLNS (flag moved lines) process option. A line in the old file that also appears in the new file, but has been moved. If the line was reformatted, this is indicated by a flag to the right of the listing.

I  Change Bar For comparison listings created using the GWCBL (generate WORD/LINE comparison change bar listing) process option. A change bar showing that words/lines were either inserted or deleted.

Type of difference codes
At the far right of some listings are headings that provide additional information about the numbers and types of differences SuperC has found. Headings you may see are:

MAT= Number of matched lines.
RFM= Number of reformatted lines.
RPL= Number of replaced lines.
INS= Number of lines that are in the new file, but missing in the old file.
DEL= Number of lines that are in the old file, but missing in the new file.
IMR= Number of lines in the new file that have been moved from where they were in the old file and reformatted. Listing should show a matching “DMR=” flag for a line in the old file.
DMR= Number of lines in the old file that have been moved and reformatted in the new file. Listing should show a matching “IMR=’ flag for a line in the new file.
IMV= Number of lines in the new file that have been moved from where they were in the old file. Listing should show a matching “DMV=” flag for a line in the old file.
DMV= Number of lines in the old file that have been moved in the new file. Listing should show a matching “IMV=” flag for a line in the new file.

Member summary section
SuperC generates the member summary section when you specify either a file group comparison or use a macro library (MACLIB) or text library (TXTLIB) as input. The member summary section is really two sections with a page separator between them.

Figure 255 on page 505 shows an example of the two member summary sections for a FILE compare type.
The first section indicates which files were compared and whether they were found to be different or the same. In Figure 255, NEW TEST1 A was compared to OLD TEST1 A and NEW TEST2 A was compared to OLD TEST2 A. Both comparisons found differences. Following the member statistics are the group statistics. As this was a FILE comparison, the statistics are in terms of files and the number of bytes in each file.

Note: Different compare types produce slightly different results in the first section.

The second part of the member summary section shows all the members from both the new and old file groups which were not paired (and hence not compared). In Figure 255, only OLD TEST3 A from the old file group was not compared to any file from the new group.

Figure 255. Example of the member summary section of the comparison listing

1. Section Header. In this context, “member” can refer to either members of a MACLIB or TXTLIB, or members of a file group.

2. Header line. Consists of several column headers.

   - **DIFF** Contains “**” when the new and old files differ.
   - **SAME** Contains “**” when the new and old are the same.
   - **FILE NAMES** The file names or paired members of the file group or MACLIB/TXTLIB compared.
   - **N-BYTES** Number of bytes processed in the new member.
   - **O-BYTES** Number of bytes processed in the old member.
   - **N-LINES** (Not shown) Number of lines processed in the new member.
   - **O-LINES** (Not shown) Number of lines processed in the old member.
Understanding the listings

N-HASH-SUM
(Not shown) SuperC generated a hash value for the new member.

O-HASH-SUM
(Not shown) SuperC generated a hash value for the old member.

Note: The hashsums of files can be used to compare two files that are not physically on the same system. If the hashsum of a file on system A is different from the hashsum of a file on system B, then the files can be said to be different. If the hashsum of the files are identical, there is a high probability that the files are the same. You should also compare the number of lines and number of bytes as secondary confirmation that the files are the same.

3 Group (file) file statistics.
4 Group totals header line.
5 Total number of files that were processed as a group.
6 Total number of files compared that had differences.
7 Total number of files compared that had no differences.
8 Total number of new files that were not paired (and therefore were not compared).
9 Total number of old files that were not paired (and therefore were not compared).
10 OLD TEST3 A5 was present in the old file group. It could not be paired with a similarly named file in the new file group and was not processed.

Overall summary section

The overall summary section gives the overall statistics of the comparison process. Figure 256 is a representative example of an overall summary section.

Figure 256. Example of the overall summary section of the comparison listing

Figure 256 shows the following information about the comparison:

1 The first word of the title tells you the type of comparison. The overall summary is provided for BYTE, FILE, LINE, and WORD compare types.
2 Of the 3 lines in each file, 2 from the new file matched 2 corresponding lines of the old file. These are called matching lines.
Understanding the listings

There are no reformatted lines.
There is 1 inserted line in the new file.
The old file contains 1 line that is missing from the new source file.
3 lines from the new file were processed.
The old file also has a total of 3 lines.
The total number of changes is a summation of items 9, 10, and 11. It is a convenient number that best represents the change activity of the two compared files.
The total number of reformats and paired changes. This represents a sum of items that may be considered to be a single change. That is, some changes are made in pairs and need only be counted as a single instance of a change.
There were no non-paired inserts. Non-paired inserts are changes to the new file that have no relationship to the old file (that is, no deletes from the old file occurred in the same area).
There were no non-paired deletes. Non-paired deletes are changes to the old file that have no relationship to the new file (that is, no inserts to the new file occurred in the same area).
The listing type is OVSUM. This is the listing type option selected for the comparison. Other options are: DELTA, CHNG, and LONG.
SuperC compared columns 1 through 72. This value provides a convenient reference for confirming if all the columns in the line have been compared or only some portion of the line.
The longest line length of any line in either file is 80 characters.
No process options were used.

Examples of comparison listings

The following represent some of the output types available from SuperC.

```
Example of comparison listing with dates being compared
```

Figure 257. Example of comparison listing with dates being compared
In Figure 257 on page 507, the two date definition process statements have each caused an information ("INFO") line to be generated. The information line shows:

- The position of the defined date in the record.
- The contents of the defined date field.
- The date as it was actually compared. In the second information line, you can see the defined date has a 2-digit year portion ("97") but has actually been compared using a 4-digit year portion ("1997").

For further details, see "Date definitions" on page 489.

**Note:** Occasionally, you may see some "unusual" characters on the inserted (I) and deleted (D) lines. These characters represent data that is in a non-character (and therefore not directly printable) format in the input record and should be ignored.

---

**Figure 258. Example of comparison listing with column headings (Using COLHEAD)**

In Figure 258, COLHEAD process statements have been used to generate column headings ("Account Number", "Birth Date", and "Surname") for the corresponding input data. For further details, see "Define column headings" on page 478.

---

**Figure 259. Example of a NARROW side-by-side listing**
In Figure 259 on page 508, the new and old files are shown side-by-side. The NARROW listing type allows SuperC to output 55 columns from each file. Notice how the inserts and deletes are horizontally aligned with each other.

<table>
<thead>
<tr>
<th>ID</th>
<th>NEW FILE LINES</th>
<th>OLD FILE LINES</th>
<th>N-LN#</th>
<th>O-LN#</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN</td>
<td>This line is reformatted...</td>
<td>* file</td>
<td>RO</td>
<td>This line is reformatted...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the old...</td>
<td></td>
<td>D</td>
<td>This line differs from...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the...</td>
<td></td>
<td>D</td>
<td>This line differs from...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ASMFSUPC** - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0
NEW: JLEVERIN TEST2 A OLD: JLEVERIN TEST1

LISTING OUTPUT SECTION (LINE COMPARE)

<table>
<thead>
<tr>
<th>ID</th>
<th>NEW FILE LINES</th>
<th>OLD FILE LINES</th>
<th>N-LN#</th>
<th>O-LN#</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN</td>
<td>This line is reformatted...</td>
<td>* file</td>
<td>RO</td>
<td>This line is reformatted...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the old...</td>
<td></td>
<td>D</td>
<td>This line differs from...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the...</td>
<td></td>
<td>D</td>
<td>This line differs from...</td>
</tr>
<tr>
<td>I</td>
<td>This line is in the...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ASMFSUPC** - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0
NEW: JLEVERIN TEST2 A OLD: JLEVERIN TEST1

LINE COMPARE SUMMARY AND STATISTICS

<table>
<thead>
<tr>
<th>2 NUMBER OF LINE MATCHES</th>
<th>3 TOTAL CHANGES (PAIRED+NONPAIRED CHNG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 REFORMATTED LINES</td>
<td>2 PAIRED CHANGES (REFM+PAIRED INS/DEL)</td>
</tr>
<tr>
<td>2 NEW FILE LINE INSERTIONS</td>
<td>1 NON-PAIRED INSERTS</td>
</tr>
<tr>
<td>1 OLD FILE LINE DELETIONS</td>
<td>0 NON-PAIRED DELETES</td>
</tr>
<tr>
<td>5 NEW FILE LINES PROCESSED</td>
<td></td>
</tr>
<tr>
<td>4 OLD FILE LINES PROCESSED</td>
<td></td>
</tr>
</tbody>
</table>

LISTING-TYPE = CHNG COMPARE-COLUMNS = 1:72 LONGEST-LINE = 80
PROCESS OPTIONS USED: SEQ(DEFAULT) NARROW DLMDUP NOPRTCC

**ASMFSUPC** INFORM04**, LISTING LINES MAY BE TRUNCATED DUE TO LIMITING OUTPUT LINE WIDTH.

**Figure 260. Example of a NARROW side-by-side listing (with DLMDUP)**

Figure 260 is like the previous example (Figure 259 on page 508) except that the process option DLMDUP has been used to suppress the matched lines from the old file section. This simplifies the combined listing output, allowing the changes to stand out more clearly.
Understanding the listings

In Figure 261, the new and old files are shown side-by-side in a WIDE listing. SuperC lists 80 columns from each file. Notice how the inserts and deletes are horizontally aligned with each other.

**Note:** The output file has a LRECL of 202/203 and may require special processing and printer capability to obtain a hard copy. Refer to the previous NARROW option examples if the large LRECL requirement cannot be satisfied and a side-by-side listing is still required.
Figure 262 shows a collection of files and statistics for the specified SELECTF designated file group. Some files are the same and some files differ.
Figure 263 is like the previous example (Figure 262 on page 511) except that the LOCS process option has been used to limit the output to files from the file group which were found to be different. This option can greatly reduce the volume of output when the total number of files is secondary to the change activity in the group.
Figure 264 is an output listing from a comparison using the WORD compare type and shows how the output lines differ when the comparison is made at the WORD level. The deleted words are normally listed under the replacement (inserted) words. Separate (both inserted and deleted) lines are listed when completely changed lines are detected.

The search listing

The typical search listing is composed of three parts:
• Page Heading
• Source Lines Section
• Summary Section

Page heading

SuperC generates a page heading at the top of each page.
Understanding the listings

Note: The program version and program date are important when reporting suspected SuperC problems.

Source lines section

The source lines section provides detailed information about the results of the search. Figure 266 is an example showing the source line section. Only one character string (“NEW”) was specified for the search.

<table>
<thead>
<tr>
<th>LINE-#</th>
<th>SOURCE LINES</th>
<th>SRCH FN: NEWI TESTCASE C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>This NEW file is FIXED 80 with Sequence Numbers</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>/** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(** NEW: To get rid of this PASCAL type comment, use DPPSCMT.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>! * NEW: Use DPPDCMT for this comment.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>** * NEW: Use DPACMT to remove this assembler type comment</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-- *NEW: Use DPADCMT to remove this line.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>* * NEW: COBOL comment. Remove with DPCBCMT.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C * NEW: FORTRAN comment. Remove with DPFTCMT.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>&amp;&amp;&amp; This NEW line comes out with a DPLINE '&amp;&amp;&amp;'</td>
<td></td>
</tr>
</tbody>
</table>

Figure 266. Example of the source lines section of a search listing

The format of the source lines section changes when certain process options are used:

IDPFX (“Identifier Prefixed”) The file ID is prefixed to each line of source text. See page 514

LMTO (“List Group Member Totals”) Only the totals of lines found and processed are listed. See page 515

XREF (“Cross-reference Strings”) Creates a cross-reference listing by search string. See page 516

Note: the XREF process option also generates additional totals for each search string in the summary section.

Source lines section (IDPFX) The source line section generated when the IDPFX process option is used is like the normal source line section but with the search file ID preceding each line of source text. See Figure 267 on page 515
Understanding the listings

<table>
<thead>
<tr>
<th>1</th>
<th>FNAME</th>
<th>FTYPE</th>
<th>FM</th>
<th>LINE-#</th>
<th>SOURCE-LNS</th>
<th>SRCH FN:</th>
<th>NEW1 TESTCASE C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>1</td>
<td>This NEW file is FIXED 80 with Seque</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>2</td>
<td>**NEW: To get rid of this PLI/REXX type comm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>3</td>
<td>(** NEW: To get rid of this PASCAL type commen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>4</td>
<td>! * NEW: Use DPPDCMT for this comment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>5</td>
<td>* * NEW: Use DPACMT to remove this assembler t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>6</td>
<td>-- *NEW: Use DPACMT to remove this line.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>7</td>
<td>* * NEW: COBOL comment. Remove with DPCBC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>8</td>
<td>C * NEW: FORTRAN comment. Remove with DPFTCMT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW1</td>
<td>TESTCASE C1</td>
<td>9</td>
<td>&amp;&amp;&amp; This NEW line comes out with a DPLINE '&amp;&amp;&amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 267. Example of the IDPFX source lines section of a search listing

1 Column Header Line.

FNAME File name (fn) of the file where in the string was found.

FTYPE File type (ft) of the file where in the string was found.

FM File mode (fm) of the file where in the string was found.

LINE-# Relative line number of the line where the string was found.

SOURCE-LNS Up to 106 characters of the source line where the string was found.

SRCH FN: In this example, the search file ID is NEW1 TESTCASE C.

2 The search file ID, relative line number, and text line from the search file where the string was found.

Source lines section (LMTO)
The LMTO process option generates a listing showing the total number of lines found and processed for each file. (The individual lines found are not listed.) See Figure 268.

<table>
<thead>
<tr>
<th>1</th>
<th>FILES-SEARCHED</th>
<th>LINES-FOUND</th>
<th>LINES-PROC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>NEW1 TESTCASE C1</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>NEW13 TESTCASE C1</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

Figure 268. Example of the LMTO source lines section of a search listing

1 Column Header Line.

FILES-SEARCHED Identifies the files which were searched.

LINES-FOUND Number of the lines found containing one or more of the search strings. The line is only counted once no matter how many search strings were found in the line.

LINES-PROC Number of lines in the file that were searched. Does not include “Do not Process” lines.

2 Individual file totals.
Understanding the listings

Source lines section (XREF)
The XREF process option creates a cross-reference listing where the source lines are listed by search strings.

In Figure 269, lines which contain the string “NEW” in NEW1 TESTCASE C1 are listed first, then lines which contain the string “NEW” in NEW13 TESTCASE C1, then lines which contain the string “USE” in NEW1 TESTCASE C1, and finally those lines which contain the string “USE” in NEW13 TESTCASE C1.

```
1       STRING="NEW"    IN NEW1    TESTCASE C1       -----
2             This NEW file is FIXED 80 with Sequence Numbers
3       /** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT. */
4       /** NEW: To get rid of this PASCAL type comment, use DPPSCMT. *)

      ...

3       STRING="NEW"    IN NEW13   TESTCASE C1       -----
4             This NEW file is FIXED 80 with Sequence Numbers
5       /** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT. */
6       /** NEW: To get rid of this PASCAL type comment, use DPPSCMT. *)
7                      ! * NEW: Use DPPDCMT for this comment.

      ...

5       STRING="USE"    IN NEW1    TESTCASE C1       -----
6       /** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT. */
7       /** NEW: To get rid of this PASCAL type comment, use DPPSCMT. *)
8                      ! * NEW: Use DPPDCMT for this comment.

      ...

7       STRING="USE"    IN NEW13   TESTCASE C1       -----
8       /** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT. */
9       /** NEW: To get rid of this PASCAL type comment, use DPPSCMT. *)
10                     ! * NEW: Use DPPDCMT for this comment.

      ...
```

Figure 269. Example of the XREF source lines section (with ANYC)

1. Sub-section line showing string “NEW” and file NEW1 TESTCASE C1.
2. Line number and text of line where string was found.
3. Sub-section line showing file NEW13 TESTCASE C1 (string is still “NEW”).
4. Line number and text of line where string was found.
5. Sub-section line showing string “USE” and file NEW1 TESTCASE C1.
6. Line number and text of line where string was found.
7. Sub-section line showing file NEW13 TESTCASE C1 (string is still “USE”).
8. Line number and text of line where string was found.
Summary section

The summary section (see Figure 270) provides various totals resulting from the search and shows any process statements which were used.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LINE-#</td>
<td>SOURCE LINES</td>
<td>SRCH FN:</td>
<td>NEW1 TESTCASE C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>LINES-FOUND</td>
<td>FILES-W/LNS</td>
<td>FILES-PROC</td>
<td>LINES-PROC</td>
<td>COMPARE-COLS</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>1: 80</td>
<td></td>
</tr>
</tbody>
</table>

THE FOLLOWING PROCESS STATEMENT(S) WERE PROCESSED:
SRCHFOR 'NEW'

Figure 270. Example of the summary section of a search listing

The summary section consists of:
1 A section heading line.
2 A column heading line.
3 One line of totals.
4 A multi-line section (two lines in Figure 270) showing the process statements which were used.

XREF summary section

When the XREF process option ("Cross-reference Strings") is used, additional lines are included in the summary section. In Figure 271, these are lines 2, 3, and 4. The totals are listed according to each search string.

Note: The XREF summary section may be produced without the XREF source line section by using the LMTO process option.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SUMMARY SECTION</td>
<td>SRCH FN:</td>
<td>NEW1* TESTCASE C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>STRING-FOUND</td>
<td>LINES-FOUND</td>
<td>FILES-W/LNS</td>
<td>STRING-NOT-FOUND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&quot;NEW&quot;</td>
<td>19</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&quot;USE&quot;</td>
<td>10</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>LINES-FOUND</td>
<td>FILES-W/LNS</td>
<td>FILES-PROC</td>
<td>LINES-PROC</td>
<td>COMPARE-COLS</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>29</td>
<td>2</td>
<td>5</td>
<td>64</td>
<td>1: 80</td>
<td></td>
</tr>
</tbody>
</table>

Figure 271. Example of the XREF summary section of a search listing

1 Section header line. Identifies the file which was searched. In this example, it is NEW1* TESTCASE C.
2 Column header line.

STRING-FOUND
Column indicating the search string.

LINES-FOUND
Lines which contained one or more occurrences of the search string.
Understanding the listings

**FILES-W/LNS**  Total number of files in the group in which the string was found.

**STRING-NOT-FOUND**  Indication that the string was not found in any of the files in the file group.

3  Totals for string "NEW"
4  Totals for string "USE"
5  Column header line.

**LINES-FOUND**  The summation of lines found for the individual search strings.

**FILE-W/LNS**  Number of files where lines were found to contain one or more of the search strings.

**FILE-PROC**  Number of files that were searched.

**LINES-PROC**  Number of lines that were part of the search set.

**COMPARE-COLS**  The column range that was searched.

6  Totals statistics arranged under the columns specified in 5.

Examples of search listings

**Search of one file**

Figure 272 shows the 3 parts of a search listing: page heading, source lines section, and summary section.

```plaintext
1  ASMFSUPC - MVS LINE/WORD/BYTE COMPARE UTILITY - V1R6M0  (07/11/2008)
LINE-#  SOURCE LINES  SRCH FN:  NEW1  TESTCASE C
2  /** NEW: To get rid of this PLI/REXX type comment, use DPPLCMT. */
3  (** NEW: To get rid of this PASCAL type comment, use DPPSCMT. *)
5  ** NEW: Use DPACMT to remove this assembler type comment.
6  -- **NEW: Use DPADCM'T to remove this line.
```

**Summary Section**

```plaintext
1  ASMFSUPC - MVS LINE/WORD/BYTE COMPARE UTILITY - V1R6M0  (07/11/2008)  07/11/2008
SUMMARY SECTION  SRCH FN:  NEW1  TESTCASE C
LINES-FOUND  FILES-W/LNS  FILES-PROC  LINES-PROC  COMPARE-COLS  LONGEST-LINE
4  1  1  9  1:80  80
```

THE FOLLOWING PROCESS STATEMENT(S) WERE PROCESSED:

```
SRCHFOR  'remove'
SRCHFOR  'rid'
```

**Figure 272. Example of the search listing (single file)**

**IDPFX search of file group**

The file group NEW1* TESTCASE C composed of 5 files was searched and 8 lines within 2 files had “remove” and “rid” as the search arguments.
Understanding the listings

**Figure 273. Example of IDPFX search on file group**

### XREF search of file group for two strings

XREF sorts the search string occurrences before producing a listing. The example shows a listing when both strings are found in the file group.

**Figure 274. Example of XREF search on file group for two strings**
Understanding the listings

**LMTO search of file group**
LMTO produces only the summary section for the search operation.

<table>
<thead>
<tr>
<th>1</th>
<th>ASMFSPUC - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE TOTALS SECTION</td>
<td>SRCH FN: NEW1* TESTCASE C</td>
</tr>
<tr>
<td>FILES-SEARCHED</td>
<td>LINES-FOUND</td>
</tr>
<tr>
<td>NEW1 TESTCASE C1</td>
<td>4</td>
</tr>
<tr>
<td>NEW13 TESTCASE C1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>ASMFSPUC - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY SECTION</td>
<td>SRCH FN: NEW1* TESTCASE C</td>
</tr>
<tr>
<td>LINES-FOUND</td>
<td>FILES-W/LNS</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

PROCESS OPTIONS USED: LMTO

THE FOLLOWING PROCESS STATEMENT(S) WERE PROCESSED:
SRCHFOR 'remove'
SRCHFOR 'rid'

Figure 275. Example of LMTO search on file group

**LMTO search of file group using the XREF process option**
This is another example of a summary only output. Contrasting with the previous example, the string totals are sorted before being listed.

<table>
<thead>
<tr>
<th>1</th>
<th>ASMFSPUC - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>XREF TOTALS SECTION</td>
<td>SRCH FN: NEW1* TESTCASE C</td>
</tr>
<tr>
<td>STRING-USED</td>
<td>FILES-SEARCHED</td>
</tr>
<tr>
<td>&quot;remove&quot;</td>
<td>NEW1 TESTCASE C1</td>
</tr>
<tr>
<td>NEW13 TESTCASE C1</td>
<td>2</td>
</tr>
<tr>
<td>&quot;rid&quot;</td>
<td>NEW1 TESTCASE C1</td>
</tr>
<tr>
<td>NEW13 TESTCASE C1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>ASMFSPUC - MVS FILE/LINE/WORD/BYTE/SFOR COMPARE UTILITY- V1R6M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY SECTION</td>
<td>SRCH FN: NEW1* TESTCASE C</td>
</tr>
<tr>
<td>STRINGS-FOUND</td>
<td>LINES-FOUND</td>
</tr>
<tr>
<td>&quot;remove&quot;</td>
<td>4</td>
</tr>
<tr>
<td>&quot;rid&quot;</td>
<td>4</td>
</tr>
</tbody>
</table>

| LINES-FOUND | FILES-W/LNS | FILES-PROC | LINES-PROC | COMPARE-COLS | LONGEST-LIN |
| 8 | 2 | 5 | 64 | 1: 80 | 80 |

PROCESS OPTIONS USED: LMTO XREF

THE FOLLOWING PROCESS STATEMENT(S) WERE PROCESSED:
SRCHFOR 'remove'
SRCHFOR 'rid'

Figure 276. Example of XREF/LMTO search of file group

**LTO search of file group**
LTO produces the overall totals section of the search results.
LPSF search of file group

The process option LPSF ("List Previous-Search-Following Lines") lists lines before and after the search text detected line. The "*" in the line number column indicate they were part of the extra lines listed.

Figure 277. Example of LTO search on file group

Figure 278. Example of LPSF search on file group
Appendix C. Update files

An update file contains information relating to the result of a comparison and is generated when one of the update process options is specified:

- UPDCMS8 ("Update CMS sequenced 8 file" on page 525)
- UPDCNTL ("Update control files" on page 526)
- UPDLDEL ("Update long control" on page 530)
- UPDMVS8 ("Update MVS sequenced 8 file" on page 530)
- UPDPDEL ("Update prefixed delta lines" on page 531)
- UPDREV ("Revision file" on page 524)
- UPDREV2 ("Revision file (2)" on page 525)
- UPDSEQ0 ("Update sequenced 0 file" on page 532)
- UPDSUMO ("Update summary only files" on page 533)

Notes:
1. UPDCMS8, UPDMVS8, UPDPDEL, UPDREV, UPDREV2, and UPDSEQ0 do not generate an update file after a comparison of matching files (Return Code = 0).
2. Dates, where applicable, in the heading lines of update files are in the format MM/DD/YYYY.
3. All “do not process” options, and DPLINE or CMPLINE process statements are invalid when used with the process options UPDCMS8, UPDMVS8, UPDSEQ0, UPDLDEL, and UPDPDEL. The “do not process” options are cancelled with error notification ASMF014.

Update files are normally used as input to post-processing programs and can be specified besides the normal listing output file.

On the following pages, descriptions and examples are given of the contents of the update file produced for each of the update (UPD...) process options.

In most of the examples shown, the same two input files are used. The contents of the old file are shown in Figure 279. The contents of the new file are shown in Figure 280.

---

This line is reformatted; the spacing in the "new" file differs. 00000100
This line is the same in both files. 00000200
This line differs from the text in the "new" file. 00000300
This line is the same in both files. 00000400

Figure 279. The "Old" input file used in most of the update examples

---

This line is reformatted; the spacing in the "new" file differs. 00000100
This line is the same in both files. 00000200
This line differs from the text in the "old" file. 00000300
This line is the same in both files. 00000400
This line is in the "new" file, but not in the "old". 00000500

Figure 280. The "New" input file used in most of the update examples
The process option UPDREV produces an update file containing a copy of the new source text with revision tags delimiting the changed text lines.

The UPDREV process option is available for LINE and WORD compare types.

UPDREV supports two different types of revision tags, one for SCRIPT/VS files and one for BookMaster files. (Use the REVREF process statement ("Revision code reference" on page 483) to specify which type of revision tag you want.)

**Figure 281** shows a SuperC UPDREV file with SCRIPT/VS revision tags (.rc on/off).

```
.rc 1 &vbar.
.rc 1 on
This line is reformatted; the spacing in the "new" file differs.
.rc 1 off
This line is the same in both files.
.rc 1 on
This line differs from the text in the "old" file.
.rc 1 off
This line is the same in both files.
.rc 1 on
This line is in the "new" file, but not in the "old".
.rc 1 off
```

**Figure 281. Example of a UPDREV update file for SCRIPT/VS documents**

When the UPDREV update file in **Figure 281** is processed by SCRIPT/VS, the final scripted output has "|" revision characters in the left margin of the output document identifying the changed lines (those between the SCRIPT/VS revision tags .rc 1 on and .rc 1 off).

**Note:** The revision character ("|" in the example in **Figure 281**) can be specified either by using a REVREF process statement (see "Revision code reference" on page 483) or by having a SCRIPT/VS .rc revision tag as the first record in the new file. Subsequent changes to the source can therefore be separately identified by using different revision characters.

**Figure 282** shows a SuperC UPDREV file with BookMaster revision tags (:rev/:erev).

```
This line is reformatted; the spacing in the "new" file differs.
This line is the same in both files.
This line differs from the text in the "old" file.
This line is the same in both files.
This line is in the "new" file, but not in the "old".
```

**Figure 282. Example of a UPDREV update file for bookmaster documents**

When the UPDREV update file in **Figure 282** is processed by BookMaster, the final formatted output has the revision character associated with the revision ID abc (as specified by a :revision. BookMaster tag in the new input file) in the left margin.
Update files

Note: The revision ID (abc in the example in Figure 282 on page 524) is controlled by the REVREF process statement (see “Revision code reference” on page 483). Subsequent changes to the source can therefore be separately identified by using different revision IDs (which are associated with unique revision characters).

Revision file (2)

The process option UPDREV2 is identical to UPDREV with the exception that data between the following BookMaster tags are not deleted in the update file:
:cggraphic.
:ecgraphic.
:fig.
:efig.
:lblbox.
:elblbox.
:nt.
:ent.
:screen.
:escreen.
:table.
:etable.
:xmp.
:exmp.

Update CMS sequenced 8 file

The process option UPDCMS8 produces update files that are generally created for input to the CMS UPDATE command. The CMS UPDATE command is described in the z/VM CMS Command Reference manual.

The UPDCMS8 process option is available for the LINE compare type only.

The old input file must have fixed-length 80-byte records with valid sequence numbers in columns 73 through 80. The new file must be fixed but may have a length less than or equal to 80.

The UPDCMS8 update file is fixed-length 80.

If the sequence numbers do not allow adequate room to insert changes from the new file, SuperC changes the status of adjacent matched lines to find the room.

UPDCMS8 update files contain both CMS UPDATE control statements and source lines from the “new” file. All UPDCMS8 control statements are identified by the characters “/.” in columns 1 and 2 of the 80-byte record, followed by one or more spaces and a one-character control line identifier. The control line identifiers are sequence (S), insert (I), delete (D), replace (R), and comment (*). Figure 283 on page 526 shows an example of a UPDCMS8 update file.
Update files

The example in Figure 283, has the following lines:

1. / * NEW: JLEVERIN TEST2 A 07/11/2008 11.35
2. / * OLD: JLEVERIN TEST1 A
3. / R 00000100 00000100 $ 00000140 00000040
4. This line is reformatted; the spacing in the "new" file differs. 00000100
5. / R 00000300 00000300 $ 00000340 00000040
6. This line differs from the text in the "old" file. 00000300
7. / I 000000400 $ 00001400 00000100
8. This line is in the "new" file, but not in the "old". 00000500

Figure 283. Example of a UPDCMS8 update file

The example in Figure 283, has the following lines:

1. Comment line. Lists the new file name and the date and time of the comparison.
2. Comment line. Lists the old file name.
3. Replacement control line. The first 8-digit numeric field is the sequence number (of the old file) of the first input number to be replaced. The second 8-digit numeric field is the sequence number of the old file that is the last record to be replaced. The dollar sign is an option separator field. The third and fourth 8-digit fields represent the first decimal number to be used for sequencing the substitute records and the decimal increment to be used in the sequencing, respectively.

In this example, the first line of the old file is being replaced with one line from the new file.

4. The new record which has replaced the old record at sequence number 00000100.
5. Another replacement control line.
6. The new record which has replaced the old record at sequence number 00000300.
7. Insert control line. After old line 4, there is a line inserted in the new file.
8. The text of the inserted line.

Update control files

The process option UPDCNTL produces a control file that relates matches, insertions, deletions, and reformat to:

- The relative line numbers of the old and new files (LINE compare type); see Figure 284 on page 527
- The relative word position of the old file (WORD compare type); see Figure 285 on page 528
- The relative byte offset (BYTE compare type); see Figure 286 on page 529

Note: No source or data from either input file is included in the update file produced by UPDCNTL.
Update files

Update control file (LINE Compare Type)

1 * NEW: JLEVERIN TEST2 A 07/11/2008 12.45
2 * OLD: JLEVERIN TEST1 A
3 * N-LINE-# O-LINE-# MAT-LEN INS-LEN DEL-LEN REFM-LEN
4 00000001 00000001 00000001
5 00000002 00000002 00000001
6 00000003 00000003 00000001 00000001
7 00000004 00000004 00000001
8 00000005 00000005 00000001
9 * END

Figure 284. Example of a UPDCNTL update file using line compare type

1 Comment line. Lists the new file name and the date and time of the comparison.
2 Comment line. Lists the old file name.
3 Header Comment line. For information about the columns, see Table 27.
4 Shows that line 1 of the new file is a reformatted line of line 1 of the old file.
5 Line 2 from both files match.
6 Line 3 of the new file replaces line 3 of the old file.
7 Line 4 from both files match.
8 At line 5 of the new file is an inserted line.
9 Comment line. This is the end of the update file.

The following table shows the column numbers used for the UPDCNTL file:

Table 27. UPDCNTL update file format using LINE compare type

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-11</td>
<td>N-LINE-#</td>
<td>New line number</td>
</tr>
<tr>
<td>13-20</td>
<td>O-LINE-#</td>
<td>Old line number</td>
</tr>
<tr>
<td>22-29</td>
<td>MAT-LEN</td>
<td>Match length</td>
</tr>
<tr>
<td>31-38</td>
<td>INS-LEN</td>
<td>Insert length</td>
</tr>
<tr>
<td>40-47</td>
<td>DEL-LEN</td>
<td>Delete length</td>
</tr>
<tr>
<td>49-56</td>
<td>REFM-LEN</td>
<td>Reformat length</td>
</tr>
<tr>
<td>58-65</td>
<td>N-DP-LEN</td>
<td>(Not shown) New “Do not Process” length</td>
</tr>
<tr>
<td>67-74</td>
<td>O-DP-LEN</td>
<td>(Not shown) Old “Do not Process” length</td>
</tr>
<tr>
<td>76-80</td>
<td>N-MVL</td>
<td>(Not shown) New “moved” line length.</td>
</tr>
</tbody>
</table>
Update control file (WORD compare type)

<table>
<thead>
<tr>
<th></th>
<th>NEW: JLEVERIN TEST2 A</th>
<th>07/11/2008 12.17</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLD: JLEVERIN TEST1 A</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>N-LINE-# N-LN-LEN N-COL WD-MAT-# N-WD-INS O-WD-DEL O-LINE-# O-LN-LEN O-COL</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>00000001 00000003 00001 00000027 00000001 00000003 00001</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>00000003 00000001 00040 00000001 00000001 00000003 00000001 00040</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>00000003 00000002 00046 00000009 00000003 00000002 00046</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>00000005 00000001 00001 00000013</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>END</td>
<td></td>
</tr>
</tbody>
</table>

Figure 285. Example of a UPDCNTL update file using WORD compare type

1 Comment line. Lists the new file name and the date and time of the comparison.
2 Comment line. Lists the old file name.
3 Header comment line. For information about the columns, see Table 28
4 Beginning with line one column 1, of both files, the first twenty-seven words match. This takes us to line 3.
5 There is 1 word replaced in line 3. It begins in column forty of each file.
6 Beginning from the change in 5, there are 9 more words that match.
7 A line of thirteen words was inserted at line 5.
8 Comment line. Ends the update file.

The following table shows the column numbers used for the UPDCNTL file:

Table 28. UPDCNTL update file format using WORD compare type

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-11</td>
<td>N-LINE-#</td>
<td>Beginning new line number</td>
</tr>
<tr>
<td>13-20</td>
<td>N-LN-LEN</td>
<td>Number of lines</td>
</tr>
<tr>
<td>22-26</td>
<td>N-COL</td>
<td>New column number (beginning of word)</td>
</tr>
<tr>
<td>28-35</td>
<td>WD-MAT-#</td>
<td>Number of matching words</td>
</tr>
<tr>
<td>37-44</td>
<td>N-WD-INS</td>
<td>Number of new inserted words</td>
</tr>
<tr>
<td>46-53</td>
<td>O-WD-DEL</td>
<td>Number of old deleted words</td>
</tr>
<tr>
<td>55-62</td>
<td>O-LINE-#</td>
<td>Beginning old line number</td>
</tr>
<tr>
<td>64-71</td>
<td>O-LN-LEN</td>
<td>Number of old lines</td>
</tr>
<tr>
<td>73-77</td>
<td>O-COL</td>
<td>Old column number</td>
</tr>
</tbody>
</table>
Update control file (BYTE compare type)

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-11</td>
<td>N-BYTE-O</td>
<td>New byte offset</td>
</tr>
<tr>
<td>13-20</td>
<td>O-BYTE-O</td>
<td>Old byte offset</td>
</tr>
<tr>
<td>22-29</td>
<td>MAT-LEN</td>
<td>Number of matching bytes</td>
</tr>
<tr>
<td>31-38</td>
<td>INS-LEN</td>
<td>Number of inserted bytes</td>
</tr>
<tr>
<td>40-47</td>
<td>DEL-LEN</td>
<td>Number of deleted bytes</td>
</tr>
</tbody>
</table>
Update files

Update long control

The process option UPDLDEL produces an update file that contains control records, matching new file source records, inserted new file source records, and deleted old file source records.

The UPDLDEL process option is available for the LINE compare type only.

The control records are titled as follows:

*HDR1, *HDR2, *HDR3
  Header titles and data
*M-  Matched line sequence header
*I-  Inserted line sequence header
*I-RP Inserted line sequence header for replacement lines
*I-RF Inserted line sequence header for reformatted lines
*D-  Deleted line sequence header
*D-RP Deleted line sequence header for replacement lines
*D-RF Deleted line sequence header for reformatted lines

Header control records are full length records that delimit the copied file records. This allows you to quickly find changed areas. The records look like the information about a LONG listing. The two input files must both have the same fixed record length or each have a variable record length.

Figure 287 shows an example of a UPDLDEL update file.

<table>
<thead>
<tr>
<th>Control Record Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*HDR1 JLEVERIN TEST2 A</td>
<td>07/11/2008 14.58</td>
</tr>
<tr>
<td>*HDR2 JLEVERIN TEST1 A</td>
<td>TYPE = UPDLDEL</td>
</tr>
<tr>
<td>*I-RF INS# = 1 N-REF#000001 O-REF#000001 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line is reformatted; the spacing in the &quot;new&quot; file differs. 00000100</td>
</tr>
<tr>
<td>*D-RF DEL# = 1 N-REF#000001 O-REF#000001 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line is reformatted; the spacing in the &quot;new&quot; file differs. 00000100</td>
</tr>
<tr>
<td>*M- MAT# = 1 N-REF#000002 O-REF#000002 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line is the same in both files. 00000200</td>
</tr>
<tr>
<td>*I-RP INS# = 1 N-REF#000003 O-REF#000003 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line differs from the text in the &quot;old&quot; file. 00000300</td>
</tr>
<tr>
<td>*D-RP DEL# = 1 N-REF#000003 O-REF#000003 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line differs from the text in the &quot;new&quot; file. 00000300</td>
</tr>
<tr>
<td>*M- MAT# = 1 N-REF#000004 O-REF#000004 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line is the same in both files. 00000400</td>
</tr>
<tr>
<td>*I- INS# = 1 N-REF#000005 O-REF#000005 <em><strong><strong>ASMFSUPC CHANGE HEADER</strong></strong></em></td>
<td>This line is in the &quot;new&quot; file, but not in the &quot;old&quot;. 00000500</td>
</tr>
</tbody>
</table>

Figure 287. Example of a UPDLDEL update file

Update MVS sequenced 8 file

The process option UPDMVS8 produces a file that contains both control records and new file source lines using sequence numbers from old file columns 73 to 80.

The UPDMVS8 process option is available for the LINE Compare Type only.
Update files

The format of the generated data may be suitable as input to the IEBUPDTE utility. See MVS/DFP Utilities for information about the contents of this file. Figure 288 shows an example of a UPDMVS8 update file created on CMS.

```
1 ./ CHANGE LIST=ALL OLD:JLEVERIN TEST1 A
2 ./ DELETE SEQ1=00000100,SEQ2=00000100
3 This line is reformatted; the spacing in the "new" file differs. 00000100
4 ./ DELETE SEQ1=00000300,SEQ2=00000300
5 This line differs from the text in the "old" file. 00000300
6 This line is in the "new" file, but not in the "old". 00000500
```

Figure 288. Example of a UPDMVS8 update file

1 Control record. Lists old file name.
2 Control record. Shows record deleted at sequence number 100 on the old file.
3 Inserted line from the new file.
4 Control record. Shows record deleted at sequence number 300 on the old file.
5 Inserted line from the new file.
6 Inserted line from the new file.

The files to be compared must have fixed-length 80-byte records. They must also contain sequence numbers.

Update prefixed delta lines

The process option UPDDEL produces a variable-length update file that contains header records and complete delta lines from the input files, up to a maximum of 32K bytes in each output line.

The UPDDEL process option is available for the LINE compare type only.

Figure 289 on page 532 shows an example of a UPDDEL update file.

Prefix codes (I for insert and D for delete) together with the line number precede lines from the input files. Sub-totals are shown before each group of flagged records:

- INS# for the number of consecutive inserted records,
- DEL# for the number of consecutive deleted records,
- RPL# for the number of consecutive pairs of replaced records, and
- MAT# for the number of intervening matched records.
Update files

Figure 289. Example of a UPDPDEL update file

The example in Figure 289 has the following lines:

1. Comment line. Lists the new file name and the date and time of the comparison.
2. Comment line. Lists the old file name.
3. Header comment line.
4. Sub-total line showing that 1 replaced pair of records follow.
5. The line that has replaced the line in the old file.
6. The line in the old file that has been replaced.
7. Sub-total line showing that 1 inserted record follows.
8. The line that has been inserted in the new file.

Update sequenced 0 file

The process option UPDSEQ0 produces a control file that relates insertions and deletions to the relative line numbers of the old file. UPDSEQ0 is like UPDCMS8, but uses relative line numbers instead of sequence numbers from the old file.

The UPDSEQ0 process option is available for the LINE compare type only.

This update file is characterized by control statements followed by source lines from the new file. All UPDSEQ0 control statements are identified by the characters ".//" in columns 1 and 2 of the 80-byte record, followed by one or more spaces and additional space-delimited fields. The control statements are insert (I), delete (D), replace (R), and comment (*). Control statement data does not extend beyond column 50. Figure 290 shows an example of a UPDSEQ0 update file.

Figure 290. Example of a UPDSEQ0 update file
Update summary only files

The process option UPDSUMO produces an update file of 4 lines: new file name, old file name, column headers, and a summary totals line.

The UPDSUMO process option is available for the LINE, WORD, and BYTE compare types.

The summary totals line has a “T” in column 1. The summary statistics are located at fixed offsets in the output line. The file has a line length of 132 bytes.

Update summary only file (LINE compare type)

```
* NEW: JLEVERIN TEST2 A 07/11/2008
* OLD: JLEVERIN TEST1 A
* NEW-PROC OLD-PROC NEW-INS OLD-DEL TOT-CHG TOT-RFM FI-PROC FI-DIFF
T 00000005 00000004 00000002 00000001 00000003 00000001 00000001

. . (Continuation of previous data lines) . . . . . . . . . .

13.39

N-NOT-PD O-NOT-PD N-DP-LNS O-DP-LNS
00000000 00000000 00000000 00000000
```

Figure 291. Example of a UPDSUMO file using LINE compare type

In Figure 291, the update summary file is shown in split screen mode. The bottom half of the screen shows the result of scrolling right to see the remainder of the member.
Update files

The following table shows the column numbers used to display the update information:

Table 30. UPDSUMO format using LINE compare type

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEW-PROC</td>
<td>Number of new lines processed</td>
</tr>
<tr>
<td></td>
<td>OLD-PROC</td>
<td>Number of old lines processed</td>
</tr>
<tr>
<td></td>
<td>NEW-INS</td>
<td>Number of new line insertions</td>
</tr>
<tr>
<td></td>
<td>OLD-DEL</td>
<td>Number of old line deletions</td>
</tr>
<tr>
<td></td>
<td>TOT-CHG</td>
<td>Total number of line changes</td>
</tr>
<tr>
<td></td>
<td>TOT-RFM</td>
<td>Total number of reformat</td>
</tr>
<tr>
<td></td>
<td>FI-PROC</td>
<td>Total number of files/members processed</td>
</tr>
<tr>
<td></td>
<td>FI-DIFF</td>
<td>Total number of files/members different</td>
</tr>
<tr>
<td></td>
<td>N-NOT-PD</td>
<td>Total new files/members not processed</td>
</tr>
<tr>
<td></td>
<td>O-NOT-PD</td>
<td>Total old files/members not processed</td>
</tr>
<tr>
<td></td>
<td>N-DP-LNS</td>
<td>Total number of new “do not process” lines</td>
</tr>
<tr>
<td></td>
<td>O-DP-LNS</td>
<td>Total number of old “do not process” lines</td>
</tr>
</tbody>
</table>

Update summary only file (WORD compare type)

```
1  NEW:  JLEVERIN TEST2  A  07/11/2008
2  OLD:  JLEVERIN TEST1  A
3  NEW-PROC OLD-PROC NEW-INS OLD-DEL TOT-CHG FI-PROC FI-DIFF
4  T  00000049  00000037  00000013  00000013  00000013  00000000  00000000

... (Continuation of previous data lines) ...
```

```
1  13.48
2  N-NOT-PD  O-NOT-PD
3  00000000  00000000
```

Figure 292. Example of a UPDSUMO file using WORD compare type

1 Comment line. Lists the new file name and the date and time of the comparison.
2 Comment line. Lists the old file name.
3 Comment line. Header line. Columns are explained in Table 31.
4 Totals line.

In Figure 292, the UPDSUMO file is shown in split screen mode. The bottom half of the screen is scrolled right to show the remainder of the member.

The following table shows the column numbers used to display the update information:

Table 31. UPDSUMO format using WORD compare type

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEW-PROC</td>
<td>Number of new words processed</td>
</tr>
</tbody>
</table>

534 z/OS V1R13.0 ISPF User's Guide Vol II
Table 31. UPDSUMO format using WORD compare type (continued)

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLD-PROC</td>
<td>Number of old words processed</td>
</tr>
<tr>
<td></td>
<td>NEW-INS</td>
<td>Number of new word insertions</td>
</tr>
<tr>
<td></td>
<td>OLD-DEL</td>
<td>Number of old word deletions</td>
</tr>
<tr>
<td></td>
<td>TOT-CHG</td>
<td>Total number of word changes</td>
</tr>
<tr>
<td></td>
<td>FI-PROC</td>
<td>Total number of files/members processed</td>
</tr>
<tr>
<td></td>
<td>FI-DIFF</td>
<td>Total number of files/members different</td>
</tr>
<tr>
<td></td>
<td>N-NOT-PD</td>
<td>Total new files/members not processed</td>
</tr>
<tr>
<td></td>
<td>O-NOT-PD</td>
<td>Total old files/members not processed</td>
</tr>
</tbody>
</table>

Update summary only file (BYTE compare type)

| 1  | * NEW: JLEVERIN TEST2 A 07/11/2008 |
| 2  | * OLD: JLEVERIN TEST1 A           |
| 3  | * NEW-PROC OLD-PROC NEW-INS OLD-DEL TOT-CHG FI-PROC FI-DIFF |
| 4  | T 00000400 00000320 00000089 00000009 00000005 00000001 00000001 |

... (Continuation of previous data lines) ... ... ... ...

COMMAND ====> _  
SCROLL ====> PAGE

| 1  | 13.51 |
| 2  | N-NOT-PD O-NOT-PD |
| 4  | 00000000 00000000 |

Figure 293. Example of a UPDSUMO file using BYTE compare type

1  Comment line. Lists the new file name and the date and time of the comparison.
2  Comment line. Lists the old file name.
3  Comment line. Header line. Columns are explained in Table 32
4  Totals line.

In Figure 293, the UPDSUMO file is shown in split screen mode. The bottom half of the screen shows the result of scrolling right to see the remainder of the member.

The following table shows the column numbers used to display the update information:

Table 32. UPDSUMO format using BYTE compare type

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEW-PROC</td>
<td>Number of new bytes processed</td>
</tr>
<tr>
<td></td>
<td>OLD-PROC</td>
<td>Number of old bytes processed</td>
</tr>
<tr>
<td></td>
<td>NEW-INS</td>
<td>Number of new byte insertions</td>
</tr>
<tr>
<td></td>
<td>OLD-DEL</td>
<td>Number of old byte deletions</td>
</tr>
<tr>
<td></td>
<td>TOT-CHG</td>
<td>Total number of byte changes</td>
</tr>
</tbody>
</table>
### Update files

Table 32. UPDSUMO format using BYTE compare type (continued)

<table>
<thead>
<tr>
<th>Column #</th>
<th>Identifier</th>
<th>Data Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FI-PROC</td>
<td>Total number of files/members processed</td>
</tr>
<tr>
<td></td>
<td>FI-DIFF</td>
<td>Total number of files/members different</td>
</tr>
<tr>
<td></td>
<td>N-NOT-PD</td>
<td>Total <em>new</em> files/members not processed</td>
</tr>
<tr>
<td></td>
<td>O-NOT-PD</td>
<td>Total <em>old</em> files/members not processed</td>
</tr>
</tbody>
</table>
Appendix D. Accessibility

Publications for this product are offered in Adobe Portable Document Format (PDF) and should be compliant with accessibility standards. If you experience difficulties when using PDF files, you may view the information through the z/OS Internet Library website or the z/OS Information Center. If you continue to experience problems, send an email to mhvrcfs@us.ibm.com or write to:

IBM Corporation
Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to z/OS TSO/E Primer, z/OS TSO/E User’s Guide, and z/OS ISPF User’s Guide Vol I for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

z/OS information

z/OS information is accessible using screen readers with the BookServer or Library Server versions of z/OS books in the Internet library at:

http://www.ibm.com/systems/z/os/zos/bkserv/

One exception is command syntax that is published in railroad track format, which is accessible using screen readers with the Information Center, as described in “Dotted decimal syntax diagrams.”

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing the Information Center using a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always
present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 \* FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* \* FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol giving information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should refer to separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

- ? means an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

- ! means a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only
one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP will be applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP only applies to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

• * means a syntax element that can be repeated 0 or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Notes:
1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.
3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.

• + means a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times; that is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.
Notices

This information was developed for products and services offered in the U.S.A. or elsewhere.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan, Ltd.
1623-14, Shimotsuruma, Yamato-shi
Kanagawa 242-8502 Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.
IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

Site Counsel
IBM Corporation
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrates programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Policy for unsupported hardware

Various z/OS elements, such as DFSMS, HCD, JES2, JES3, and MVS, contain code that supports specific hardware servers or devices. In some cases, this device-related element support remains in the product even after the hardware devices pass their announced End of Service date. z/OS may continue to service element code; however, it will not provide service related to unsupported hardware devices. Software problems related to these devices will not be accepted.
for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.

**Programming Interface Information**

This publication primarily documents information that is NOT intended to be used as Programming Interfaces of ISPF.

This publication also documents intended Programming Interfaces that allow the customer to write programs to obtain the services of ISPF. This information is identified where it occurs, either by an introductory statement to a chapter or section or by the following marking:

+---------------------Programming Interface information----------------------+

+------------------End of Programming Interface information------------------+

**Trademarks**

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at [http://www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml)

UNIX is a registered trademark of The Open Group in the United States and other countries.

Windows and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.
Trademarks
Index

Special characters
: (colon), using with function key definition 40
/ (data set name character), Data Set List utility (option 3.4) 155
* SuperC process statement 472
IM control word 322
* SuperC process statement 472
% field, Data Set List utility (option 3.4) 155
%Used field, VTOC Summary Information panel 160
%USED keyword, SORT command 177
> (greater than) using with function key definition 41
>xxxxx action, ACTION column 198
= (repeat last command) line command, Data Set List utility (option 3.4) 169
= workstation command 446
"To" panel for copying 135
"To" panel for moving 137

Numerics
3850 virtual volumes allocating a data set to 117
5550 terminal 200

A
A (ANSI) parameter, Printer Carriage Control field 194
A (ASA printer characters) record format 119
AA (auditor auditing) line command z/OS UNIX Directory List Utility (option 3.17) 278
accessibility 537
ACCOUNT command, TSO 117
ACCOUNT, TSO 97
ACCTBAR workstation command 445
Activate/Create Profile DS Name field, SuperC Profile Manager panel 227
AD/Cycle C/370 compiler batch processing 364
batch processing (option 5.15) 364
foreground processing 350
foreground processing (option 4.15) 349
Additional IBM Program Development Products panel 419
Additional Input Libraries field, Foreground Print Options panel 325
address, APPC 62
address, TCP/IP 61
AFTER parameter Breakpoint Primary Option Menu 417
When field 413
AIX (“AIX”) entry in Volume field 142
Alias action, Action column 198
alias entries, processing 182
Alias members, searching 497
Alias members, SuperC compare 497
ALL parameter
FIND command 86
Function field 409
Variable field 410
allocate action prompt workstation command 445
Allocate command 169
ALLOCATE command, TSO 116
ALLOCATE command, TSO 116
allocate SMS workstation command 446
allocate workstation command 445
Allocation Error panel 121
allow mixed-case in action field option 197
Always save table in originating data set 248, 259
American National Standard Institute 194
APF authorized status 294, 301
APPC address definition 62
APPEND command
Data Set List utility (option 3.4) 170
parameters 170
Application ID field, Command Table Utility panel 196
ASCII 87
aspect ratio parameter for PRINTG 28
Assembler concatenation sequence 325
Assembler H (option 4.1) allocation data sets overview 327
Assembler H (option 5.1) 356
Assembler Options field
Foreground Assembler H (option 4.1) 328
Attrib display view, Initial View field 144
audit information, z/OS UNIX 295
Batch (option 5) (continued)
JCL generation for compilers 354
Linkage Editor (option 5.7) 360
Member Parts List (option 5.12) 363
overview 2
password protection, lack of 353
PL/I optimizing compiler (option 5.5) 358
processing sequence 352
VS COBOL II compiler (option 5.2) 357
VS COBOL II interactive debug (option 5.10) 362
VS FORTRAN compiler (option 5.3) 358
VS Pascal compiler (option 5.6) 359
Batch Assembler H panel 356
Batch Linkage Edit panel 361
Batch Member Parts List panel 363
Batch options
ISPDTL.C 364
OS/390 C/C++ 364
BATCH parameter, Print Mode field 184
Batch PL/I Optimizing Compile panel 359
Batch Selection panel 351
Batch Selection panel with JCL generated 354
Batch VS COBOL II Compile panel 357
Batch VS FORTRAN Compile panel 358
Batch VS Pascal Compile panel 360
BEFORE parameter
Breakpoint Primary Option Menu 417
When field 413
Binary copy option 281, 284, 285, 288
Blank action, Action column 198
Blank lines after headings (in export report) 261
blank parameter
Active field
breakpoints 413
function traces 409
variable traces 411
DSORG field 154
Operation field 411
Pool field 411
Printer Carriage Control field 194
Select Pack option for “To” data set field 135
Specify additional search strings field 231
When field 413
BLKS parameter, Space Units field 118
BLKSZ field 155
keyword 177
SORT command 177
Block size field, Allocate New Data Set panel 119

© Copyright IBM Corp. 1980, 2011
breakpoints

defined 411

with qualification parameter

values 414

Breakpoints (option 7.8)

Cancel (option C) 416

CANCEL primary command 413

cancel display 415

D (delete) line command 413

END primary command 413, 415

finding a breakpoint 416

Go (option G) 416

I (insert) line command 413

input errors 415

LOCATE primary command 413

primary command 413

QUAL primary command 413

qualification 415

qualification parameter values 413

R (repeat) line command 413

specifying breakpoints 412

syntax checking 415

Breakpoints panel 412

Browse

providing Unicode support 80

BROWSE command

BROWSE 81

COLUMNS 82

DISPLAY 82

displaying after processing 81

FIND 85

HEX 89

LOCATE 91

overview 81

parameter member 81

RESET 92

SUBMIT 81, 92

Browse Command - Entry Panel 82

Browse data display panel 80

Browse field, SCRIPT/VS Processor panel 336

Browse hexadecimal display data 91

vertical 90

Browse Mode

Browse data display 80

current position in data set 91

ending Browse 81

overview 1, 81

selecting Browse 80

valid logical record length 78

valid record format 78

BROWSE Output field, SuperCE Utility panel 221

browse output mode 208, 221, 231, 241

Browse table command 245, 246

browse table panel 247

Browse workstation command 445

Byte parameter, Compare Type field 219

C

C (catalog data set) line command, Data Set List Utility (option 3.4) 166

C (continuation) keyword, Search-For utility (option 3.14) 233

C or CO (copy out) line command z/OS UNIX Directory List Utility

(Option 3.17) 279

C/370 compiler

batch processing (option 5.13) 363

foreground processing (option 4.13) 349

C/C++ for OS/390 (option 4.19) 350

CALL statement format 345

CANCEL command

Breakpoints (option 7.8) 413

Command Table utility (option 3.9) 199

Dialog Test (option 7) 376

table utility 250

Tables (option 7.4) 396, 398

Traces (option 7.7) 410

Variables (option 7.3) 387

CANCEL, Traces (option 7.7) 411

catalog workstation command 445

CATALOG, Sort command field 178

CC parameter, DISPLAY command 83

CCSID

Unicode support in Browse 80

CCSID parameter, DISPLAY command 84

char parameter, DISPLAY command 83

character string 87

character string, LOCATE 377

CHARS parameter, FIND command 85

CHG operation 411

CHGNV SuperC process statement 471

CHNG parameter, Listing Type field 210, 219

Cl (copy in) line command z/OS UNIX Directory List Utility

(Option 3.17) 284

Class field, Outlist Utility panel 193

Client/Server component download option 188

Client/Server download 190

CLIST

error exits 368

CLIST TERMIN command procedure statements 368

closing a data set 81

CMD field 381

CMPBOFS SuperC process statement 473

CMPCOLM SuperC process statement 474

CMPCOLMN SuperC process statement 474

CMPCOLMO SuperC process statement 474

CMPLINE SuperC process statement 475

CMPEXECT SuperC process statement 476

COBOL Interactive debug (option 4.10A)

overview 341

print output data sets 343

processing sequence 342

symbolic debug data sets 343

COBOL Interactive Debug panel 342

COBOL parameter, Sequence Numbers field 212

col-1 and col-2 parameters, FIND command 85

COHEAD SuperC process statement 478

COLOR

color defaults 51

Color used to display table key values 247, 260

COLS parameter, DISPLAY command 83

column limitations 88

column-identification line defined 82

removing with RESET command 92

COLUMNS command, Browse 82

Command (option 6)

interrupting a TSO command, CLIST, or REXX exec 368

overview 2

restrictions for entering a CLIST or REXX exec 368

Session Manager, using 368

terminal settings 369

TSO commands, CLISTs, and REXX EXECs, entering 367

command action prompt workstation command 445

Command field, display view panels 153

command line placement, specifying 24

command prefix (&), displaying commands after processing 81

command stacking

specifying delimiter 30

Command Table Editing panel 197

command table line commands edit 199

view 200

Command Table utility (option 3.9) line commands

D (delete) 199

I (insert) 200

R (repeat) 200

primary commands

CANCEL 199

END 199

Command Table Utility panel 196

command time limit

z/OS UNIX directory list 312

commands

Dialog Test 375

displaying after processing 81

entering long commands 365

ISPF command shell 440

line 2

primary 2

reading syntax diagrams xiv

TSO command 438

Workplace 445

WS command 439

Compare Type field, SuperCE Utility panel 218

Compare types, SuperC

Byte 219

File 218

Line 218

Word 218

compress request exit 104, 167
compress workstation command 446
CondB parameter, Browse Output field 221
CONFIRM command 171
Data Set List utility (option 3.4) 171 parameters
       OFF  171
       ON  171
Confirm Delete field, Data Set List Utility panel 145
Confirm Delete panel 124
confirm member delete 145
Confirm Purge panel 125
conversion table
       copying z/OS UNIX files 281, 284, 286, 288
COPY command 167
Copy Format Selection List panel 204
copy member 112
COPY statement 322
Copy Format Selection List panel 204
COPY command 167
created field 202
Created field 221
cylinder number field 154
cylinder number values (changing) 54
cylinder number values (not changing) 54
cylinder number values (changing) 54
data set control blocks 160
Data Set download 191
Data Set Information panel
       long format 105
       long format for managed data sets 107
       short format 109
       short format for managed data sets 110
data set list primary commands
       CONFI M 171
       EXCLUDE 171
       FIND and RFIND 172
       LOCATE 173
       MEMBER 173
       REFRESH 174
       RESET 174
       SAVE 174
       SHOWCMD 175
       SORT 177
       SRCHFOR 178
       VA,VS,VT,VV 179
data set list utility (option 3.4) 171
       data set list exit 141
       display views and panels
       Attrb 144, 150
       sequence of display views 144
       Space 144, 150
       Total 144, 151
       Volume 144, 148
       line commands
      = (repeat last command) 169
      B (browse data set) 163
      C (catalog data set) 151, 166
      D (delete data set) 165
      E (edit data set) 163
      F (free unused space) 167
      I (data set information) 166
      M (display member list) 164
      P (print data set) 166
      R (rename data set) 166
      S (information (short)) 166
      U (uncatalog data set) 166
      V (view data set) 163
      X (print index listing) 167
      Z (compress data set) 167
       line commands that do not support managed data sets
      C (catalog data set) 166
      U (uncatalog data set) 166
       line commands that support managed data sets
      I (data set information) 166
      R (rename data set) 166
      S (information (short)) 166
      X (print index listing) 167
       list data set 174
       options
      blank - display data set list 147
      P - Print data set list 159
      PV - Print VTOC information 161
      V - Display VTOC information 159
       primary commands
      CONFI M 171
      FIND 172
      LOCATE 173
      RFIND 172
      SAVE 174

Data Set List utility (option 3.4)
       (continued)
primary commands (continued)
SHOWCMD 175
SORT 177
Data set list utility line commands
       Allocate 169
       copy 167
       exclude data set 168
       move 167
       RefAdd 167
       reset 167
       Search-For 168
       Search-ForE 169
       SuperC 168
       SuperCE 168
       unexclude data set 168
       unexclude first data set 168
       unexclude last data set 168
Data Set List Utility panel 140
Data Set List Utility Primary Commands 169
Data Set List Utility SHOWCMD panel 176
Data Set Name field
       Foreground Member Parts List
       panel 347
       SuperC Submit Batch Jobs panel 214
Data set name type field, Allocate New Data Set panel 119
data set organization 154
Data Set Password 98
Data Set utility (option 3.2)
options
      A - Allocate new data set 114
      blank - data set information 126
      C - Catalog data set 122
      D - Delete entire data set 124
      R - Rename entire data set 122
      S - Data set information (short) 126
      U - Uncatalog data set 124
      options that do not support managed data sets
      C - Catalog data set 122
      U - Uncatalog data set 124
      options that support managed data sets
      blank - Data set information 126
      R - Rename entire data set 122
      S - Data set information (short) 126
      processing with RACF
      X - Print index listing 167
      R - Rename 123
      R - rename entire data set (GDG) 122
DAU data set organization, DSORG field 154
DBCS considerations, SuperC 207
DBCS data, copying 281, 284, 285, 288
DDDD format, Expiration Date field 120
Debug command data set field 362
Debug Options field, Foreground
      FORTRAN interactive debug (option 4.11) 345
      default keylist for Help Panels 38
END command (continued)

Command Table utility (option 3.9) 199
Dialog Test (option 7) 377
Variables (option 7.3) 387
Enter Session Manager Mode field 368
Environ settings 57
ENVIRON system command 57
environment, Dialog Test 371
errors
message displayed during dialog test processing 375
reasons for occurring during Dialog Test 375
trigger statement 324
EXCLUDE command 171
Exclude Data Set command 168
ExecutionParms field
COBOL interactive debug 343
Exit (option 7.X) ending Dialog Test 418
Exit (option X) overview 3
EXPAND primary command 248
Expanding Packed Data 321
expansion trigger, defined 321
Expiration data field, Allocate New Data Set panel 120
Expires field, Data Set List utility 155
EXPIRES keyword, SORT command 178
explosion chain, defined 349
EXPORT command 251
export table to data set 263
data set attributes 262
export data set 252
Export Layout panel 251
export report options 260, 264
EXTENDED
data set name type 106, 110
Extended Attributes field, Allocate New Data Set panel 119
Extended Attributes information, z/OS UNIX 294
extended binary coded decimal interchange code (EBCDIC)
defining data type 202
using numbered data 203
Extended Search-For - Concatenation
Batch Entry panel 240
Extended Search-For - Concatenation Data Set Entry panel 239
Extended Search-For Compare utility applications 457
options
B - submit batch search-for 240
Blank - search-for strings 239
E - edit Search-For statements data set 241
P - select Search-For process options 241
overview 235
process options 459
SuperCE program description 456
utility differences 455
Extended Search-For Utility panel 236
extended utilities 455
extension variables 248

E

E (EBCDIC) parameter, Field Type field 202
E (edit data set) line command, Data Set List utility (option 3.4) 163
edit
double-byte character set
support 100
Edit (option 2)
editing a data set 95
overview 2
valid logical record length 95
valid record format 95
edit action prompt workstation command 445
EDIT command, Browse 84
Edit Entry Panel 96
EDIT primary command
z/OS UNIX directory list 307
Edit table command 245, 246
date panel 247
edit workstation command 445
edit, command table line command 199
d each, distributed 67, 99
editing a member 112
END

Traces (option 7.7) 410, 411
END command

Breakpoints (option 7.8) 413, 415
F
F (foreground) parameter, Mode field 208
F (foreground) parameter, Mode field, Search-For Utility panel 231
F (free unused space) line command, Data Set List utility (option 3.4) 167
F (function) pool, Pool field 410
F record format, Record Format field 119
false match, correcting in SuperC 496
F (foreground) parameter, Mode field, Search-For Utility panel 231
family printer type parameter for PRINTG 28
field 413
Field (continued)
Service Name 417
specifying a DBCS value 391
Status for this screen 400, 401
Table available 400
Table name 391
Table name 394
Table on disk 401
Time created 400, 401
Update count 400, 402
using the Value field 391
variable 391
Virtual storage size 400, 402
When 413
WSCMD 382
Field Heading field, table utility 251
Field Length field, Format Definition panel 202
Field Number field, Format Definition panel 202
Field Type field, Format Definition panel 202
field1 parameter, SORT command 177
field2 parameter, SORT command 177
FILE command, table utility 252
File parameter, Compare Type field 218
FILEXFER service 191
FIND command 172
ASCII strings 87
Browse
1-byte hexadecimal strings 89
character strings, use of 87
column limitations 88
conditions for character string matches 87
displaying column numbers searched 86
omitting string delimiters 86
picture strings, use of 88
rules for using col-1 and col-2 88
specifying FIND strings 85
starting point, direction, and extent of search 86
string not found actions 87
text strings, use of 87
using RFIND 89
using string delimiters 86
search operands 85, 86
string matching operands 85
table utility 253
USASCII strings 87
UTF8 strings 87
FIND primary command
z/OS UNIX directory list 307
FIRST parameter, FIND command 86
Foreground (option 4)
AD/Cycle C/370 compiler (option 4.15) 349
AD/Cycle C/370 compiler (option 4.16) 350
Assembler H (option 4.1) 327
C/370 compiler (option 4.13) 349
COBOL interactive debug (option 4.10A) 341
defined 317
expanding packed data 321
Foreground (option 4) (continued)
FORTRAN interactive debug (option 4.11) 344
input data sets 324
Linkage Editor (option 4.7) 332
list data sets 325
Members Parts List (option 4.12) 345
object data sets 326
overview 2
password protection 326
PL/I optimizing compiler (option 4.5) 330
processing sequence 318
REXX/370 compiler (option 4.14) 349
SCRIPT/VS (option 4.9) 334
using the TSO/E Information Center
Facility 327
VS COBOL II compiler (option 4.2) 328
VS COBOL II interactive debug (option 4.10) 341
VS FORTRAN compiler (option 4.3) 329
VS Pascal compiler (option 4.6) 331
Foreground Assembler H panel 328
Foreground Environment Feature 334
Foreground Linkage Edit panel 333
Foreground Members Parts List panel 346
Foreground Options
C/C++ for OS/390 350
ISPDTLC 350
Foreground PL/I Optimizing Compile panel 331
Foreground Print Options for Style panel 337
Foreground Print Options panel 320, 327
Foreground Selection panel 317
Foreground VS COBOL II Compile panel 329
Foreground VS FORTRAN Compile panel 330
Foreground VS Pascal Compile panel 332
Format Definition panel 202
Format Name field
Format Specification panel 201
Format Selection List panel 204
Format Specification panel 201
Format Specification utility (option 3.11) line commands
D (deleting a format) 205
R (renaming a format) 205
S (selecting a format) 206
U (updating a format) 206
options
A - add a new format 202
C - copy formats 203
D - delete a format 204
L or Blank - display format list 204
U - update a format 204
primary commands
LOCATE 205
SORT 205
Maximum rows searched to determine column width 248, 259
MB parameter, Space Units field 118
member
copy from z/OS UNIX file 280
copy to z/OS UNIX file 284
MEMBER command
member parameter
member not found 349
Member list workstation command 445
member list display
expanded line command field 248
Member list workstation command 445
member not found 349
member
MB parameter, Space Units field 118
Movement
Move workstation command 445
move/copy 442
Move/Copy utility (option 3.3)
alias entries 138
options
C and CP - copying data sets 134
M and MP - moving data sets 136
with load modules 137
Move/Copy Utility panel 133
Multiple Search Strings panel 232
multiple search strings, entering 232
multivolume data sets 117, 141
MVOL, Sort command field 178
MX (modify extended attributes) line command
z/OS UNIX Directory List Utility
(move option 3.17) 301
N
N (new) line command
z/OS UNIX Directory List Utility
(open option 3.17) 302
Name field
display view panels 153
NAME keyword
LOCATE command 205
SORT command 177, 205
name, Writer 184
NCHGT SuperC process statement 471
new data set, defined for SuperC
description 206
used with SuperCE 216
New DS Name field, SuperCE Utility
panel 217
New Output Class field, Outlist Utility
panel 194
New UserID field, Reset ISPF Statistics
panel 180
New Version Number field, Reset ISPF Statistics
panel 180
NEWAPPL field 382
NEWPOOL field 382
NEXCLUDE SuperC process statement 481
NEXT parameter, FIND command 86
NFOCUS SuperC process statement 481
NO parameter
Active field
breakpoints 413
function traces 409
variable traces 411
Browse Output field 221
Confirm Delete Request field,
deselect 145
Replace like-named PDS members
field 135
Select pack option For “To” data set
field 135
Specify additional search strings field,
deselect 231
Table available field 400
Table on disk field 401
NOACTBAR workstation command 445
NOCC parameter, DISPLAY
command 83
Nolist parameter, Listing Type field 211,
219
NOP action, ACTION column 198
NOSEQ parameter, Sequence Numbers
field 211
NOT OPEN parameter 400, 401
NOTES 541
NOWRITE parameter 401
NTITLE SuperC process statement 487
Number of Copies field, Hardcopy Utility
panel 187
NY2AGE SuperC process statement 488
NY2C SuperC process statement 489
NY2D SuperC process statement 489
NY2P SuperC process statement 489
NY2Z SuperC process statement 489
O
object data sets 326
Object field
Foreground VS FORTRAN compiler
(option 4.3) 330
OBROWSE command
browsing z/OS UNIX regular
file 279
OCHGT SuperC process statement 471
OEDIT command
editing ASCII file 289
copying z/OS UNIX regular file 289,
307
OEXCLUDE SuperC process statement 481
OFF parameter
CONFIRM command 171
HEX command 89
SHOWCMD command 175
OFOCUS SuperC process statement 481
OGET command
copying z/OS UNIX file to a data
set 280
copying z/OS UNIX file to PDS
member 282
Old DS Name field, SuperCE Utility
panel 217
Old parameter, “To” Data Set Disposition
file 135
ON parameter
CONFIRM command 171
HEX command 89
SHOWCMD command 175
Open option field
NOWRITE parameter 401
SHRNOWRITE parameter 401
SHRWRITE parameter 401
WRITE parameter 401
OPEN parameter 400, 401
Open table in SHARE mode 259
Open workstation command 445
OPT field 381
option
Cancel (option C) 416
Go (option G) 416
option selection
0 - ISPF Settings 1
1 - View 1
10 - SCLM 2
SUFFIX parameter, FIND command 87
SuperC
  CSECT compare 498
SuperC Activate/Create Profile options
  A - activate 227
  C - create 227
  D - default 228
SuperC alias members 497
SuperC CLIST interface 228
SuperC command 168
SuperC compare types
  Byte 219
  File 218
  Line 218
  Word 218
SuperC Compare utility
  correcting false matches 496
  filtering priority for input lines 494
  find match example 495
  invoking directly 498
  partitioning and processing large files 497
SuperC comparison listing (continued)
  | (change bar) 504
  change bar (|) 504
  column title line 502
  D (deleted line) 503
  DC (delete compose) 504
  DEL= (delete TYPE code) 504
  delete compose (DC) 504
  delete moved (DM) 504
  delete replace (DR) 503
  deleted line (I) 503
  DLM DUP listing example 509
  DM (delete moved) 504
  DMR= (delete-move-reformat TYPE code) 504
  DMV= (delete-move TYPE code) 504
  DR (delete replace) 503
  FILE compare of file groups 511
  FILE (inserted line) 503
  I (inserted line) 503
  IC (insert compose) 504
  ID column 502
  ID column 502
  ID column (listing file) 502
  IM (insert moved) 504
  IMR= (insert-move-reformat TYPE code) 504
  IMV= (insert-move TYPE code) 504
  INS= (insert TYPE code) 504
  insert compose (IC) 504
  insert moved (IM) 504
  inserted line (I) 503
  LEN column 502
  LEN column 502
  LOC S listing example 512
  MAT= (match TYPE code) 504
  match compose (MC) 503
  MC (match compose) 503
  member summary section 501
  N-LN# 502, 503
  N-LN# (listing file) 502, 503
  NARROW listing example 508, 509
  O-LN# 502, 503
  O-LN# (listing file) 502, 503
  overall summary section 501
SuperC comparison listing
  page headings
    compare date 502
    compare time 502
    new file ID 502
    old file ID 502
    page number 502
    page number 502
    page number 502
    printer control character 502
    program date 502
    program ID 502
    program version 502
    reformat new (RN) 503
    reformat old (RO) 503
    RFM= (reformat TYPE code) 504
    RN (reformat new) 503
    RO (reformat old) 503
    RPL= (replace TYPE code) 504
    scale 503
    section title line 502
    side-by-side listing example 508, 510
    source line column 502
    SOURCE LINE column 502
    SOURCE LINE column (listing file) 502
    TYPE column 502
    TYPE column (listing file) 502
    WIDE listing example 510
SuperC comparison process statements
 .* 472
  * 472
  CHNGV 471
  CMPBOFS 473
  CMPCOLM 474
  CMPCOLMN 474
  CMPCOLMO 474
  CMPLINE 475
  CMPSECT 476
  COLHEAD 478
  DPLINE 479
  DPLINEC 479
  LNCT 482
  LSTC OLM 482
  NCHGT 471
  NEXCLUDE 481
  NFOCUS 481
  NITLE 487, 502
  NYAGE 488
  NYC 489
  NYD 489
  NYZ 489
  OCHGT 471
  OEXCLUDE 481
  OFOCUS 481
  OITITLE 487, 502
  OYAGE 488
  OYC 489
  OYD 489
  OYP 489
  OYZ 489
  REVREF 483
  SELECT 486
  SELECTF 511
  SLIST 487
  WORKSIZE 488
  Y2PAST 492
SuperC comparison type
  LINE 502
  WORD 513
SuperC Defaults panel 229
SuperC extended workstation command 446
SuperC listing type
  DELTA 502
  UPDCMS8 525
  UPDCNTRL 526
  UPDLDEL 530
  UPD MVS8 530
  UPDPDEL 531
  UPDREV 524
  UPDREV2 525
  UPDSEQ0 532
  UPDSUMO 533
SuperC listing types
  CHNG 210, 219
  Delta 210, 219
  Long 210, 219
  Nolist 211, 219
  OVSUM 210, 219
SuperC listings 501
SuperC load module compares 498
SuperC Member List panel 212
SuperC process options
  ALLMEMS 460
  ANYC 460
  APNDLST 461
  APN DUPD 461
  CKPACKL 461
  CNPML 461
  COBOL 461
  COVSUM 461
  DLM DUP 462, 509
  DLREFM 462
  DPACMT 462
  DPADCMT 462
  DPBLKCL 462
  DPCBCMT 462
  DPCPCMT 462
  DPFTCMT 462
  DPMACMT 462
  DPPLICMT 462
  DPSCCM 463
  FINDALL 463
  FMSTO P 463
  FMV LNS 463, 504
  GWCBL 463, 504
  LOCS 464, 512
  LONGLN 464
  NARROW 465, 508, 509
  NOPRTCC 465, 502, 513
  NOSEQ 465
  NOSUMS 465
  REFMVOR 465
  SDU P 465
  SEQ 465
  SYSCIN 465
  UPDCMS8 466
  UPDCNTRL 466
  UPDLDEL 466
  UPD MV8 466
  UPDPDEL 466
  UPDREV 466
  UPDREV2 467
SuperC utility (option 3.12) (continued)
submit options (continued)
2 - generate output listing using completed //OUTDD DD 215 blank - generate output listing to SYSOUT CLASS 213 utility differences 455 SuperC Utility panel 207 SuperC utility, requirements for 456 SuperC workstation command 446 SuperC, DBCS considerations 207 SuperC - Concatenation Batch Entry panel 223 SuperC - Concatenation Interactive Entry panel 222 SuperC - Profile Manager panel option A - Activate 227 option C - Create 227 option D - Defaults 228 SuperC command 168 SuperC Profile Browse Display panel 226 SuperC utility (option 3.13) applications 457 options A - activate profiles and defaults 225 B - submit batch data set compare 222 Blank - compare data sets 221 E - edit SuperC statements data set 224 P - select process options 459 S - Extended Search-For utility 235 process options overview 459 SuperC program description 456 SuperC utility 216 utility differences 455 SuperC Utility panel 217 symbolic debug data sets 343 symbolic link information, z/OS UNIX 296 syntax diagrams, how to read xiv SYSLIB field Batch Linkage Editor (option 5.7) 361 Foreground Linkage Editor (option 4.7) 333 SYSLIN field Batch Linkage Editor (option 5.7) 361 Foreground Linkage Editor (option 4.7) 333 SYSOUT Class field Batch Selection panel 353 Hardcopy Utility panel 184 SuperC - Submit Batch Jobs panel 213 system command table 195 system commands DTEST 372 SYSTERM DD statement, parameters member 356 prefix 356 T T (truncation) column 197 T (variable types) field K (key) variable add row 397 delete row 395 display row 393 N (name) variable add row 397 delete row 395 display row 393 S (save) variable add row 397 delete row 395 display row 393 T record format, Allocate New Data Set panel 119 table date created/modified 256 editing/browsing See ISPF Table Utility export to data set 251, 263 find string in 253 import from data set 263 insert blank row 254 processing if already open 264 saving changes 248, 255 size (virtual storage required) 257 sorting rows 255 status 257 structure, displaying 257 table input library 195 Table List panel 245, 246 Table statistics, displaying 256 Table structure, displaying 257 Table Utility (option 3.16) Browse command 245, 246 CANCEL (table changes) command 250 Edit command 245, 246 EXPORT command 251 export report 260, 264 export to data set 263 extension variables 248 FEXPORT command 253 FILE command 252 find string in table 253 import from data set 263 INSERT command 254 options 259 output data set 258 overview 242 panel fields 243 performance 248 SAVE (table changes) command 255 saving changes 248 scrollable fields 248, 251 scrolling 247 select table from DD list 246 select table from library 244 sorting rows 255 STATS command 256 table structure, displaying 257 tables already open 264 Table Utility Options panel Tables (option 7.4) 259 T (truncation) column 197 T (variable types) field K (key) variable add row 397 delete row 395 display row 393 N (name) variable add row 397 delete row 395 display row 393 S (save) variable add row 397 delete row 395 display row 393 T record format, Allocate New Data Set panel 119 table date created/modified 256 editing/browsing See ISPF Table Utility export to data set 251, 263 find string in 253 import from data set 263 insert blank row 254 processing if already open 264 saving changes 248, 255 size (virtual storage required) 257 sorting rows 255 status 257 structure, displaying 257 table input library 195 Table List panel 245, 246 Table statistics, displaying 256 Table structure, displaying 257 Table Utility (option 3.16) Browse command 245, 246 CANCEL (table changes) command 250 Edit command 245, 246 EXPORT command 251 export report 260, 264 export to data set 263 extension variables 248 FEXPORT command 253 FILE command 252 find string in table 253 import from data set 263 INSERT command 254 options 259 output data set 258 overview 242 panel fields 243 performance 248 SAVE (table changes) command 255 saving changes 248 scrollable fields 248, 251 scrolling 247 select table from DD list 246 select table from library 244 sorting rows 255 STATS command 256 table structure, displaying 257 tables already open 264 Table Utility Options panel Tables (option 7.4) 259 T (truncation) column 197 T (variable types) field K (key) variable add row 397 delete row 395 display row 393 N (name) variable add row 397 delete row 395 display row 393 S (save) variable add row 397 delete row 395 display row 393 T record format, Allocate New Data Set panel 119 table date created/modified 256 editing/browsing See ISPF Table Utility export to data set 251, 263 find string in 253 import from data set 263 insert blank row 254 processing if already open 264 saving changes 248, 255 size (virtual storage required) 257 sorting rows 255 status 257 structure, displaying 257 table input library 195 Table List panel 245, 246 Table statistics, displaying 256 Table structure, displaying 257 Table Utility (option 3.16) Browse command 245, 246 CANCEL (table changes) command 250 Edit command 245, 246 EXPORT command 251 export report 260, 264 export to data set 263 extension variables 248 FEXPORT command 253 FILE command 252 find string in table 253 import from data set 263 INSERT command 254 options 259 output data set 258 overview 242 panel fields 243 performance 248 SAVE (table changes) command 255 saving changes 248 scrollable fields 248, 251 scrolling 247 select table from DD list 246 select table from library 244 sorting rows 255 STATS command 256 table structure, displaying 257 tables already open 264 Table Utility Options panel Tables (option 7.4) 259 T (truncation) column 197 T (variable types) field K (key) variable add row 397 delete row 395 display row 393 N (name) variable add row 397 delete row 395 display row 393 S (save) variable add row 397 delete row 395 display row 393 T record format, Allocate New Data Set panel 119 table date created/modified 256 editing/browsing See ISPF Table Utility export to data set 251, 263 find string in 253 import from data set 263 insert blank row 254 processing if already open 264 saving changes 248, 255 size (virtual storage required) 257 sorting rows 255 status 257 structure, displaying 257 table input library 195 Table List panel 245, 246 Table statistics, displaying 256 Table structure, displaying 257 Table Utility (option 3.16) Browse command 245, 246 CANCEL (table changes) command 250 Edit command 245, 246 EXPORT command 251 export report 260, 264 export to data set 263 extension variables 248 FEXPORT command 253 FILE command 252 find string in table 253 import from data set 263 INSERT command 254 options 259 output data set 258 overview 242 panel fields 243 performance 248 SAVE (table changes) command 255 saving changes 248 scrollable fields 248, 251 scrolling 247 select table from DD list 246 select table from library 244 sorting rows 255 STATS command 256 table structure, displaying 257 tables already open 264 Table Utility Options panel Tables (option 7.4) 259 T (truncation) column 197 T (variable types) field K (key) variable add row 397 delete row 395 display row 393 N (name) variable add row 397 delete row 395 display row 393 S (save) variable add row 397 delete row 395 display row 393 T record format, Allocate New Data Set panel 119 table date created/modified 256 editing/browsing See ISPF Table Utility export to data set 251, 263 find string in 253 import from data set 263 insert blank row 254 processing if already open 264 saving changes 248, 255 size (virtual storage required) 257 sorting rows 255 status 257 structure, displaying 257 table input library 195 Table List panel 245, 246 Table statistics, displaying 256 Table structure, displaying 257 Table Utility (option 3.16) Browse command 245, 246 CANCEL (table changes) command 250 Edit command 245, 246 EXPORT command 251 export report 260, 264 export to data set 263 extension variables 248 FEXPORT command 253 FILE command 252 find string in table 253 import from data set 263 INSERT command 254 options 259 output data set 258 overview 242 panel fields 243 performance 248 SAVE (table changes) command 255 saving changes 248 scrollable fields 248, 251 scrolling 247 select table from DD list 246 select table from library 244 sorting rows 255 STATS command 256 table structure, displaying 257 tables already open 264 Table Utility Options panel Tables (option 7.4) 259
Index 559

Traces (option 7.7) (continued)
  CANCEL Function Traces primary command 410
  CANCEL Variable Traces primary command 411
  D (delete) Function Traces line command 410
  D (delete) Variable Traces line command 411
  END Function Traces primary command 410
  END Variable Traces primary command 411
  I (insert) Function Traces line command 410
  I (insert) Variable Traces line command 411
  LOCATE Function Traces primary command 410
  LOCATE Variable Traces primary command 411
  R (repeat) Function Traces line command 410
  R (repeat) Variable Traces line command 411
  working with trace specifications 407

Tracks field
  Data Set List utility 154
  VTOC Information Display 160
  TRACKS keyword, SORT command 177
  trademarks 543
  trigger statement errors 324
  triggers
    expansion trigger, definition 321
    statement errors 324
    user-defined 322
  TRKS parameter, Space Units field 118
  Trks/Cyls field, VTOC Information Display 160
  TSO
    CLISTs and REXX EXECs
      Data Set List utility (option 3.4) 155
      entering 367
      variables 157, 158
      commands
        ACCOUNT 117
        ALLOCATE 116
        DELETE 171
      TEST 371
    TSO ACCOUNT 97
    TSO command 438
    TSO command for member 113
    TSO workstation command 446
    TR data 104
  Tutorial (option 7.T), displaying 418

U
  U (uncatalog data set) line command, Data Set List utility (option 3.4) 166
  U (updating a format) line command, Format Specification utility (option 3.11) 206
  U record format, Record Format field 119

V
  V (VDEFINE) variable, P (pool) field 387
  V (view data set) line command, Data Set List utility (option 3.4) 163
  V (view regular file) line command, z/OS UNIX Directory List Utility (option 3.17) 305
  V record format, Record Format field 119
  VA (view ASCII file) line command, z/OS UNIX Directory List Utility (option 3.17) 305
  VA command, Data Set List utility (option 3.4) 179
  Variables (option 7.3)
    CANCEL primary command 387
    creating new variables 388
    D (delete) line command 387
    DBCS data 389
    deleting variables 388
    END primary command 387
    hexadecimal data 389
    I (insert) line command 387
    input errors 388
    LOCATE primary command 387
    manipulating variables 388
    primary commands 387
    split-screen mode 389
    test mode 388
    usage notes 388, 389
    variable life 389
    variable value 389
    working with dialog variables 385
    variables, syntax diagrams xiv
    Verb column 197
    VERT parameter, HEX command 89
    View (option 1)
      description 77
        View Entry Panel 77
      view action prompt workstation command 446
      VIEW command, Browse 92
      view output mode 208, 221, 231, 240
      View workstation command 446
      view, command table line command 200
      viewing a member 113
      Volume DATA field, VTOC Information Display 160
      Volume display view, Initial View field 144
      Volume field
        Data Set List utility 153
        Data Set List Utility panel 143
        VOLUME keyword, SORT command 177
        Volume Serial 97
        Volume Serial field
          Allocate New Data Set panel 117
        volume, DASD 97
        VS COBOL II compiler (option 4.6) 331
        VS COBOL II Interactive Debug (option 4.10) 341
        VS COBOL II Interactive Debug panel 362
        VS command, Data Set List utility (option 3.4) 179
        VS data set organization, DSORG field 154
        VS FORTRAN compiler (option 4.3) 329
        VS FORTRAN compiler (option 5.3) 358
        VS Pascal compiler (option 4.6) 331
        VS Pascal compiler (option 5.6) 359
        VS-E 154
        VSAM (*VSAM*) entry in Volume field 142
Warning if export data set exists 260
Warning if table exists in the output library 260
Workplace example 451
Workplace example of SuperC 218
Workstation Commands 446
  ACTBAR action prompt 445
  allocate 445
catalog 445
copy 445
decimal number 235
edit 445
Edit 445
edit action prompt 445
full information action prompt 445
global color change 445
information action prompt 445
ISPF command shell 445
ISPF command table 445
keylist 445
list action prompt 445
list view 445
locate 445
member list 445
Move 445
NOACTBAR action prompt 445
Open 445
personal data set lists 445
personal library lists 445
point and shoot 445
Print 445
print action prompt 445
print data set 445
print data set index 446
Print data set list 446
Print VTOC information 446
rename 445
Rename 446
rename action prompt 446
reset action prompt 445
SearchFor 446
SearchFor extended 446
select 446
Settings 446
short information 446
Submit 445
SuperC 446
SuperC extended 446
Tso 446
uncatalog 446
View 446
view action prompt 446
VSAM 446
VTOC summary 445
WE 446
WEW 446
WS 446
WV 446
WVW 446
workstation connection 60
workstation tool integration program 68
  action bar choices 68
  description 67
  editing 69
  extension mapping 70
  startup 67
  updating 69
  WPSET command 446
  WRITE parameter 401
Writer name 184
writing a list to a list data set 174
WS command 439
WS command for member 113
WS workstation command 446
WV workstation command 446
WVW workstation command 446
X
X (execute) line command 305
X (print index listing) line command, Data Set List utility (option 3.4) 167
XT field, Data Set list utility 154
XT keyword, SORT command 177
Y
Y2PAST SuperC process statement 492
YES parameter 409, 411, 413
BROWSE Output field 221
Confirm Delete Request field, select 145
Replace like-named members field, select 135
Select pack option for "To" data set field 135
Specify additional search strings field, select 231
Table available field 400
Table on disk field 401
YYYY/MM/DD format, Expiration Date field 120
YYYY.DDD format, Expiration Date field 120
Z
Z (compress data set) line command, Data Set List utility (option 3.4) 167
z/OS Basic Skills information center xiv
z/OS system programmer applications 2
z/OS UNIX
  execute command 305
  file permissions 280, 287, 300
z/OS UNIX commands 311
z/OS UNIX Directory List Utility (option 3.17) 305
+ (scroll indicator) 315
AA (auditor auditing) line command 278
action bar choices 271
audit information 295
B (browse) line command 279
bypass z/OS UNIX File Edit Options panel 312
C or CO (copy out) line command 279
calculate column order and width 313
CI (copy in) line command 284
command time limit 312
confirm file delete option 269, 312
D (delete) line command 289
device data information 295
Display Directory List option 269
display permissions in octal format 312
E (edit) line command 289
EA (edit) line command 289
EDIT primary command 307
extended attributes information 294
FIND primary command 307
FS (file system) line command 290
I (information) line command 292
L (List) line command 297
LEFT primary command 308
line command prefix characters 275
line commands 277
LOCATE primary command 308
MA (modify ACL) line command 297
MF (modify format) line command 298
MG (modify group) line command 299
MM (modify mode) line command 300
MO (modify owner) line command 300
mode fields information 294
MX (modify extended attributes) line command 301
N (new) line command 302
options 311
overview 267
owner information 294, 296
path name substitution character 312
path names 315
primary commands 306
Print Directory List option 277
R (rename) line command 303
RA (add to personal data set list) line command 303
REFRESH primary command 309
RESET primary command 309
restore default column arrangements 313
RFIND primary command 307
RIGHT primary command 309
run command under login shell 275
SAVE primary command 310
scrollable fields for path names 310
set and save default line commands 313
SORT primary command 310
sorting 271
SU primary command 311, 316
super-user mode 315
switching UIDs 315
symbolic link information 296
time zone value 268
timeout setting 312
UA (user auditing) line command 304
V (view regular file) line command 305
VA (view ASCII file) line command 305
view options 271
width of filename column 312
X (execute) line command 305