Interactive System Productivity Facility (ISPF)

Reference Summary

z/OS Version 1 Release 9.0

SC34-4816-07

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Note
Before using this document, read the general information under "Notices" on page 179.

Eighth Edition (December 2007)

This edition applies to ISPF for Version 1 Release 9.0 of the licensed program z/OS (program number 5694-A01) and to all subsequent releases and modifications until otherwise indicated in new editions.

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The ISPF development team maintains a site on the World Wide Web. The URL for the site is: http://www.ibm.com/software/awdtools/ispf/

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Preface

This document is a quick reference for application developers and library administrators who use various components of the ISPF product.

Chapter 1 contains general information about ISPF.

Chapter 2 contains information relevant to dialog developers, including panel definition statements and built-in functions, message definitions, and file-tailoring skeleton statements.

Chapter 3 through Chapter 5 contain the syntax and return codes for the following:
- ISPF services
- Edit macro commands
- SCLM services and macros

This document also contains tables of ISPF system variables (Chapter 6, "System variables," on page 133) and dialog variables (Chapter 7, "Dialog variables," on page 143) and a summary of the Dialog Tag Language (DTL) tags (Chapter 8, "Dialog Tag Language (DTL) tags," on page 151).

Information in this document was extracted from the following prerequisite books:
- *z/OS ISPF Dialog Developer's Guide and Reference*
- *z/OS ISPF User's Guide Vol I*
- *z/OS ISPF User's Guide Vol II*
- *z/OS ISPF Services Guide*
- *z/OS ISPF Edit and Edit Macros*
- *z/OS ISPF Software Configuration and Library Manager Guide and Reference*
- *z/OS ISPF Dialog Tag Language Guide and Reference*

Who should use this document

This document is for:
- Application programmers who write programs or command procedures that invoke ISPF services.
- Application programmers who use the ISPF editor and edit macros.
- Library administrators who use library management facilities.

Using LookAt to look up message explanations

LookAt is an online facility that lets you look up explanations for most of the IBM® messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can use LookAt from these locations to find IBM message explanations for z/OS® elements and features, z/VM®, z/VSE™, and Clusters for AIX® and Linux™:
- The Internet. You can access IBM message explanations directly from the LookAt Web site at www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/.

- Your z/OS TSO/E host system. You can install code on your z/OS systems to access IBM message explanations using LookAt from a TSO/E command line (for example: TSO/E prompt, ISPF, or z/OS UNIX® System Services).
- Your Microsoft® Windows® workstation. You can install LookAt directly from the *z/OS Collection* (SK3T-4269) or the *z/OS and Software Products DVD Collection* (SK3T-4271) and use it from the resulting Windows graphical user interface (GUI). The command prompt (also known as the DOS > command line) version can still be used from the directory in which you install the Windows version of LookAt.
- Your wireless handheld device. You can use the LookAt Mobile Edition from www.ibm.com/servers/eserver/zseries/zos/bkserv/lookat/lookatm.html with a handheld device that has wireless access and an Internet browser (for example: Internet Explorer for Pocket PCs, Blazer or Eudora for Palm OS, or Opera for Linux handheld devices).

You can obtain code to install LookAt on your host system or Microsoft Windows workstation from:

- A CD in the *z/OS Collection* (SK3T-4269).
- The *z/OS and Software Products DVD Collection* (SK3T-4271).
- The LookAt Web site (click **Download** and then select the platform, release, collection, and location that suit your needs). More information is available in the LOOKAT.ME files available during the download process.

Using IBM Health Checker for z/OS

IBM Health Checker for z/OS is a z/OS component that installations can use to gather information about their system environment and system parameters to help identify potential configuration problems before they impact availability or cause outages. Individual products, z/OS components, or ISV software can provide checks that take advantage of the IBM Health Checker for z/OS framework. This book might refer to checks or messages associated with this component.

For additional information about checks and about IBM Health Checker for z/OS, see *IBM Health Checker for z/OS: User's Guide*.

SDSF also provides functions to simplify the management of checks. See *z/OS SDSF Operation and Customization* for additional information.

Chapter 1. ISPF general information

Invoking an ISPF application—the ISPSTART command

```
ISPSTART
{PANEL(panel-name) [OPT(option)][ADDPOP]}
{CMD(command parm1 parm2) [LANG(APL|CREX)]}
{PGM(program-name) [PARM(parameters)]}
{WSCMD(workstation-command)
               [MODAL|MODELESS]
               [WSDIR(dir)]
               [MAX|MIN]
               [VIS|INVIS]}
{WSCMDV(var_name)
               [MODAL|MODELESS]
               [WSDIR(dir)]
               [MAX|MIN]
               [VIS|INVIS]}
[GUI(LU:address:tpname | IP:address:port |,FI:) |,NOGUIDSP)] [TITLE(title)]
[GUISCRW(screen-width)]
[GUISCRD(screen-depth)]
[FRAME(STD|FIX|DLG)]
[CODEPAGE(codepage)] [CHARSET(character_set)]
[BKGRND(STD|DLG)]
[NEWAPPL[(application-id)]]
[SHRPROF|EXCLPROF]
[SCRNAME(screen-name)]
[TEST|TESTX|TRACE|TRACEX]
[NOLOGO|LOGO(logo-panel-name)]
[BATSCRW(screen-width)]
[BATSCRD(screen-depth)]
[BDISPMAX(max-number-of-displays)]
[BREDIMAX(max-number-of-redisplays)]
[BDBCS]
[DANISH|ENGLISH|GERMAN|JAPANESE|PORTUGUE|SPANISH|KOREAN|
   FRENCH|ITALIAN|CHINESET|CHINESES|SGERMAN|UPPERENG]
[NESTMACS]
```

ISPF system information

Files used by ISPF

Note: Files used by a given invocation of ISPF must be allocated before ISPF is invoked.

DDNAME(lib-type)	Description
ISPFILE	File tailoring output
ISPILIB	Image library
ISPMLIB	Message
ISPPLIB	Panel
ISPPROF	User profile
ISPSLIB	Skeleton
ISPTABLE	Table output
ISPTLIB	Table input
SYSPROC	REXX/CLIST library

SYSEXEC REXX library

ISPF system commands

```
ACTIONS

BACKWARD
BOTTOM

CANCEL
CMDE
COLOR
CRETRIEV
CUAATTR
CURSOR

DOWN
DDLIST
DSLIST [list name | DSname level]
DTEST [parameter number]

END

ENVIRON [ENBLDUMP [ON | OFF]]
        [TERMTRAC [ON | ERROR | DUMP | OFF]]
        [TERMSTAT [QUERY]]

EPDF datasetname [Browse] [View]
                 [Macro macroname]   [Profile profilename]
                 [Panel panelname]   [Format formatname]
                 [Recover] [Mixed YES|NO]

EXHELP
EXIT

FKA [ON | SHORT | OFF | PREFIX | NOPREFIX]
FORWARD

HELP

INT
ISPDPTRC  [END]
          [VIEW]
          [QUIET]
          [DSP|DISPLAY( None | In | Out | Both ) ]
          [LIST ]
          [PNL|PANEL( * | panel_name | panel_mask ) ]
          [READ( None | Summary | Detail ) ]
          [SCR|SCREEN( 0 | * | screen_id )]
          [SECT|SECTION( * | All | None | [Init] [Reinit] [Proc] |
                         [NOInit] [NOReinit] [NOProc] ) ]
          [SVC|SERVICE( None | Detail ) ]
ISPDTLC
ISPFTTRC  [END]
          [VIEW]
          [QUIET]
          [LIST ]
          [READ( None | Summary | Detail ) ]
          [REC|RECORDS( * | All | None | [Src|Source] [Data] [Cntl] |
                        [NOSrc|NOSource] [NOData] [NOCntl] ) ]
          [SCR|SCREEN( 0 | * | screen_id )]
          [SVC|SERVICE( None | Detail ) ]
          [SKL|SKEL|SKELETON( * | skel_name | skel_mask ) ]
          [TBV|TBVARS( None | Detail ) ]

ISPFVAR [LMSG (ON|OFF) | JUMP(ON|OFF) | ABTAB(ON|OFF) | PSTAB(ON|OFF) |
         SESM(ON|OFF) | EDPRT(ON|OFF) | EURO (ON|OFF) | SPLTLINE (ON|OFF) |
```

```
         SCRML(ON|OFF)]

ISPFWORK
ISPLIBD [libtype]
ISPPREP
ISPVCALL
ISRRLIST
ISRROUTE

KEYLIST [PRIVATE | SHARED | ON | OFF]
KEYS
KEYSHELP

LEFT
LIST [PRINT | DELETE | KEEP]
LOG [PRINT | DELETE | KEEP]

MSGID [ON | OFF]

NOP
NRETRIEV

PANELID [ON | OFF]
PFSHOW [ON | OFF | TAILOR]
PRINT
PRINTG
PRINT-HI
PRINTL
PRINTLHI
PSCOLOR

RCHANGE
REFACTD [nnnnnnnn xx]
REFACTL [nnnnnnnn xx]
REFADDD [nnnnnnnn xx]
REFADDL [nnnnnnnn xx]
REFLISTD [xx]
REFLISTL [xx]
REFOPEND
REFOPENL
RESIZE
RETF
RETP
RETRIEVE
RETURN
RFIND
RIGHT

SAREA
SCRNAME [screen name | PERM | ON | OFF]
SETTINGS
SHRPROF
SPLIT [NEW]
SPLITV
START
SWAP [LIST | PREV | NEXT | screen name | n]
SWITCH [3270 | GUI]
SYSNAME [ON | OFF]

TOP
TSO
TSOCMD
TSOGUI [ON | OFF]
TUTOR [panelid]

UP
USERID [ON | OFF]
```

```
WINDOW
WS
WSCON
WSDISCON

ZKEYS
```

Command table actions

ALIAS When followed by the name of another command and optional parameters, allows specification of command aliases.

NOP Causes the command to be functionless. System displays an "inactive command" message in this case.

PASSTHRU Causes the command to be passed to the dialog, as though it had not been found in the table.

SELECT When followed by selection keywords, causes the selected dialog command, program or selection panel to be given control immediately.

SETVERB Causes the command to be passed to the dialog with the command verb stored separately from the parameters.

Blank (no action)
Causes the table entry to be ignored, and scanning to continue (to search for additional entries having the same verb).

Variable name Begins with an ampersand. Its content may be one of the listed actions. Allows dynamic specification of a command action.

Dialog test commands

Primary commands

You can enter these commands on the Command line while using Dialog Test (option 7).

```
CANCEL

END

LOCATE string
LOC
L

QUAL

RESUME
RES
```

Line commands

These line commands have special meaning during testing operations.

D[n] Delete one or *n* lines starting with this line.

I[n] Insert one or *n* lines directly after this line, with underscores and quotes in the appropriate fields.

R[n] Repeat this line once or *n* times.

PDF Browse primary commands

You can enter these commands on the command line while using the Browse function.

```
BROWSE [member]
BRO

COLUMNS [ON | OFF]
COLS
COL

DISPLAY [LINE start_line [end_line]] [COLS start_col [end_col]] [CCSID ccsid_number]
   OR:
DISPLAY [char] [NOCC | CC]
DISPL
DISP
DIS

EDIT [member]

FIND string [UTF8]    [NEXT ] [CHARS ] [col-1 [col-2]]
F           [ASCII]   [ALL  ] [PREFIX]
            [USASCII] [FIRST] [SUFFIX]
                      [LAST ] [WORD  ]
                      [PREV ]

HEX [ON | OFF]
    [VERT | DATA]

LOCATE {line-number | label}
LOC
L

RESET

SUBMIT

VIEW [member]
```

You can use this format to enter label definitions on the command line:

.ccccc Defines a label (PDF component internal symbol), which is equated to the top line on the screen. Can be used with LOCATE to scroll directly to that line.

PDF member list commands

Primary commands

You can enter these commands on the command line on member list displays.

```
CONFIRM

FILTER [field operator value]

FIND string field NEXT   PREFIX
F                 ALL    SUFFIX
                  FIRST  WORD
                  LAST
                  PREV

LOCATE string
LOC
L
```

```
MLC

MLS

REFRESH

RESET

RFIND

SAVE [list-id]

SELECT {pattern | * } [lcmd]
SEL
S

SORT [field1 [A|D] [field2 [A|D]]]

SRCHFOR [string]
```

Line commands

On all member list displays except those for option 3.1 and 3.4, you can enter this 1-character command at the beginning of a line.

S Selects the member.

On option 3.1 and 3.4 member list displays, you can enter these 1-character commands at the beginning of a line.

B Browses the member.

C Copies the member.

D Deletes the member.

E Edits the member.

G Resets the member.

J Submits the member.

M Moves the member.

P Prints the member.

R Renames the member. When using this command, you must also enter the new name to the right of the member name.

T TSO command.

V Views the member.

W WS command.

TSO commands, CLISTs, and REXX EXECs can be entered in member lists that have an expanded line command field. These are member lists displayed by using option M of the Data Set List utility. Here, any command other than B, D, E, P, R, or V is considered to be a TSO command, CLIST, or REXX exec.

PDF data set list commands

Primary commands

You can enter these commands on the command line on option 3.4 data set list displays.

```
APPEND

CONFIRM [ON | OFF]
CON
C

DSLIST

EXCLUDE

FIND string [NEXT ] [CHARS ]
F           [ALL  ] [PREFIX]
            [FIRST] [SUFFIX]
            [LAST ] [WORD  ]
            [PREV ]

LC

LOCATE lparm
LOC
L

REFRESH

RESET

RFIND

SAVE [list-id]

SHOWCMD [ON | OFF]
SHOW

SORT [field1[field2]]

VA

VS

VT

VW
```

Line commands

On option 3.4 data set list displays, you can enter the following 1-character commands at the beginning of a line. Any other command entered at the beginning of a line is considered to be a TSO command, CLIST, or REXX exec.

B For a library or partitioned data set, displays a member list. You can then use the S command to select a member to browse. For a sequential data set, displays the data set in browse mode.

C Catalogs the data set.

CO Copies a data set.

D Deletes an entire data set. Displays a Confirm Delete panel if you request confirmation.

E For a library or partitioned data set, displays a member list. You can then use the S command to select a member to edit. For a sequential data set, displays the data set in edit mode.

F Frees unused space in a data set.

I Displays library or data set information.

M For a library or partitioned data set, displays a member list.

MO Moves a data set.

NX Unexclude a line from display.

NXF Unexclude the first of a set of excluded data sets.

NXL Unexclude the last of a set of excluded data sets.

P Prints the library or data set.

PX Prints an index listing.

R Displays a panel, on which you can rename the library or data set.

RA Adds a data set to a reference list.

RS Resets statistical data.

S Displays library or data set information in short format.

U Uncatalogs the data set.

V For a library or partitioned data set, displays a member list. You can then use the S command to select a member to view. For a sequential data set, displays the data set in view mode.

X Excludes a data set from the list.

Z Compresses a library or data set.

= Repeats the last line command entered.

PDF Edit and View commands

Primary commands

While you are using the PDF editor to edit or view data, these commands can be entered on the command line.

```
AUTOLIST [ON ]
         [OFF]

AUTONUM  [ON ]
         [OFF]

AUTOSAVE [ON          ]
         [OFF PROMPT  ]
         [OFF NOPROMPT]

BOUNDS [left-col right-col]
BOUND
BNDS
BND

BROWSE [member]

BUILTIN cmdname

CANCEL
CAN

CAPS [ON ]
     [OFF]

CHANGE str-1 str-2 [range] [NEXT ] [CHARS ] [X ] [col-1 [col-2]]
CHG                        [ALL  ] [PREFIX] [NX]
CHA                        [FIRST] [SUFFIX]
C                          [LAST ] [WORD  ]
                           [PREV ]

COLS    [ON ]
COLUMNS [OFF]
```

```
COL

COMPARE                   [dsname ] {EXCLUDE} {SAVE} {SYSIN}
                          [NEXT]
                          [SESSION]
                          [*]
                          [/]

COPY [member        ] [AFTER ] label
     [(member)      ] [BEFORE]
     [dsname        ]
     [dsname(member)]
     [pathname      ]

CREATE {member        } {labela labelb}
CRE    {(member)      }
       {dsname(member)}
       {dsname        }
       {pathname      }


CUT  [lptr-range ] [DEFAULT | clipboardname ] [REPLACE ] [DISPLAY ]

DEFINE name {MACRO CMD   }
DEF         {MACRO PGM   }
            {ALIAS name-2}
            {NOP         }
            {RESET       }
            {DISABLED    }

DELETE {ALL   X|NX }
DEL    {range X|NX }
       {ALL   range}

EDIT [member]

EDITSET
EDSET

END

EXCLUDE str [range] [NEXT ] [CHARS ] [col-1 [col-2]]
EXC                 [ALL  ] [PREFIX]
EX                  [FIRST] [SUFFIX]
X                   [LAST ] [WORD  ]
                    [PREV ]

FIND str [range] [NEXT ] [CHARS ] [X ] [col-1 [col-2]]
F                [ALL  ] [PREFIX] [NX]
                 [FIRST] [SUFFIX]
                 [LAST ] [WORD  ]
                 [PREV ]

FLIP [label1] [label2]

HEX  [ON DATA]
     [ON VERT]
     [OFF    ]

HIDE X

HILITE [ON     ] [AUTO   ] [MARGINS(left,right)] [RESET] [PAREN] [FIND] [CURSOR] [SEARCH] [DISABLED]
HI     [OFF    ] [DEFAULT]
       [LOGIC  ] [OTHER  ]
       [IFLOGIC] [ASM    ]
       [DOLOGIC] [BOOK   ]
       [NOLOGIC] [C      ]
                 [COBOL  ]
                 [DTL    ]
                 [HTML   ]
                 [IDL    ]
                 [JCL    ]
                 [PANEL  ]
                 [PASCAL ]
                 [PLI    ]
                 [REXX   ]
                 [SKEL   ]
                 [SUPERC ]
                 [XML    ]
```

```
IMACRO [name|NONE]

LEVEL num
LEV

LOCATE {label      }
LOC    {line-number}
L

LOCATE [FIRST] {CHANGE  } [range]
LOC    [LAST ] {COMMAND }
L      [NEXT ] {ERROR   }
       [PREV ] {EXCLUDED}
               {LABEL   }
               {SPECIAL }

MODEL [CLASS [class-name]]
MOD

MODEL [model-name [qualifier...]] {AFTER label } [NOTE  ]
MOD                               {BEFORE label} [NONOTE]

MOVE {member  } {[AFTER ] label}
     {(member)}  [BEFORE]
     {dsname  }
     {pathname}

NONUMBER

NOTES [ON ]
NOTE  [OFF]

NULLS [ON STD]
NULL  [ON ALL]
NUL   [OFF   ]

NUMBER [ON ] [STD      ] [DISPLAY]
NUMB   [OFF] [COBOL    ]
NUM          [STD COBOL]
             [STD COBOL]
             [NOSTD]
             [NOCOBOL]
             [NOSTD NOCOBOL]

PACK [ON ]
     [OFF]

PASTE [clipboardname] [AFTER label][BEFORE label] [KEEP]

PRESERVE
PROFILE [name] [number]
PROF
PRO
PR

PROFILE RESET
PROF
PRO
PR
PROFILE [LOCK | UNLOCK]
PROF
PRO
PR

RCHANGE

RECOVERY [ON | OFF]
RECOVER  [WARN | NOWARN | SUSP]
RECOV
REC

RENUM [ON ] [STD      ] [DISPLAY]
            [COBOL    ]
            [STD COBOL]

REN

REPLACE {[member       ]} {labela labelb}
REPL     [(member)     ]
REP      [dsname(member)]
```

```
        [dsname       ]
        [pathname     ]



RESET [CHANGE  ] [range]
RES   [COMMAND ]
      [ERROR   ]
      [EXCLUDED]
      [FIND    ]
      [HIDE    ]
      [LABEL   ]
      [SPECIAL ]

RFIND

RMACRO [name|NONE]

SAVE

SETUNDO [STORAGE | KEEP |RECOVER | OFF]
SETU

SORT [range] [X ] [sort-field1...sort-field5]
             [NX]

STATS [mode]

SUBMIT [range]
SUB

TABS [ON ] [STD]
TAB  [OFF] [ALL]
           [tab-character]

UNDO

UNNUMBER
UNNUM
UNN

VERSION num
VERS
VER

VIEW [member]
```

Line commands

Under Edit or View, you can enter these line commands at the beginning of a line by typing over the line number. If you do not enter a value of *n*, the default is 1 except for:

- The shift commands, which default to 2 column positions
- The TE command, which defaults to the number of lines remaining on the screen
- The TF command, which defaults to the current right boundary.

`<[n | 2]`	Shifts data left the specified number of positions (default 2).
`<<[n | 2]`	
`>[n | 2]`	Shifts data right the specified number of positions (default 2).
`>>[n | 2]`	
`([n | 2]`	Shifts columns left the specified number of positions (default 2).
`(([n | 2]`	
`)[n | 2]`	Shifts columns right the specified number of positions (default 2).
`))[n | 2]`	
`A[n]`	Identifies the line after which copied, moved, or model lines are to be inserted.

B[n]	Identifies the line before which copied, moved, or model lines are to be inserted.
BOUNDS BOUND BNDS BND	Displays the column boundary definition line.
C[n] CC	Copies one or more lines from one location to another.
COLS COL	Displays a position identification line.
D[n] DD	Deletes one or more lines.
F[n]	Redisplays one or more lines at the beginning of a block of excluded lines.
I[n]	Inserts a blank data entry line.
L[n]	Redisplays one or more lines at the end of a block of excluded lines.
LC[n] LCC LCLC	Converts all uppercase alphabetic characters in one or more lines to lowercase.
M[n] MM	Moves one or more lines from one location to another.
MASK	Displays the contents of the mask when used with the I (insert), TE (text entry), and TS (text split) line commands.
MD MDD MDMD	Makes NOTE, MSG, INFO, and COLS lines into data lines.
O[n] OO	Rearranges a single column list of items into multiple column, or tabular, format.
R[n] RR[n]	Repeats one or more lines.
S[n]	Redisplays one or more lines with the leftmost indentation in a block of excluded lines.
TABS TAB	Displays the tab definition line.
TE[n]	Inserts blank lines to allow power typing for text entry.
TF[n]	Restructures paragraphs following deletions, insertions, splitting, and so forth.
TS[n]	Divides a line so that data can be added.
UC[n] UCC UCUC	Converts all lowercase alphabetic characters in one or more lines to uppercase.
X[n] XX	Excludes one or more lines from a panel.

Search strings

Picture strings – special characters for string-1:

P'=' Any character

P'¬' Any character that is not a blank

P'.' Any character that cannot be displayed

P'#' Any numeric character, 0-9

P'-' Any nonnumeric character

P'@' Any alphabetic character, uppercase or lowercase

P'<' Any lowercase alphabetic character

P'>' Any uppercase alphabetic character

P'$' Any special character, neither alphabetic nor numeric.

If you are using an APL or TEXT keyboard, you can use the following additional characters in a picture string:

P' ⍰ ' Any APL-specific or TEXT-specific character

P'_' Any underscored nonblank character.

Picture strings – special characters for string-2

P'=' Equal to the corresponding character in string-1

P'>' Converts the corresponding character in string-1 to uppercase

P'<' Converts corresponding character in string-1 to lowercase.

Character string format

Simple string:	`ccccc` (no embedded blanks or commas)
Delimited string:	`'ccccc'` or `"ccccc"`
Hex string:	`X'hhhh'` or `'hhhh'X`
Text string:	`T'cccc'` or `'cccc'T`
Picture string:	`P'ssss'` or `'ssss'P`
Character string:	`C'cccc'` or `'cccc'C`
Previous string:	`*` (single asterisk)

Chapter 2. Dialog development information

This topic contains information relevant to dialog developers.

Invoking the ISPF DTL conversion utility

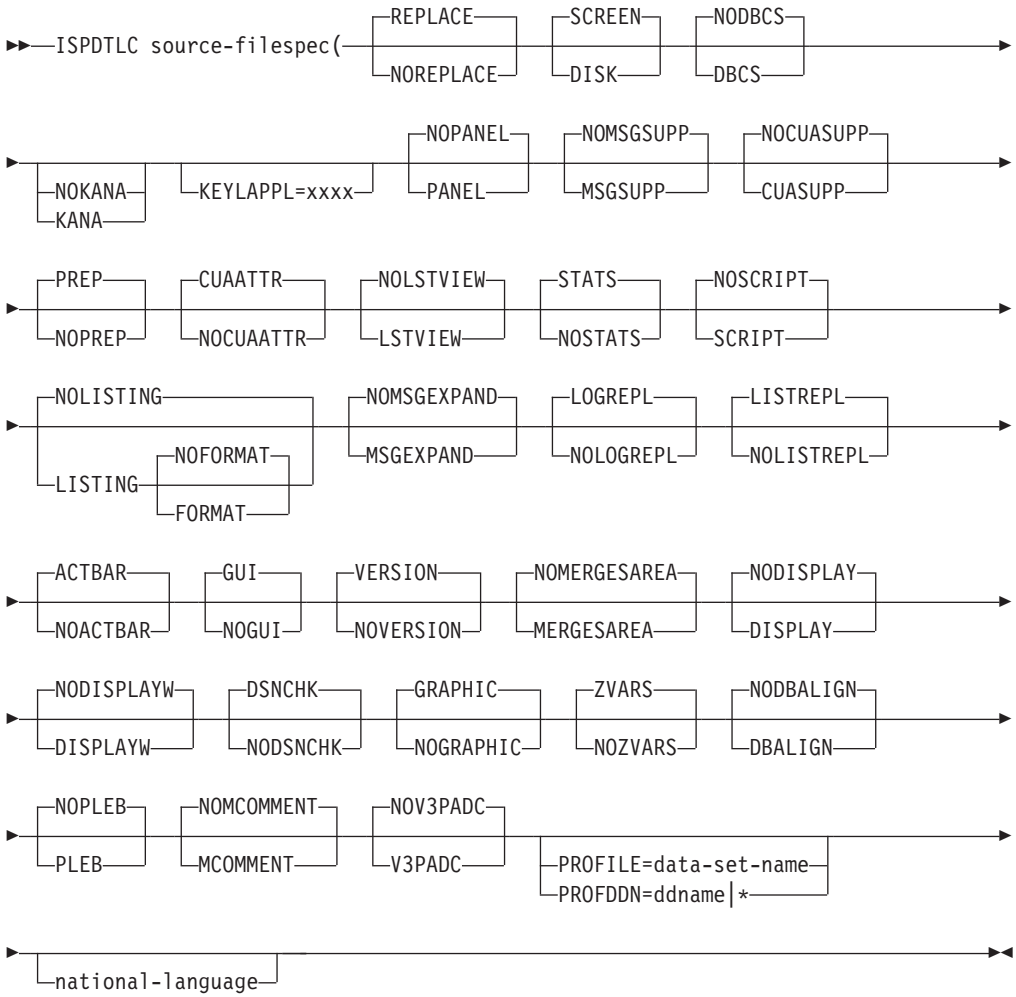
```
ISPDTLC      (for interactive interface)

OR

ISPDTLC ?    (for help information)

OR

(command syntax)
```



Panel definition sections

All parameters on header statements are optional. When preparing a panel header statement, use only one line.

Coded Character Set Identifier Section

```
)CCSID NUMBER(xxxxx)
```

Panel Section

```
)PANEL [KEYLIST (keylist-name[,keylist-applid,SHARED])]
       [IMAGE (image-name, row, col)]
```

Attribute Section:

```
)ATTR [DEFAULT (def1def2def3)]
      [FORMAT(EBCDIC|DBCS|MIX)]
      [OUTLINE([L][R][O][U]|BOX|NONE]
```

Action Bar Choice Section:

```
)ABC DESC(choice-description-text) MNEM(number)
     PDC DESC(choice-description-text) UNAVAIL(variable) MNEM(number)
     ACC(key1[+key2][+key3])
     PDSEP(OFF|ON)
     ACTION RUN(command-name) PARM(command-parms)
```

Note: The MNEM keyword is only valid when running in GUI mode.

Action Bar Choice Initialization Section:

```
)ABCINIT
```

Note: Only valid when the Action Bar Choice section is specified.

Action Bar Choice Processing Section:

```
)ABCPROC
```

Note: Only valid when the Action Bar Choice section is specified.

Body Section:

```
)BODY [CMD(field-name)]     [DEFAULT(def1def2def3)]
      [SMSG(field-name)]    [KANA]
      [LMSG(field-name)]    [WIDTH(width)]
      [ASIS]                [EXPAND(xy)]
      [WINDOW(width,depth)] [FORMAT(EBCDIC|DBCS|MIX)]
      [OUTLINE([L][R][O][U]|BOX|NONE]
```

Note: All keywords must be specified on the same panel line.

Model Section:

```
)MODEL [CLEAR(var-name,var-name...)]
       [ROWS(ALL | SCAN)]
       [SFIHDR]
```

Area Section:

```
)AREA name [DEPTH(depth)]
```

Initialization Section:

```
)INIT
```

Reinitialization Section:

```
)REINIT
```

Processing Section:

```
)PROC
```

Field Section:

```
)FIELD FIELD(field-name)         [LEN(value|field-name)]
       [IND(field-name,value)]   [LIND(field-name,value)]
       [RIND(field-name,value)]  [SIND(field-name,value)]
       [LCOL(field-name)]        [RCOL(field-name)]
       [SCALE(field-name)]       [SCROLL(value|field-name)]
```

Help Section:

```
)HELP FIELD(field-name) PANEL(help-panel-name)| MSG(msg_name) | PASSTHRU
```

List Section

```
)LIST (list-name)
VAL(value) CHOICE(value)
```

Specifying point and shoot fields:

```
)PNTS FIELD(field-name)|ZPSxxyyy)  VAR(variable) VALUE(value)
      [DEPTH (depth)] [IMAGE(image-name)] [IMAGEP(image-name)]
      [TEXT('text')] [PLACE(a, b, l, r)]
```

Specifying the End of a Panel Definition:

```
)END
```

Panel statements and built-in functions

Attribute section

```
AREA(DYNAMIC|GRAPHIC|SCRL)
ATTN(ON|OFF)
CAPS(ON|OFF|IN|OUT)
CKBOX(ON|OFF)
COLOR(WHITE|RED|BLUE|GREEN|PINK|YELLOW|TURQ)
COMBO(ON|OFF|name)
CSGRP(x)
CUADYN(value)
DATAMOD(datamod-code)
DDLIST(ON|OFF|name)
DEPTH(d)
EXTEND(ON|OFF)
FORMAT(EBCDIC|DBCS|MIX)
GE(ON|OFF)        (Note: For use with TYPE(CHAR) only.)
HILITE(USCORE|BLINK|REVERSE)
INTENS(HIGH|LOW|NON)
JUST(LEFT|RIGHT|ASIS)
LISTBOX(ON|OFF|name)
NOJUMP(ON|OFF)
NUMERIC(ON|OFF)
OUTLINE([L][R][O][U] |BOX|NONE)
PAD(NULLS|USER|char)
PADC(NULLS|USER|char)
PAS(ON|OFF)
RADIO(ON|OFF)
REP(character)
SCROLL(ON|OFF)
SKIP(ON|OFF)
TYPE(TEXT|INPUT|OUTPUT|DATAIN|DATAOUT)
UNAVAIL(ON|OFF)
USERMOD(usermod-code)
WIDTH(w)
```

Note: Common User Access® (CUA®) attribute TYPE values listed below are identified in the section that follows.

```
TYPE(AB|ABSL|CEF|CH|CHAR|CT|DATAIN|DATAOUT|DT|EE|
     ET|FP|LEF|LI|LID|NEF|NT|PIN|
     PS|PT|RP|SAC|SI|SUC|VOI|WASL|WT)

TYPE(GRPBOX|SC)
```

CUA attribute TYPE values

TYPE Value	Description
AB	Action Bar Unselected Choices
ABSL	Action Bar Separator Line

CEF	Choice Entry Field
CH	Column Heading
CHAR	Character attributes in a dynamic area
CT	Caution Text
DATAIN	Input (unprotected) field in a dynamic area
DATAOUT	Output (protected) field in a dynamic area
DT	Descriptive Text
EE	Error Emphasis
ET	Emphasized Text
FP	Field Prompt
GRPBOX	Group Box
INPUT	Input (unprotected) field
LEF	List Entry Field
LI	List Items
LID	List Item Description
NEF	Normal Entry Field
NT	Normal Text
OUTPUT	Output (protected) field
PIN	Panel Instruction
PS	Point-and-Shoot
PT	Panel Title
RP	Reference Phrase
SAC	Select Available Choices
SC	Selected choice
SI	Scroll Information
SUC	Select Unavailable Choices
TEXT	Text (protected) field
VOI	Variable Output Information
WASL	Work Area Separator Line
WT	Warning Text

Initialization, Reinitialization, and Processing sections

```
variable = value
variable = LVLINE(areaname)
variable = PFK(value)
variable = TRANS (variable value,value...[MSG=message-id])
variable = TRUNC (variable,value)
variable = ADDSOSI(variable)
variable = DELSOSI(variable)
variable = ONEBYTE(variable)
variable = TWOBYTE(variable)
variable = VSYM(variable)

GOTO label
IF (variable operator value[,value...])
ELSE
EXIT
PANEXIT((value,value,...),
        {PGM, exit_add [,exit-data] [,MSG=value]
         LOAD, exit-mod[,exit-data] [,MSG=msgid]})
REFRESH(field1, field2, ...)
*REXX[([*,]value,value,...[,(member)])]
TOG (mode,fld,&variable [,value1,value2])
VEDIT (variable[,MSG=value])
VGET name-list [ ASIS | SHARED | PROFILE | SYMDEF ] [SYMNAMES(symname-list)]
VPUT name-list [ ASIS | SHARED | PROFILE ]
VER (variable[,NONBLANK],keyword[,value...] [,MSG=message-id])
VSYM name-list
```

VER keywords

```
ALPHA      ALPHAB     BIT        DBCS       DSNAME     DSNAMEF
DSNAMEFM   DSNAMEPQ   DSNAMEQ    EBCDIC     ENUM       FILEID
HEX        IDATE      INCLUDE    ITIME      JDATE      JSTD
LEN        LIST       LISTV      LISTVX     LISTX      MIX
NAME       NAMEF      NUM        PICT       PICTCN     RANGE
STDDATE    STDTIME    VSYM
```

Panel control variables

```
.ALARM = YES|NO|blank|null|variable
.ATTR(field) = 'keyword(value), keyword(value) ...'
.ATTRCHAR(char) = 'keyword(value), keyword(value) ...'
.AUTOSEL = YES|NO
.CSRPOS = cursor-position
.CSRROW = table-row-number
.CURSOR = field-name
.HELP = panel-name
.MSG = message-id
.PFKEY = contains function key pressed by user (PF01,PF02, ...,PF24)
.RESP = ENTER|END
.TRAIL = contains remainder from TRUNC operation
.ZVARS = '(name-list)'
```

Message definitions

```
Line 1:
msgid ['short message'] [.HELP=panel-name|*] [NOKANA|KANA]
[.WINDOW=RESP|NORESP|LRESP|LNORESP] [.TYPE=NOTIFY|WARNING|ACTION|CRITICAL]

Line 2:
'long message' [+]

Line 3:
['long message' [+] ]

Line 4:
['long message' [+] ]

Line n:
['long message'     ]
```

Skeleton control statements

```
)BLANK [number]

)CM comment

)DEFAULT abcdefg

)DO [do-expression] [WHILE while-expression | UNTIL until-expression]
)DO FOREVER
)DO count
)ITERATE
)LEAVE [DOT]
)ENDDO

)DOT table-name [SCAN [(name-cond-pairs)] ]
)ENDDOT

)IF relational-expression THEN [control-statement]
)ELSE [control-statement]
)NOP
```

Skeleton control statements

```
)IM skel-name [NT] [OPT] [EXT|NOEXT]

)REXX  [variable1  variable2 ... variablen] [REXX=[%]rexxname]
)ENDREXX

)SEL relational-expression
)ENDSEL

)SET variable = expression
)SETF variable = expression

)TB value1 ... value16
)TB value1[A] ... value16[A]
)TBA value1 ... value16
```

Chapter 3. ISPF service syntax with return codes

This chapter contains the ISPF services. The services are presented in alphabetical order. For each service, the command procedure format is shown, followed by the PL/I call formats. For more complete information, see the *z/OS ISPF Services Guide*.

Each service description consists of this information:

Format The syntax used to code the service, showing both command invocation and call invocation.

Return codes A description of the codes returned by the service. For all services, a return code of 12 or higher implies a severe error. This error is usually a syntax error, but can be any severe error detected when using the services.

Syntax notation

These syntax notation conventions are used:

- Uppercase commands and their operands should be spelled as shown, but need not be entered in uppercase. Operands shown in lowercase are variables; a value should be substituted for them.
- Operands shown in brackets [ ] are optional, with a choice indicated by vertical bars |. One or none can be chosen; the defaults are underscored.
- Operands shown in braces { } are alternatives; one must be chosen.
- An ellipsis (...) indicates that the parameter shown can be repeated to specify additional items of the same category.

ISPEXEC command invocation

The general format for a command invocation is:

```
ISPEXEC service-name parameter1  parameter2  parameter3 ...
```

ISPEXEC parameter conventions

service-name
Alphabetic; up to 8 characters long.

parameter1
Positional parameter; required for some services.

parameter2 parameter3 ...
Keyword parameters. They can take either of two forms:

```
keyword

   or

keyword(value)
```

The ISPLINK interface

For calls in PL/I or COBOL, the general call format for invoking ISPF services from functions by using ISPLINK is:

```
CALL ISPLINK (service-name, parameter1, parameter2, ...);
```

CALL ISPLINK parameters

These parameters are positional. They must appear in the order described for each service.

Parameters shown inside brackets ([ ]) are optional, but ISPF assumes default values for those parameters you do not choose.

If you want to omit a parameter, you must still account for it by inserting a blank enclosed in single quotes (' ') in its place. This is how you would omit **parm2** from this sample call:

```
CALL ISPLINK (service-name, parm1, ' ', parm3);
```

If you need only the first few of a list of parameters, you must omit all other parameters to the right of the last parameter you need. For example, if you are using a service that has five parameters, but you need to use only the first three, code it like this:

```
CALL ISPLINK (service-name, parm1, parm2, parm3);
```

You must show the last parameter in the calling sequence with a '1' as the high order bit in the last entry of the address list. PL/I, COBOL, Pascal, and FORTRAN call statements automatically generate this high-order bit. However, you must use the VL keyword in assembler call statements.

The ISPEXEC interface

You can use the command function form for service requests in a program function by using the call format of ISPEXEC. Excluding calls in FORTRAN, Pascal, and APL2®, the general call format for invoking ISPF services from program functions by using ISPEXEC is:

```
CALL  ISPEXEC (buf-len, buffer);
```

CALL ISPEXEC parameters

buf-len
Specifies a fullword fixed binary integer containing the length of the buffer.

buffer
Specifies a buffer containing the name of the service and its parameters just as they would appear in an ISPEXEC invocation for a command invocation written in CLIST.

The maximum buffer size is 32767 bytes.

All services that are valid through ISPEXEC command invocation statements are valid through the CALL ISPEXEC interface.

ISPF services

ADDPOP—start pop-up window mode

Command invocation format

```
ISPEXEC ADDPOP [POPLOC(field-name)] [ROW(row)]
               [COLUMN(column)]
```

Call invocation format

```
CALL ISPEXEC  (buf-len, buffer);

OR

CALL ISPLINK  ('ADDPOP  '  [,field-name] [,row]
                           [,column ] );
```

Return codes

0 Normal completion.

12 An ADDPOP service call was issued before the panel was displayed or another ADDPOP service call was issued before a panel was displayed for the previous ADDPOP call.

20 Severe error.

BRIF—Browse interface

Command invocation format

Command procedures cannot be used to invoke this service.

Call invocation format

```
CALL ISPLINK ('BRIF    ',[data-name] ,rec-format
                       ,rec-len  ,read-routine
                       ,[cmd-routine] ,[dialog-data]
                       ,[panel-name] ,[format-name]
                       ,['YES     '|'NO      ']);
```

Return codes

Read routine:

0 Normal completion.

4 Temporary end of file.

8 Record requested beyond end of data. The relative record number of the last data record and a pointer to the last data record are returned.

16 Read error. Browse data obtained up to the read error is formatted and displayed with an indication that a read error was encountered.

20 Severe error. (The BRIF service terminates immediately with a return code of 20.)

Command routine:

0 Normal completion.

4 The PDF component should process the requested function.

12 Command deferred; retain the command on the Command line. Browse data is redisplayed.

20 Severe error. (The BRIF service terminates immediately with a return code of 20.)

BRIF service:

0 Normal completion.

12 No data to browse.

16 Unexpected return code received from a dialog-supplied routine; unable to continue. When an unexpected return code is received, the BRIF service terminates immediately with a return code of 16.

20 Severe error; unable to continue.

BROWSE—Browse a data set

Command invocation format

```
ISPEXEC BROWSE  DATASET(dsname)   [VOLUME(serial)]
                                  [PASSWORD(pswd-value)]
                                  [PANEL(panel-name)]
                                  [FORMAT(format-name)]
                                  [MIXED(YES|NO)]
OR

ISPEXEC BROWSE  DATAID(data-id)    [MEMBER(member-name)]
                                   [PANEL(panel-name)]
                                   [FORMAT(format-name)]
                                   [MIXED(YES|NO)]
OR

ISPEXEC BROWSE  FILE(file-var)     [PANEL(panel-name)]
                                   [FORMAT(format-name)]
                                   [MIXED(YES|NO)]
                                   [RECLEN(rec-len)]
```

Call invocation format

```
CALL  ISPLINK ('BROWSE  ',{dsname},[serial]
                                  ,[pswd-value]
                                  ,[panel-name]
                                    ,{data-id}
                                    ,[member-name]
                                    ,[format-name]
                                    ,['YES     '|'NO      ']
                                    ,{file-var}
                                    ,[rec-len];

OR

CALL  ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.

12 Zero-length data; empty sequential data set or z/OS UNIX file, or zero-length member of a partitioned data set.

14 Specified member not found.

16 One of these:
- No members matched the specified pattern.
- No members in the partitioned data set.

18 A VSAM data set was specified but the ISPF Configuration Table does not allow VSAM processing.

20 Severe error; unable to continue.

CONTROL—set processing modes

Command invocation format

```
ISPEXEC  CONTROL { DISPLAY { LOCK                      } }
                 {         { LINE [START(line-number)] } }
                 {         { SM   [START(line-number)] } }
                 {         { REFRESH                    } }
                 {         { SAVE|RESTORE               } }
                 {         { ALLVALID                   } }
                 {                                        }
                 { NONDISPL [ENTER|END][NOSETMSG]}        }
                 {                                        }
                 { ERRORS   [CANCEL|RETURN]               }
```

```
{                                       }
{ SPLIT   { ENABLE  }                   }
{         { DISABLE }                   }
{                                       }
{ NOCMD                                 }
{                                       }
{ SUBTASK { PROTECT }                   }
{         { CLEAR   }                   }
{                                       }
{ TSOGUI  [QUERY|OFF|ON]                }
{ REFLIST [UPDATE|NOUPDATE]             }
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('CONTROL ', operand);
```

Note: These parameters can appear in "operand":

```
{ 'DISPLAY '{ ,'LOCK    '                 } }
{           { ,'LINE    ' [,line-number]  } }
{           { ,'SM      ' [,line-number]  } }
{           { ,'REFRESH '                 } }
{           { ,'SAVE    '|'RESTORE '      } }
{           { ,'ALLVALID'                 } }
{                                           }
{ 'NONDISPL' [,'ENTER   '|'END     '] ['NOSETMSG'] }
{                                           }
{ 'ERRORS  '   [,'CANCEL  '|'RETURN  ']     }
{                                           }
{ 'SPLIT   '   { ,'ENABLE  '  }             }
{              { ,'DISABLE '  }             }
{                                           }
{ 'NOCMD   '                                }
{                                           }
{ 'SUBTASK ' { ,'PROTECT ' }                }
{            { ,'CLEAR   ' }                }
{ 'TSOGUI  ' [,'QUERY'|'OFF     '|'ON      ']}
{ 'REFLIST '   [,'UPDATE  '|'NOUPDATE']     }
{ 'LE      '   [,'ON      '|'OFF     ']     }
```

Return codes

0 Normal completion.

8 Split-screen mode already in effect. Applies only to a SPLIT DISABLE request. Split-screen mode remains enabled.

20 Severe error.

DISPLAY—display panels and messages

Command invocation format

```
ISPEXEC  DISPLAY  [PANEL(panel-name)]
                  [MSG(message-id)]
                  [CURSOR(cursor-field-name)]
                  [CSRPOS(cursor-position)]
                  [COMMAND(stack-buffer-name)
                  [RETBUFFR(ret-buffer-name)]
                  [RETLGTH(ret-length-name)]
                  [MSGLOC(message-field-name)]]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('DISPLAY ' [,panel-name]
                          [,message-id]
                          [,cursor-field-name]
                          [,cursor-position]
                          [,stack-buffer-name]
                          [,ret-buffer-name]
                          [,ret-length-name]
                          [,message-field-name]]);
```

Return codes

0 Normal completion. For the COMMAND option, the ret-buffer-name is set to blanks and the ret-length-name is set to zero. Passing an empty command chain buffer also results in a normal completion.

4 One or more commands in the stack could not be found in the active set of command tables.

8 User requested termination via the END or RETURN command. For panels generated with the tag conversion utility, CANCEL and EXIT commands also give a return code of 8.

12 The specified panel, message, cursor field, or message location field could not be found.

16 Truncation or translation error in storing defined variables.

20 Severe error.

DSINFO—data set information dialog

Command invocation format

```
ISPEXEC DSINFO  DATASET(dsname)   [VOLUME(serial)]
```

Call invocation format

```
CALL ISPEXEC  (buf-len, buffer);
OR

CALL ISPLINK ('DSINFO  ' [,dsname]
                         [,serial]
```

Return codes

0 Normal completion.

8 User requested data set was not found.

12 One of these:

- FAMS error.
- Obtain error.
- Error obtaining directory information.

20 Severe error; unable to continue.

EDIF—Edit interface

Command invocation format

Command procedures cannot be used to invoke this service.

Call invocation format

```
CALL ISPLINK ('EDIF    ',[data-name] ,profile-name
                       ,rec-format ,rec-len
                       ,read-routine, write-routine
                       ,[cmd-routine] ,[dialog-data]
```

```
                        ,[edit-len] ,[panel-name]
                        ,[macro-name] ,[format-name]
                        ,['YES     '|'NO      ']
                        ,['YES     '|'NO      ']
                        ,[parm-var]);
```

OR

```
CALL ISPLINK ('EDIF    ',[data-name] ,' '
                        ,[rec-format] ,[rec-len]
                        ,read-routine ,write-routine
                        ,[cmd-routine] ,[dialog-data]
                        ,' ' ,' ' ,' ' ,' ' ,' ' ,' '
                        ,'YES     ');
```

Return codes

Read routine:

0 Normal completion.

8 End of data records (no data record returned).

16 Read error. If a read error is encountered when building the initial edit display, the EDIF service terminates with a return code of 20. Otherwise, the edit data is redisplayed.

20 Severe error. (EDIF service terminates immediately with a return code of 20.)

Write routine return codes:

0 Normal completion.

16 Output error, return to Edit mode.

20 Severe error. (EDIF service terminates immediately with a return code of 20).

Command routine return codes:

0 Normal completion.

4 The PDF component should process the requested function.

12 Command deferred; retain the command on the Command line. Edit data is redisplayed.

20 Severe error. (EDIF service terminates immediately with a return code of 20.)

EDIF return codes:

0 Normal completion, data saved.

4 Normal completion, data not saved.

16 Unexpected return code received from a dialog-supplied routine. When an unexpected return code is received, the EDIF service terminates immediately with a return code of 16.

20 Severe error; unable to continue.

EDIREC—initialize edit recovery

Command invocation format

Command procedures cannot be used to invoke this service.

Call invocation format

```
CALL ISPLINK ('EDIREC  ', {'INIT    '[,command-name]}
                          {'QUERY   '}
                          {'CANCEL  '}
                          {'DEFER   '});
```

Return codes

0 Normal completion.
- INIT - EDIF recovery table was successfully created.
- QUERY - Recovery is not pending.

4 Normal completion.
- INIT - EDIF recovery table already exists for current application
- QUERY - Entry found in EDIF recovery table (recovery is pending).

20 Severe error; unable to continue.

EDIT—edit a data set

Command invocation format

```
ISPEXEC  EDIT  DATASET(dsname)  [VOLUME(serial)]
                                [PASSWORD(pswd-value)]
                                [PANEL(panel-name)]
                                [MACRO(macro-name)]
                                [PROFILE(profile-name)]
                                [FORMAT(format-name)]
                                [MIXED(YES|NO)]
                                [LOCK(YES|NO)]
                                [CONFIRM(YES|NO)]
                                [WS(YES|NO)]
                                [WRAP]
                                [PRESERVE]
                                [PARM(parm-var)]
OR

ISPEXEC  EDIT  DATAID(data-id)  [MEMBER(member-name)]
                                [PANEL(panel-name)]
                                [MACRO(macro-name)]
                                [PROFILE(profile-name)]
                                [FORMAT(format-name)]
                                [MIXED(YES|NO)]
                                [LOCK(YES|NO)]
                                [CONFIRM(YES|NO)]
                                [WS(YES|NO)]
                                [WRAP]
                                [PRESERVE]
                                [PARM(parm-var)]
OR

ISPEXEC  EDIT  WSFN(ws-filename)  [PANEL(panel-name)]
                                  [MACRO(macro-name)]
                                  [PROFILE(profile-name)]
                                  [FORMAT(format-name)]
                                  [MIXED(YES|NO)]
                                  [LOCK(YES|NO)]
                                  [CONFIRM(YES|NO)]
                                  [WS(YES|NO)]
                                  [WRAP]
                                  [PRESERVE]
                                  [PARM(parm-var)]
OR

ISPEXEC  EDIT  FILE(file-var)  [PANEL(panel-name)]
                               [MACRO(macro-name)]
                               [PROFILE(profile-name)]
```

```
                                    [FORMAT(format-name)]
                                    [MIXED(YES|NO)]
                                    [LOCK(YES|NO)]
                                    [CONFIRM(YES|NO)]
                                    [WS(YES|NO)]
                                    [WRAP]
                                    [PRESERVE]
                                    [PARM(parm-var)]
                                    [RECLEN(rec-len)]
                                    [ASCII]
```

Call invocation format

```
CALL  ISPLINK ('EDIT    ', {dsname} ,[serial]
                            ,[pswd-value]
                            ,[panel-name]
                            ,[macro-name]
                            ,[profile-name]
                            ,{data-id}
                            ,[member-name]
                            ,[format-name]
                            ,['YES     '|'NO      ']
                            ,['YES     '|'NO      ']
                            ,['YES     '|'NO      ']
                            ,{ws-filename-buffer-name}
                            ,['YES'|'NO']
                            ,['WRAP    '|' ']
                            ,['PRESERVE']
                            ,['YES     '|'NO      ']
                            ,[parm-var]
                            ,{file-var}
                            ,[rec-len]
                            ,['ASCII ']);
OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion; data was saved.

4 Normal completion; data was *not* saved.

12 YES was specified for the LOCK parameter.

14 Member, sequential data set, or z/OS UNIX file in use.

16 One of these:
- No members matched the specified pattern.
- No members in the partitioned data set.

18 A VSAM data set was specified but the ISPF Configuration Table does not allow VSAM processing.

20 Severe error; unable to continue.

EDREC—specify edit recovery handling

Command invocation format

```
ISPEXEC  EDREC {INIT    [CMD(command-name)]}
               {QUERY  }
               {PROCESS [PASSWORD(pswd-value)]
               [DATAID(data-id)]}
               {CANCEL }
               {DEFER  }
```

Call invocation format

```
CALL ISPLINK ('EDREC   ' {,'INIT    ' [,command-name]}
                         {,'QUERY   '}
                         {,'PROCESS ' [,pswd-value] [,data-id]}
```

```
                        {,'CANCEL  '}
                        {,'DEFER   '});
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal return.
- INIT - Edit recovery table was successfully created.
- QUERY - Recovery is not pending.
- PROCESS - Recovery was completed and the data was saved.

4 Normal return.
- INIT - Edit recovery table already exists for current application.
- QUERY - Entry found in edit recovery table; recovery is pending.
- PROCESS - Recovery was completed, but user did not save data.

20 Severe error; unable to continue.

FILESTAT—statistics for a file

Command invocation format

```
ISPEXEC FILESTAT FILE(var-name)
                 [LRECL(var-name),DATE(var-name)]
```

Call invocation format

```
CALL  ISPLINK ('FILESTAT',var-name
              ,[var-name,var-name])
```

Return codes

0 Workstation file exists.
4 Workstation file does not exist.
8 Error in variable specification.
10 No workstation connection exists.
12 Workstation device is not ready.
20 Severe error in FILESTAT service.

FILEXFER—upload or download file

Command invocation format

```
ISPEXEC  FILEXFER  HOST(var-name) WS(var-name) TO(HOST|WS)
                   [VOLUME(volume)]
                   [BINARY|TEXT]
                   [STATS|NOSTATS]
                   [CHKDATE (YES|NO)]
                   [SETDATE (YES|SCLM|NO)]
                   [MAKEPATH (YES|NO)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('FILEXFER',host_var,ws_var,'HOST'|'WS',
                          [volume,'BINARY'|'TEXT',
                          'STATS'|'NOSTATS',
```

```
'YES'|'NO',
'YES'|'SCLM'|'NO'
'YES'|'NO',])
```

Return codes

2 Source file and target file have the same date and time.
4 LMSTAT failed.
6 Data set not cataloged.
7 Error in variable specification.
8 ″TO″ direction not valid.
9 Host name is too long.
10 No workstation connection exists.
11 Return code 1 from DTTRANSFER. Host data set had null object handle.
12 Return code 2 from DTTRANSFER. Workstation file had null object handle.
13 Return code 3 from DTTRANSFER. Host data set could not be opened.
14 Return code 4 from DTTRANSFER. Workstation file could not be opened.
15 Return code 5 from DTTRANSFER. Error reading host data set.
16 Return code 6 from DTTRANSFER. Error reading workstation file.
17 Return code 7 from DTTRANSFER. Error writing host data set.
18 Return code 8 from DTTRANSFER. Error writing workstation file.
19 Return code 9 from DTTRANSFER. Error closing host data set.
20 Severe error in transfer service.
21 Return code 10 from DTTRANSFER. Error closing workstation file.
22 Return code 11 from DTTRANSFER. User refused file access.
23 Data set or member in use.

FTCLOSE—end file tailoring

Command invocation format

```
ISPEXEC  FTCLOSE  [NAME(member-name)]
                  [LIBRARY(library)]
                  [NOREPL]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('FTCLOSE ' [,member-name]
                          [,library]
                          [,'NOREPL  ']);
```

Return codes

0 Normal completion.
4 Member already exists in the output library and NOREPL was specified. The original member is unchanged.
8 File not open. FTOPEN was not used before FTCLOSE.
12 Output file in use. ENQ failed.
16 Skeleton library or output file not allocated.
20 Severe error.

FTERASE—erase file tailoring output

Command invocation format

```
ISPEXEC  FTERASE  member-name  [LIBRARY(library)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('FTERASE ', member-name  [,library]);
```

Return codes

0 Normal completion.
8 File does not exist.
12 Output file in use; ENQ failed.
16 Alternate output library not allocated.
20 Severe error.

FTINCL—include a skeleton

Command invocation format

```
ISPEXEC  FTINCL  skel-name  [NOFT]  [EXT]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('FTINCL  ', skel-name [,'NOFT    '] [,'EXT     '] );
```

Return codes

0 Normal completion.
8 Skeleton does not exist.
12 Skeleton in use; ENQ failed.
16 Data truncation occurred or skeleton library or output file not allocated.
20 Severe error.

FTOPEN—begin file tailoring

Command invocation format

```
ISPEXEC  FTOPEN  [TEMP]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('FTOPEN  ' [,'TEMP    '] );
```

Return codes

0 Normal completion.
8 File tailoring already in progress.
12 Output file in use; ENQ failed.
16 Skeleton library or output file not allocated.
20 Severe error.

GETMSG—get a message

Command invocation format

```
ISPEXEC  GETMSG  MSG(message-id)  [SHORTMSG(short-message-name)]
                                  [LONGMSG(long-message-name)]
                                  [ALARM(alarm-name)]
                                  [HELP(help-name)]
                                  [TYPE(type-name)]
                                  [WINDOW(window-name)]
                                  [CCSID(ccsid-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('GETMSG  ' ,message-id  [,short-message-name]
                                       [,long-message-name]
                                       [,alarm-name]
                                       [,help-name]
                                       [,type-name]
                                       [,window-name]
                                       [,ccsid-name]);
```

Return codes

0 Normal completion.
12 The specified message could not be found.
20 Severe error.

GRERROR—graphics error block service

Command invocation format

```
ISPEXEC  *This service does not apply to
          command or APL2 procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used
                with this interface*
```

OR

```
CALL  ISPLINK  ('GRERROR ', error-record-pointer,
                        call-format-descriptor-module-pointer);
```

Return codes

0 Normal completion.
8 ISPF/ GDDM® interface is not established.
20 Severe error.

GRINIT—graphics initialization

Command invocation format

```
ISPEXEC  *This service does not apply to
          command or APL2 procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used
               with this interface*

OR

CALL  ISPLINK ('GRINIT  '  ,application-anchor-block
                         [,panel-name]);
```

Return codes

0 Normal completion.
8 The specified panel does not contain a GRAPHIC area.
12 The specified panel could not be found.
20 Severe error.

GRTERM—graphics termination service

Command invocation format

```
ISPEXEC  *This service does not apply to
          command or APL2 procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used
               with this interface*

OR

CALL  ISPLINK ('GRTERM  ');
```

Return codes

0 Normal completion.
20 Severe error.

LIBDEF—allocate application libraries

Command invocation format

```
ISPEXEC LIBDEF lib-type [DATASET|EXCLDATA|LIBRARY|EXCLLIBR]
                        [ID(dataset-list)|ID(libname)]
                        [COND|UNCOND|STACK|STKADD]
```

Note: The default option is set in the ISPF configuration table keyword DEFAULT_LIBDEF_PROCESSING_OPTION. By default this keyword is set to UNCOND.

Call invocation format

```
CALL ISPEXEC (buf-len, buffer);

OR

CALL ISPLINK ('LIBDEF  ', lib-type
                       [,'DATASET '|'EXCLDATA'|'LIBRARY '|'EXCLLIBR']
                       [,dataset-list|libname]
                       [,'COND    '|'UNCOND  ']|'STACK   '|'STKADD  ');
```

Note: The default option is set in the ISPF configuration table keyword DEFAULT_LIBDEF_PROCESSING_OPTION. By default this keyword is set to UNCOND.

Return codes

0 Normal completion.

4 When removing the application library: Application library does not exist for this type.

When STKADD is specified: There is no existing stack.

8 When COND is used: Application library already exists for this type.

12 ISPPROF was specified as the lib-type; invalid lib-type specified with EXCLDATA or EXCLLIBR.

16 A libname was not allocated, or the dataset-list contains an invalid MVS dsname.

20 Severe error.

LIST—write lines to the list data set

Command invocation format

```
ISPEXEC  LIST   BUFNAME(dialog-variable-name)
                LINELEN(line-length)
                [PAGE]
                [SINGLE|DOUBLE|TRIPLE]
                [OVERSTRK]
                [CC]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK   ('LIST    ', dialog-variable-name, line-length
                          [,'PAGE    ']
                          [,'SINGLE  '|'DOUBLE  '|'TRIPLE  ']
                          [,'OVERSTRK']
                          [,'CC      ']);
```

Return codes

0 Normal completion.

8 Maximum line length or data set LRECL exceeded; data has been truncated.

12 Specified dialog variable not found.

20 Severe error.

LMCLOSE—close a data set

Command invocation format

```
ISPEXEC LMCLOSE DATAID(data-id)
```

Call invocation format

```
CALL ISPLINK ('LMCLOSE ',data-id);
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.

8 Data set is not open.

10 No ISPF library or data set is associated with the given data ID; that is, LMINIT has not been completed.
20 Severe error; unable to continue.

LMCOMP—compresses a partitioned data set

Command invocation format

```
ISPEXEC LMCOMP DATAID(data-id)
```

Call invocation format

```
CALL ISPLINK ('LMCOMP  ',data-id);
```

OR

```
CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.
10 No data set is associated with the given data ID.
12 One of these:
- Data set not partitioned.
- Data set specified not allocated.
- Data set is open.
- Data set is not movable.
- Data set must be allocated exclusively. Use ENQ(EXCLU) in LMINIT service
- Concatenated libraries are not allowed for LMCOMP

20 Severe error; unable to continue.

LMCOPY—copy members of a data set

Command invocation format

```
ISPEXEC LMCOPY FROMID(from-data-id)
               [FROMMEM(from-member-name)]
               TODATAID(to-data-id)
               [TOMEM(to-member-name)]
               [REPLACE]
               [PACK]
               [TRUNC]
               [LOCK]
               [SCLMSET(YES|NO)]
               [ALIAS|NOALIAS]
```

Call invocation format

```
CALL ISPLINK ('LMCOPY  ', from-data-id
                        ,[from-member-name]
                        ,to-data-id
                        ,[to-member-name]
                        ,['REPLACE ']
                        ,['PACK    ']
                        ,['TRUNC   ']
                        ,['LOCK    ']
                        ,['YES     '|'NO      '|' ']
                        ,['ALIAS   '|'NOALIAS ']);
```

OR

```
CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Normal completion.

4 Member not available:
- The member is in a controlled ISPF library and is currently owned by another user.
- The member is in a controlled ISPF library and the user is not a valid user as specified by member access ID.
- Lock was requested but the project is SCLM-controlled.
- "From" library not LMF-controlled.
- "From" data set is empty.
- No members matched the specified pattern in the "from" data set.

8 "From" member not found.

10 No data set is associated with the given data ID.

12 One of these:
- Invalid data set organization.
- Data set attribute invalid for copying or copying packed data.
- Open error.
- A like named member already exists in the 'TO' data set, and the Replace option was not specified.
- One or more members of the 'TO' data set are "in use" by you or another user and could not be copied.

16 Truncation error.

20 Severe error; unable to continue.

LMDDISP—data set display service

Command invocation format

```
ISPEXEC LMDDISP LISTID(dslist-id)
                [VIEW(VOLUME|SPACE|ATTRIB|TOTAL)]
                [CONFIRM(YES|NO)]
                [PANEL(panel-name)]
                [CATALOG(YES |NO)]
                [TOTALS(YES |NO)]
                [STATUS(YES |NO)]
```

Call invocation format

```
CALL ISPEXEC (buf-len,buffer);

OR

CALL ISPLINK('LMDDISP ', dslist-id
                       , ['VOLUME  '|'SPACE   '|'ATTRIB  '|'TOTAL   ']
                       , ['YES     '|'NO      ']
                       , [panel-name]
                       , ['YES '|'NO ']
                       , ['YES '|'NO ']
                       , ['YES '|'NO ']);
```

Return codes

0 Normal completion.

10 A data set list does not exist for the list-id specified via keyword LISTID.

12 Invalid parameter value.

20 A severe error occurred while processing the data set list.

LMDFREE—free a data set list

Command invocation format

```
ISPEXEC LMDFREE LISTID(list-id-var)
```

Call invocation format

```
CALL ISPLINK ('LMDFREE ',list-id);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 Free dslist-id failed. The error condition is described in "Dialog error" on page 141.
10 No data set level or volume is associated with the given dslist-id. LMDINIT has not been completed.
20 Severe error; unable to continue.

LMDINIT—initialize a data set list

Command invocation format

```
ISPEXEC LMDINIT LISTID(dslist-id-var)
                {LEVEL(dsname-level)}
                {VOLUME(volume-serial)}
```

Call invocation format

```
CALL ISPLINK ('LMDINIT ' ,dslist-id-var
                         ,{dsname-level}
                         ,{volume-serial} );

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion. The unique dslist-id is returned in the variable specified in keyword LISTID.
8 Dslist-id not created; the error condition is described "Dialog error" on page 141.
12 A keyword value is incorrect.
16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMDLIST—list a data set

Command invocation format

```
ISPEXEC LMDLIST LISTID(dslist-id)
                [OPTION(LIST|FREE|SAVE|SAVEC|TOTALS)]
                [DATASET(dataset-var)]
                [STATS(Yes|NO|PRT)]
                [GROUP(group)]
                [STATUS(YES|NO)]
```

Call invocation format

```
CALL ISPLINK ('LMDLIST ' ,dslist-id
                         ,'LIST    '|'FREE    '|'SAVE    '|
                          'SAVEC   '|'TOTALS  ']
                         ,dataset-var
                         ,['YES     '|'NO      '|'NO      ']
                         ,[group]
                         ,['Yes '|'NO ']);
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 One of these:
- LIST option - Normal completion. The name of the next data set in the list is returned in the variable specified in keyword DATASET. Data set statistics are returned, if requested.
- FREE option - Normal completion. The internal storage associated with the data set is freed.
- SAVE option - Normal completion. The data set list has been successfully written to a data set. The total number of tracks and datasets are returned to dialog variables in the function pool, if requested.
- SAVEC option - Normal completion. The data set list has been successfully written to a data set. The total number of tracks and datasets are returned to dialog variables in the function pool, if requested.
- TOTALS option - Normal completion. No list has been written to a dataset. The total number of tracks and datasets are returned into dialog variables the function pool.

4 No data sets matched specified search criteria (the values for keywords LEVEL and VOLUME on the LMDINIT service).
8 End of data set list.
10 Data set list does not exist for list-id.
12 A keyword value is incorrect.
16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMERASE—erase a data set

Command invocation format

```
ISPEXEC LMERASE {PROJECT(project)
                GROUP(group)
                TYPE(type)       }
                {DATASET(dataset)}
                [PURGE(YES|NO)]
                [VOLUME(volume)]
                [PASSWORD(password)]
```

Call invocation format

```
CALL ISPLINK('LMERASE ',{project
                        ,group
                        ,type    }
                        ,{dataset}
                        ,['YES     '|'NO      ']);
                        ,[volume]
                        ,[password]);
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 One of these:

- Specified data set is not cataloged.
- Erase data set failed.
- Data set has not expired yet.
- Data set name is an alias.
- No data set specified as input
- PROJECT specified, but GROUP or TYPE not specified.

12 Expiration data not expired and PURGE (NO) specified.
20 Severe error; unable to continue.

LMFREE—free data set from its association with data ID

Command invocation format

```
ISPEXEC LMFREE DATAID(data-id)
```

Call invocation format

```
CALL ISPLINK ('LMFREE  ',data-id);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 Free data ID failed; the error condition is described “Dialog error” on page 141.
10 No ISPF library or data set is associated with the given data ID; that is, LMINIT has not been completed.
20 Severe error; unable to continue.

LMGET—read a logical record from a data set

Command invocation format

```
ISPEXEC LMGET DATAID(data-id)
              MODE(MOVE|LOCATE|INVAR|MULTX)
              DATALOC(dataloc-var)
              DATALEN(datalen-var)
              MAXLEN(max-length)
```

Call invocation format

```
CALL ISPLINK ('LMGET   ',data-id
                        ,'MOVE    '|'LOCATE  '|'INVAR   '|'MULTX   '
                        ,dataloc-var
                        ,datalen-var
                        ,max-length);
OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 End-of-data set condition; no message formatted.
10 No ISPF library or data set associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:

- The data set is not open or is not open for input.
- An LMMFIND was not done for a partitioned data set.
- The parameter value is invalid.

16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMINIT—generate a data ID for a data set

Command invocation format

```
ISPEXEC LMINIT DATAID(data-id-var)

      {PROJECT(project) GROUP1(group1) TYPE(type)
      [GROUP2(group2)] [GROUP3(group3)] [GROUP4(group4)]}
      {DATASET(dsname)                }
      {DDNAME(ddname)                 }
      [VOLUME(serial)] [PASSWORD(password)]
      [ENQ(SHR|EXCLU|SHRW|MOD)] [ORG(org-var)]
```

Call invocation format

```
CALL ISPLINK ('LMINIT  ', data-id-var
           ,{project,group1 [,group2]
                    [,group3] [,group4] ,type}
           ,{dsname                          }
           ,{ddname                          }
           ,[serial] ,[password]
           ,['SHR     '|'EXCLU   '|'SHRW    '|'MOD     '] ,[org-var]);

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Normal completion.
8 Data ID not created.
12 The parameter value is invalid.
16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMADD—add a member to a data set

Command invocation format

```
ISPEXEC LMMADD DATAID(data-id)
               MEMBER(member-name)
               [STATS(YES|NO)]
               [NOENQ]
```

Call invocation format

```
CALL ISPLINK ('LMMADD  ',data-id
                        ,member-name
                        ,['YES     '|'NO'])
                        ,['NOENQ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
4 Directory already contains the specified name.
10 No ISPF library or MVS data set is associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:

- The data set is not open or is not open for output.
- The parameter value is invalid.
- The data set organization is invalid.
- The values for some member statistics are invalid.

14 No record has been written for the member to be added.
16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMDEL—delete members from a data set

Command invocation format

```
ISPEXEC LMMDEL DATAID(data-id)
               MEMBER(member-name)
               [NOENQ]
```

Call invocation format

```
CALL ISPLINK('LMMDEL  ',data-id
                       ,member-name)
                       ,['NOENQ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 Member not found.
10 No data set is associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:
- The data set is not open or is not open for output.
- The parameter value is invalid.
- The data set organization is invalid.

20 Severe error; unable to continue.

LMMDISP—member list service: Display option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        [OPTION(DISPLAY)]
        [MEMBER(pattern)]
        [STATS(YES|NO)]
        [PANEL(panel-name)]
        [CURSOR(ZCMD|ZLLCMD|ZLUDATA)]
        [TOP(top-row)]
        [COMMANDS(S|ANY)]
        [FIELD(I|9)]
        [ALLOWNEW]
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
        ,['DISPLAY ']
        ,[pattern]
        ,['YES     '|'NO      ']
        ,[panel-name]
        ,['ZCMD    '|'ZLLCMD  '|'ZLUDATA ']
        ,[top-row]
        ,' '
        ,' '
```

```
        ,['S       '|'ANY     ']
        ,[1|9]
        ,['ALLOWNEW'];

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 One or more members were selected or a primary command not recognized by LMMDISP was entered.

4 The requested data sets were empty, or no members matched the specified pattern.

8 END or RETURN was entered.

10 No data set is associated with the given data ID; LMINIT has not been completed.

12 Indicates one of these conditions:
- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMMDISP—member list service: GET option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        OPTION(GET)
        [STATS(YES|NO)]
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
         ,'GET     '
         ,' '
         ,['YES     '|'NO      ']);

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.

8 No more selected members.

10 No data set is associated with the given data ID; LMINIT has not been completed.

12 Indicates one of these conditions:
- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.
- Member list has not been created.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMMDISP—member list service: PUT option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        OPTION(PUT)
        MEMBER(member-name)
        [ZLLCMD(lcmd-value)]
        [ZLUDATA(udata-value)]
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
        ,'PUT     '
        ,member-name
        ,' '
        ,' '
        ,' '
        ,' '
        ,[lcmd-value]
        ,[udata-value]);

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.

8 Specified member does not exist.

10 No data set is associated with the given data ID; LMINIT has not been completed.

12 Indicates one of these conditions:

- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.
- Member list has not been created.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMMDISP—member list service: ADD option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        OPTION(ADD)
        MEMBER(member-name)
        [ZLLCMD(lcmd-value)]
        [ZLUDATA(udata-value)]
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
        ,'ADD     '
        ,member-name
        ,' '
        ,' '
        ,' '
        ,' '
        ,[lcmd-value]
        ,[udata-value]);
```

```
OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.
8 Member already exists in member list.
10 No data set is associated with the given data ID; LMINIT has not been completed.
12 Indicates one of these conditions:
- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.
- Member list has not been created.

16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMDISP—member list service: DELETE option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        OPTION(DELETE)
        MEMBER(member-name)
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
                       ,'DELETE  '
                       ,member-name);

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.
8 A specified member does not exist in the member list.
10 No data set is associated with the given data ID; LMINIT has not been completed.
12 Indicates one of these conditions:
- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.
- Member list has not been created.

16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMDISP—member list service: FREE option

Command invocation format

```
ISPEXEC LMMDISP DATAID(data-id)
        OPTION(FREE)
```

Call invocation format

```
CALL ISPLINK('LMMDISP ', data-id
                       ,'FREE    ');

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.
8 No member list is associated with the given data ID.
10 No data set is associated with the given data ID; LMINIT has not been completed.
12 Indicates one of these conditions:
- Data sets not open.
- Data sets not partitioned.
- Invalid parameter value.
- Invalid data set organization.
- Invalid invocation syntax.

16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMFIND—find a library member

Command invocation format

```
ISPEXEC LMMFIND DATAID(data-id)
                MEMBER(member-name)
                [LOCK]
                [LRECL(lrecl-var)]
                [RECFM(recfm-var)]
                [GROUP(group-var)]
                [STATS(YES|NO)]
                [NOLLA]
```

Call invocation format

```
CALL ISPLINK ('LMMFIND ',data-id
                        ,member-name
                        ,['LOCK    ']
                        ,[lrecl-var]
                        ,[recfm-var]
                        ,[group-var]
                        ,['YES     '|'NO      ']
                        ,['NOLLA   ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion. If you specify LOCK and the member is in a controlled ISPF library, a return code of zero shows that the user is a valid user as specified by the member access ID. The member is available and is now currently owned by the user. The member is not available for updating by any other user. For more information about the member access ID, see *ISPF Library Management Facility*.
4 One of these:
- Member not available; the member resides in a controlled ISPF library and is currently owned by another user.

- Member not available; the member resides in a controlled ISPF library, and the user is not a valid user as specified by the member access ID.
- Lock was requested but the project is SCLM-controlled.

8 Member not found.

10 No data set is associated with the given data ID; that is, LMINIT has not been completed.

12 One of these:
- Data set is not open or is not open for input.
- The parameter value is invalid.
- Data set is not partitioned.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMMLIST—list a library's members

Command invocation format

```
ISPEXEC LMMLIST DATAID(data-id)
                [OPTION(LIST|FREE|SAVE)]
                [MEMBER(member-var)]
                [STATS(YES|NO)]
                [GROUP(group)]
                [PATTERN(member-pattern)]
                [LONG]
```

Call invocation format

```
CALL ISPLINK ('LMMLIST ',data-id
                        ,['LIST    '|'FREE    '|'SAVE    ']
                        ,[member-var]
                        ,['YES     '|'NO      ']
                        ,[group])
                        ,[member-pattern]
                        ,[LONG]);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 One of these:
- LIST option - Normal completion. The member list is available and the next member in the list is returned in the member-var parameter.
- FREE option - Normal completion. The member list is freed successfully.
- SAVE option - Normal completion. The member list is successfully written to the data set.

4 Empty member list.

8 One of these:
- LIST option - End of member list.
- FREE option - Member list does not exist.
- SAVE option - For a data ID, the LMMLIST service was invoked with the SAVE option after being invoked with the LIST option, but before being invoked with the FREE option.

10 No data set is associated with the given data ID; that is, LMINIT has not been completed.

12 One of these:
- The data set is not open or is not partitioned.
- The parameter value is invalid.
- Member list was created using LMMDISP.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMMOVE—move members of a data set

Command invocation format

```
ISPEXEC LMMOVE FROMID(from-data-id)
               [FROMMEM(from-member-name)]
               TODATAID(to-data-id)
               [TOMEM(to-member-name)]
               [REPLACE]
               [PACK]
               [TRUNC]
               [SCLMSET(YES|NO)]
               [ALIAS|NOALIAS]
```

Call invocation format

```
CALL ISPLINK ('LMMOVE  ' ,from-data-id
                         ,[from-member-name]
                         ,to-data-id
                         ,[to-member-name]
                         ,['REPLACE ']
                         ,['PACK    ']
                         ,['TRUNC   ']
                         ,['YES     '|'NO      '|' ']
                         ,['ALIAS   '|'NOALIAS ']);
```

OR

```
CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Successful completion.

4 One of these:
- "From" data set is empty.
- No member matched the pattern in the "from" data set.

8 "From" member not found.

10 No data set is associated with given data ID.

12 One of these:
- Invalid data set organization.
- Data set attribute invalid for packed data.
- Open error.
- A like named member already exists in the 'TO' data set, and the Replace option was not specified.
- One or more members of the 'TO' data set are "in use" by you or another user and could not be copied.

16 Truncation error.

20 Severe error; unable to continue.

LMMREN—rename a data set member

Command invocation format

```
ISPEXEC LMMREN DATAID(data-id)
               MEMBER(old-member-name)
               NEWNAME(new-member-name)
               [NOENQ]
```

Call invocation format

```
CALL ISPLINK('LMMREN  ',data-id
                       ,old-member-name
                       ,new-member-name)
                       ,['NOENQ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
4 Directory already contains the specified new name.
8 Member not found.
10 No data set is associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:
- The data set is not open or is not open for output.
- The parameter value is invalid.
- The data set organization is invalid.

20 Severe error; unable to continue.

LMMREP—replace a member of a data set

Command invocation format

```
ISPEXEC LMMREP DATAID(data-id)
               MEMBER(member-name)
               [STATS(YES|NO)]
               [NOENQ]
```

Call invocation format

```
CALL ISPLINK('LMMREP  ',data-id
                       ,member-name
                       ,['YES     '|'NO      '])
                       ,['NOENQ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
8 Member is added; it did not previously exist.
10 No data set is associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:
- The data set is not open or is not open for output.
- The parameter value is invalid.
- The data set organization is invalid.
- Some member statistics have invalid values.

14 No record has been written for the member to be replaced.
16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMMSTATS—set and store ISPF statistics

Command invocation format

```
ISPEXEC LMMSTATS DATAID(data-id) MEMBER(member-name)
                 [VERSION(version-number)]
                 [MODLEVEL(mod-level)]
                 [CREATED(create-date)]
                 [MODDATE(last-modified-date)]
                 [MODTIME(last-modified-time)]
                 [CURSIZE(current-size)]
                 [INITSIZE(initial-size)]
                 [MODRECS(records-modified)]
                 [USER(user-id)]
                 [DELETE]
                 [CREATED4(4-char-year-create-date)]
                 [MODDATE4(4-char-year-last-modified-date)]
                 [SCLM(ON|OFF|ASIS)]
                 [NOLLA]
```

Call invocation format

```
CALL ISPLINK ('LMMSTATS',data-id
                        ,member-name
                        ,[version-number]
                        ,[mod-level]
                        ,[create-date]
                        ,[last-modified-date]
                        ,[last-modified-time]
                        ,[current-size]
                        ,[initial-size]
                        ,[records-modified]
                        ,[user-id]
                        ,['DELETE  ']
                        ,[4-char-year-create-date]
                        ,[4-char-year-last-modified-date]
                        ,[ON|OFF|ASIS]
                        ,['NOLLA   ']);
```

OR

```
CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Normal completion.

4 One of these:
- Data set is empty.
- No members matched the pattern.

8 Member not found.

10 No data set is associated with the given data ID; that is, LMINIT has not been completed.

12 One of these:
- Invalid parameter value.
- Data set is not partitioned.
- Data ID represents a concatenation of data sets.
- Data set is open for output.

20 Severe error; unable to continue.

LMOPEN—open a data set

Command invocation format

```
ISPEXEC LMOPEN DATAID(data-id)
               [OPTION(INPUT|OUTPUT)]
               [LRECL(lrecl-var)]
               [RECFM(recfm-var)]
               [ORG(org-var)]
```

Call invocation format

```
CALL ISPLINK ('LMOPEN  ',data-id
                        ,['INPUT   '|'OUTPUT  ']
                        ,[lrecl-var]
                        ,[recfm-var]
                        ,[org-var]);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.

8 Data set could not be opened.

10 No data set is associated with the given data ID; that is, LMINIT has not been completed.

12 One of these:
- The parameter value is invalid.
- Data set is already open.
- Cannot open concatenated data sets for output.
- Cannot open a data set allocated SHR for output.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMPRINT—print a partitioned or sequential data set

Command invocation format

```
ISPEXEC LMPRINT DATAID(data-id)
                [MEMBER(member-name)]
                [INDEX]
                [FORMAT(YES|NO)]
                [NOLLA]
```

Call invocation format

```
CALL ISPLINK ('LMPRINT ',data-id
                        ,[member-name]
                        ,['INDEX   ']
                        ,['YES     '|'NO      ']
                        ,['NOLLA   ']);

OR

CALL ISPEXEC (buf-len,buffer);
```

Return codes

0 Normal completion.

4 One of these:
- Data set is empty.
- No members matched the pattern.

8 Member not found.
10 No data set associated with given data ID.
12 One of these:
- Invalid data set organization; must be partitioned or sequential.
- Invalid parameter.

20 Severe error; unable to continue.

LMPUT—write a logical record to a data set

Command invocation format

```
ISPEXEC LMPUT DATAID(data-id)
              MODE(INVAR|MOVE|MULTX)
              DATALOC(dataloc-var)
              DATALEN(data-length)
              [NOBSCAN]
```

Call invocation format

```
CALL ISPLINK ('LMPUT   ',data-id
                        ,'INVAR   '|'MOVE    '|'MULTX'
                        ,dataloc-var
                        ,data-length
                        ,' '
                        ,['NOBSCAN ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.
10 No data set is associated with the given data ID; that is, LMINIT has not been completed.
12 One of these:
- The data set is not open or is not open for output.
- The parameter value is invalid.

16 Truncation or translation error in accessing dialog variables.
20 Severe error; unable to continue.

LMQUERY—give a dialog information about a data set

Command invocation format

```
ISPEXEC LMQUERY DATAID(data-id)
        [PROJECT(proj-var)]
        [GROUP1(group1-var)]
        [GROUP2(group2-var)]
        [GROUP3(group3-var)]
        [GROUP4(group4-var)]
        [TYPE(type-var)]
        [DATASET(dsn-var)]
        [DDNAME(ddn-var)]
        [VOLUME(serial-var)]
        [ENQ(enq-var)]
        [OPEN(open-var)]
        [LRECL(lrecl-var)]
        [RECFM(recfm-var)]
        [DSORG(dsorg-var)]
        [ALIAS(alias-var)]
        [PASSWORD(password-var)]
        [OVOLUME(ovolume-var)]
```

Call invocation format

```
CALL ISPLINK ('LMQUERY ',data-id
             ,[proj-var]
             ,[group1-var]
             ,[group2-var]
             ,[group3-var]
             ,[group4-var]
             ,[type-var]
             ,[dsn-var]
             ,[ddn-var]
             ,[serial-var]
             ,[enq-var]
             ,[open-var]
             ,[lrecl-var]
             ,[recfm-var]
             ,[dsorg-var]
             ,[alias-var]
             ,[password-var]
             ,[ovolume-var]);
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.

4 No applicable information available for a specified keyword; blanks are returned.

10 No data set is associated with the given data ID; that is, LMINIT has not been completed.

16 Truncation or translation error in accessing dialog variables.

20 Severe error; unable to continue.

LMRENAME—rename an ISPF library

Command invocation format

```
ISPEXEC LMRENAME PROJECT(project)
                 GROUP(group)
                 TYPE(type)
                 {[NEWPROJ(new-project)]
                  [NEWGROUP(new-group)]
                  [NEWTYPE(new-type)]   }
```

Call invocation format

```
CALL ISPLINK('LMRENAME',project
                       ,group
                       ,type
                       ,{[new-project]
                       ,[new-group]
                       ,[new-type]   });
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion.

4 New name already exists.

8 One of these:

- Specified data set does not exist.

- Rename or catalog failed.
- Data set name is an alias.

12 The parameter value is invalid.
20 Severe error; unable to continue.

LOG—write a message to the log data set

Command invocation format

```
ISPEXEC  LOG  MSG(message-id)
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('LOG     ', message-id);
```

Return codes

0 Normal completion.
12 The message ID contains invalid syntax or was not found.
20 Severe error.

MEMLIST—member list dialog

Command invocation format

```
ISPEXEC MEMLIST DATAID(data-id)
          [MEMBER(pattern)]
          [CONFIRM(YES|NO)]
          [PANEL(panel-name)]
          [FIELD(1|9)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK   ('MEMLIST ', data-id,
                   [,pattern]
                   [,YES|NO]
                   [,panel-name]
                   [,1|9]);
```

Return codes

0 Normal completion.
8 The requested data set was empty or no members matched the specified pattern.
10 No data set is associated with the given data ID. LMINIT has not been completed.
12 One of these:

- Data set not partitioned.
- Parameter value not valid.
- Invocation syntax not valid.

16 A truncation or translation error occurred in accessing dialog variables.
20 Severe error.

PQUERY—obtain panel information

Command invocation format

```
ISPEXEC PQUERY PANEL(panel-name) AREANAME(area-name)
                                 [AREATYPE(area-type-name)]
                                 [WIDTH(area-width-name)]
                                 [DEPTH(area-depth-name)]
                                 [ROW(row-number-name)]
                                 [COLUMN(column-number-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK   ('PQUERY  ', panel-name, area-name
                                      [,area-type-name]
                                      [,area-width-name]
                                      [,area-depth-name]
                                      [,row-number-name]
                                      [,column-number-name]);
```

Return codes

0 Normal completion.
8 The panel does not contain the specified area.
12 The specified panel cannot be found.
16 Not all values are returned because insufficient space was provided.
20 Severe error.

QBASELIB—query base library information

Command invocation format

```
ISPEXEC QBASELIB dd-name [ID(id-var)]
```

Call invocation format

```
CALL ISPEXEC (buf-len, buffer);
```

OR

```
CALL ISPLINK ('QBASELIB',dd-name,[,id-var)]);
```

Return codes

0 A DDNAME for the specified ddname exists and the requested information, if any, has been successfully returned.
4 The specified dd-name is not valid.
16 A dialog variable translation or truncation error has occurred.
20 A severe error has occurred.

QLIBDEF—query LIBDEF definition information

Command invocation format

```
ISPEXEC QLIBDEF lib-type [TYPE(type-var)] [ID(id-var)]
```

Call invocation format

```
CALL ISPEXEC (buf-len, buffer);

OR

CALL ISPLINK ('QLIBDEF ',lib-type,[,type-var][,id-var]);
```

Return codes

0 A LIBDEF definition for the specified lib-type exists and the requested information, if any, has been successfully returned.
4 The specified lib-type does not have an active LIBDEF definition.
12 An invalid lib-type value of ISPPROF has been specified.
16 A dialog variable translation or truncation error has occurred.
20 A severe error has occurred.

QTABOPEN—query open ISPF tables

Command invocation format

```
ISPEXEC QTABOPEN  LIST(list-var)
```

Call invocation format

```
CALL ISPLINK  ('QTABOPEN ',list-var);
```

Return codes

These return codes are possible:

0 Normal completion.

4 List incomplete. There was insufficient space to contruct a valid variable name.

12 Prefix too long. List-var must be 7 characters or less.

20 Severe error.

QUERYENQ—query system ENQ data

Command invocation format

```
ISPEXEC QUERYENQ  TABLE(table-name)
                  QNAME(qname)
                  RNAME(rname)
                  REQ(pattern)
                  WAIT
                  LIMIT(limit)
                  SAVE(list-id)
                  XSYS
```

Call invocation format

```
CALL ISPLINK ('QUERYENQ'   ,table-name
                           ,qname
                           ,rname
                           ,pattern
                           ,['WAIT  ']
                           ,limit
                           ,list-id
                           ,['XSYS   ']);

OR

CALL ISPEXEC (buf-len, buffer);
```

Variables returned in each row of the table

Name	Size	Description
ZENJOB	8	Job or address space name holding or requesting the ENQ
ZENQNAME	8	Qname portion of the ENQ
ZENRNAME	255	Rname portion of the ENQ
ZENDISP	5	SHARE or EXCLU
ZENHOLD	4	OWN or WAIT
ZENSCOPE	7	SYSTEM or SYSTEMS
ZENSTEP	7	STEP or blank
ZENGLOBL	6	GLOBAL or blank
ZENSYST	8	System name

Return codes

0 Table returned or data set written, but XSYS parameter was not specified and the system is running in STAR mode. The data returned may not reflect all ENQs on all systems.
2 Table returned or data set written.
4 Table returned but truncated due to limit.
8 No ENQs satisfy the request.
10 No ENQs satisfy the request, but XSYS parameter was not specified and the system is running in STAR mode. The data returned may not reflect all ENQs on all systems.
12 Table creation error, parameter or other termination error. See messages for more detail. This includes services not available due to configuration table restrictions.
14 The SAVE data set is in use by another user.
20 Severe error, including TBADD error or data set creation errors.

REMPOP—remove a pop-up window

Command invocation format

```
ISPEXEC REMPOP  [ ALL ]
```

Call invocation format

```
CALL ISPEXEC  (buf-len, buffer);
```

OR

```
CALL ISPLINK  ('REMPOP  ' ['ALL     ']);
```

Return codes

0 Normal completion.
16 A pop-up window does not exist at this select level.
20 Severe error.

SELECT—select a panel or function

Command invocation format

```
ISPEXEC  SELECT { PANEL(panel-name)  [OPT(option)]  [ADDPOP] }
                {                                             }
                { CMD(command)       [LANG(APL|CREX)]         }
                {                    [MODE(LINE|FSCR)]        }
```

```
                {                    [BARRIER]              }
                {                    [NEST]                 }
                {                                           }
                { PGM(program-name)  [PARM(parameters)]     }
                {                    [MODE(LINE|FSCR)]      }
                { WSCMD(workstation-command)                }
                {                    [MODAL|MODELESS]       }
                {                    [WSDIR(DIR)]           }
                {                    [MAX|MIN]              }
                {                    [VIS|INVIS]            }
                { WSCMDV(var_name)                          }
                {                    [MODAL|MODELESS]       }
                {                    [WSDIR(DIR)]           }
                {                    [MAX|MIN]              }
                {                    [VIS|INVIS]            }

        [NEWAPPL [(application-id)][PASSLIB]]|[NEWPOOL]
        [SUSPEND]
        [EXCLPROF]
        [SCRNAME(screen-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('SELECT  ', length, keywords);
```

Note: These parameters can appear in "keywords":

```
                { PANEL(panel-name)  [OPT(option)]  [ADDPOP] }
                {                                           }
                { CMD(command)  [LANG(APL|CREX)]            }
                {               [MODE(LINE|FSCR)]           }
                {               [BARRIER]                   }
                {               [NEST]                      }
                {                                           }
                { PGM(program-name)  [PARM(parameters)]     }
                {                    [MODE(LINE|FSCR)]      }
                { WSCMD(workstation-command)                }
                {                    [MODAL|MODELESS]       }
                {                    [WSDIR(DIR)]           }
                {                    [MAX|MIN]              }
                {                    [VIS|INVIS]            }
                { WSCMDV(var_name)                          }
                {                    [MODAL|MODELESS]       }
                {                    [WSDIR(DIR)]           }
                {                    [MAX|MIN]              }
                {                    [VIS|INVIS]            }

               [NEWAPPL [(application-id)][PASSLIB]]|[NEWPOOL]
               [SUSPEND]
               [EXCLPROF]
               [SCRNAME(screen-name)]
```

Return codes

These return codes are possible if a panel is specified:

0 Normal completion. The END command was entered from the selected menu.

4 Normal completion. The RETURN command was entered or the EXIT option was specified from the selected menu or from some lower-level menu.

12 The specified panel could not be found.

16 Truncation error in storing the ZCMD or ZSEL variable.

20 Severe error.

Notes:

1. A return code of 0 is returned when the SELECT service has been coded with no other parameters.
2. If a command or program is invoked by using SELECT, the return code from the command or program is passed to the function that invoked SELECT.

These return codes are possible from a MODAL workstation command:

20 Parameter or syntax on SELECT service (all SELECTs) is not valid.
41 A null command was passed to the workstation.
42 ISPF was not able to start the command at the workstation.
43 Remote execution of commands was not allowed by the user.
OTHER
The return code from the workstation command + 100 if the return code from the workstation command was > 0.

SETMSG—set next message

Command invocation format

```
ISPEXEC  SETMSG  MSG(message-id)
                 [COND]
                 [MSGLOC(message-field-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('SETMSG  ', message-id [,'COND    ']
                                      [,message-field-name]);
```

Return codes

0 Normal completion.
4 SETMSG with COND parameter issued and a SETMSG request was pending.
12 The specified message field name or message could not be found.
20 Severe error.

TBADD—add a row to a table

Command invocation format

```
ISPEXEC  TBADD  table-name
                [SAVE(name-list)]
                [ORDER]
                [MULT(number-of-rows)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBADD   ', table-name
                           [,name-list]
                           [,'ORDER   ']
                           [,number-of-rows]);
```

Return codes

0 Normal completion.
4 The number-of-rows parameter was specified but storage was obtained for only a single row.
8 A row with the same key already exists; CRP set to TOP (zero). Returned only for tables with keys.
12 Table is not open.
16 Numeric convert error; see numeric restrictions for TBSORT. Returned only for sorted tables.
20 Severe error.

TBBOTTOM—set the row pointer to bottom

Command invocation format

```
ISPEXEC  TBBOTTOM  table-name  [SAVENAME(var-name)]
                                [ROWID(rowid-name)]
                                [NOREAD]
                                [POSITION(crp-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBBOTTOM', table-name [,var-name]
                                      [,rowid-name]
                                      [,'NOREAD  ']
                                      [,crp-name]);
```

Return codes

0 Normal completion.
8 Table is empty; CRP set to TOP (zero).
12 Table is not open.
16 Variable value has been truncated, or insufficient space was provided to return all extension variable names.
20 Severe error.

TBCLOSE—close and save a table

Command invocation format

```
ISPEXEC  TBCLOSE  table-name  [NEWCOPY|REPLCOPY]
                               [NAME(alt-name)]
                               [PAD(percentage)]
                               [LIBRARY(library)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBCLOSE ', table-name [,'NEWCOPY '|'REPLCOPY']
                                      [,alt-name]
                                      [,percentage]
                                      [,library]);
```

Return codes

0 Normal completion.
12 Table is not open.
16 Alternate table output library was not allocated.
20 Severe error.

TBCREATE—create a new table

Command invocation format

```
ISPEXEC  TBCREATE  table-name  [KEYS(key-name-list)]
                                [NAMES(name-list)]
                                [WRITE|NOWRITE]
                                [REPLACE]
                                [LIBRARY(library)]
                                [SHARE]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBCREATE', table-name [,key-name-list]
                                      [,name-list]
                                      [,'WRITE   '|'NOWRITE ']
                                      [,'REPLACE ']
                                      [,library]
                                      [,'SHARE   ']);
```

Return codes

0 Normal completion.
4 Normal completion—a duplicate table exists but REPLACE was specified.
8 Either the table already exists and REPLACE was not specified, or REPLACE was specified and the table is in SHARE mode.
12 Table in use; ENQ failed.
16 WRITE mode specified and alternate table input library not allocated. TBCREATE checks the input library to determine if a duplicate table exists. See return code 8.
20 Severe error.

TBDELETE—delete a row from a table

Command invocation format

```
ISPEXEC  TBDELETE  table-name
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBDELETE', table-name);
```

Return codes

0 Normal completion.

8 Keyed tables: the row specified by the value in key variables does not exist; CRP set to TOP (zero). Non-keyed tables: CRP was at TOP (zero) and remains at TOP.
12 Table is not open.
20 Severe error.

TBDISPL—display table information

Command invocation format

```
ISPEXEC  TBDISPL  table-name  [PANEL(panel-name)]
                              [MSG(message-id)]
                              [CURSOR(field-name)]
                              [CSRROW(table-row-number)]
                              [CSRPOS(cursor-position)]
                              [AUTOSEL(YES|NO)]
                              [POSITION(crp-name)]
                              [ROWID(rowid-name)]
                              [MSGLOC(message-field-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
CALL  ISPLINK ('TBDISPL ', table-name [,panel-name]
                                      [,message-id]
                                      [,field-name]
                                      [,table-row-number]
                                      [,cursor-position]
                                      [,'YES     '|'NO      ']
                                      [,crp-name]
                                      [,rowid-name]
                                      [,message-field-name]);
```

Return codes

0 If the panel definition contains neither a)REINIT nor a)PROC section, the Enter key was pressed, or a scroll command was entered. Any of these occurred:

- One row was selected in the scrollable part of the display. The CRP is set to point to that table row and the row is retrieved. The input fields from the selected model set on the display are then stored in the function pool.
- The user entered information into the fixed portion of the display.
- All of these:
  - A scroll return to function has been specified (ZTDRET defined to UP, DOWN, or VERTICAL).
  - More rows are needed to fill a scroll request.
  - No selected rows remain to be processed.

If the panel definition contains a)REINIT or)PROC section, there is the additional possibility that the user entered no information and just pressed Enter.

4 The Enter key was pressed or a scroll command was entered. The first or both of these occurred:

- Two or more rows in the scrollable part of the display were selected. The CRP is set to the first selected row and the row is retrieved. The input fields from the selected model set on the display are then stored in the function pool.
- The user entered information into the fixed portion of the display.
- If scroll return to function has been specified, and two or more rows are selected for processing, TBDISPL returns a return code 4 until all

selected rows are processed. You process the request for more rows to be added to the table only after all selected rows have been processed; that is, only when ZTDSELS has a value of 0.

For subsequent TBDISPL requests with no panel name and no message ID, return code 4 is issued for each request until one selected row remains to be accessed. For this last row, a return code of zero is issued by TBDISPL, still specified with no panel name and no message ID. The variable ZTDSELS will have a value of one.

8 The END or RETURN command was entered. For panels created by the tag conversion utility, CANCEL and EXIT commands also give a return code of 8. If CANCEL and EXIT are requested from a panel displayed using TBDISPL service calls and the panel was defined with dialog tag language (DTL), the dialog manager returns the command in ZVERB and sets a return code of 8 from the display screen. The CRP is set to the first of any selected rows in the scrollable part of the display. The input fields from the selected model set on the display are then stored in the function pool. If no rows were selected, the CRP is at the top (zero). To process all selected rows when END or RETURN was entered, continue to issue TBDISPL requests with no panel name or message ID specified until ZTDSELS is one.

If the user enters the END command on a table display panel, a subsequent redisplay will result in a return code of 8.

The user may have entered information into the fixed portion of the display.

12 The specified panel, message, cursor field, or message location field could not be found.

16 Truncation or translation error in storing defined variables.

20 Severe error.

TBEND—close a table without saving

Command invocation format

```
ISPEXEC  TBEND  table-name
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBEND   ', table-name);
```

Return codes

0 Normal completion.
12 Table is not open.
20 Severe error.

TBERASE—erase a table

Command invocation format

```
ISPEXEC  TBERASE  table-name [LIBRARY(library)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBERASE ', table-name [,library]);
```

Return codes

0 Normal completion.
8 Table does not exist in the output library.
12 Table in use; ENQ failed.
16 Table output library not allocated.
20 Severe error.

TBEXIST—determine whether a row exists in a table

Command invocation format

```
ISPEXEC  TBEXIST  table-name
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBEXIST ', table-name);
```

Return codes

0 Normal completion; the CRP is positioned to the specified row.
8 Keyed tables: the specified row does not exist; the CRP is set to TOP (zero).
Non-keyed tables: service not possible; the CRP is set to TOP.
12 Table is not open.
20 Severe error.

TBGET—retrieve a row from a table

Command invocation format

```
ISPEXEC  TBGET  table-name  [SAVENAME(var-name)]
                           [ROWID(rowid-name)]
                           [NOREAD]
                           [POSITION(crp-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBGET   ', table-name [,var-name]
                                      [,rowid-name]
                                      [,'NOREAD  ']
                                      [,crp-name]);
```

Return codes

0 Normal completion.

8 Keyed tables: The row specified by the value in the key variables does not exist; the CRP is set to TOP (zero). Non-keyed tables: the CRP was at TOP and remains at TOP.
12 Table is not open.
16 Variable value has been truncated, or insufficient space was provided to return all extension variable names.
20 Severe error.

TBMOD—modify a row in a table

Command invocation format

```
ISPEXEC  TBMOD  table-name  [SAVE(name-list)]
                            [ORDER]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBMOD   ', table-name [,name-list]
                                      ['ORDER   ']);
```

Return codes

0 Normal completion. Keyed tables: Existing row was updated. Non-keyed tables: New row was added to table.
8 Keys did not match; new row was added to the table. Returned only for tables with keys.
12 Table is not open.
16 Numeric conversion error; see numeric restrictions for TBSORT. Returned only for sorted tables.
20 Severe error.

TBOPEN—open a table

Command invocation format

```
ISPEXEC  TBOPEN  table-name  [WRITE|NOWRITE]
                            [LIBRARY(library)]
                            [SHARE]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBOPEN  ', table-name [,'WRITE   '|'NOWRITE ']
                                      [,library]
                                      ['SHARE   ']);
```

Return codes

0 Normal completion.
8 Table does not exist.
12 ENQ failed; table was in use by another user or the current user.
16 Table input library was not allocated.
20 Severe error.

TBPUT—update a row in a table

Command invocation format

```
ISPEXEC  TBPUT  table-name  [SAVE(name-list)]
                            [ORDER]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBPUT   ', table-name [,name-list]
                                      [,'ORDER   ']);
```

Return codes

0 Normal completion.
8 Keyed tables: the key does not match that of the current row; CRP set to TOP (zero). Non-keyed tables: CRP was at TOP and remains at TOP.
12 Table is not open.
16 For sorted tables: numeric conversion error; see numeric restrictions for TBSORT.
20 Severe error.

TBQUERY—obtain table information

Command invocation format

```
ISPEXEC  TBQUERY  table-name  [KEYS(key-name)]
                              [NAMES(var-name)]
                              [ROWNUM(rownum-name)]
                              [KEYNUM(keynum-name)]
                              [NAMENUM(namenum-name)]
                              [POSITION(crp-name)]
                              [SORTFLDS(srt-name)]
                              [SARGLIST(lst-name)]
                              [SARGCOND(cond-name)]
                              [SARGDIR(dir-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBQUERY ', table-name [,key-name]
                                      [,var-name]
                                      [,rownum-name]
                                      [,keynum-name]
                                      [,namenum-name]
                                      [,crp-name]
                                      [,srt-name]
                                      [,lst-name]
                                      [,cond-name]
                                      [,dir-name]);
```

Return codes

0 Normal completion.
12 Table is not open.
16 Not all keys or names were returned because insufficient space was provided.
20 Severe error.

TBSARG—define a search argument

Command invocation format

```
ISPEXEC  TBSARG  table-name  [ARGLIST(name-list)]
                              [NEXT|PREVIOUS]
                              [NAMECOND(name-cond-pairs)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBSARG  ', table-name
                          [,name-list]
                          [,'NEXT    '|'PREVIOUS']
                          [,name-cond-pairs]);
```

Return codes

0 Normal completion.
8 All column variables are null and the name-list parameter was not specified; no argument is established.
12 Table is not open.
20 Severe error.

TBSAVE—save a table

Command invocation format

```
ISPEXEC  TBSAVE  table-name  [NEWCOPY|REPLCOPY]
                              [NAME(alt-name)]
                              [PAD(percentage)]
                              [LIBRARY(library)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBSAVE  ', table-name, [,'NEWCOPY '|'REPLCOPY']
                                       [,alt-name]
                                       [,percentage]
                                       [,library]);
```

Return codes

0 Normal completion.
12 Table is not open.
16 Alternate table output library was not allocated.
20 Severe error.

TBSCAN—search a table

Command invocation format

```
ISPEXEC  TBSCAN  table-name  [ARGLIST(name-list)]
                              [SAVENAME(var-name)]
                              [ROWID(rowid-name)]
                              [NEXT|PREVIOUS]
```

```
                                [NOREAD]
                                [POSITION(crp-name)]
                                [CONDLIST(condition-value-list)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBSCAN  ', table-name [,name-list]
                                      [,var-name]
                                      [,rowid-name]
                                      [,'NEXT    '|'PREVIOUS']
                                      [,'NOREAD  ']
                                      [,crp-name]
                                      [,condition-value-list]);
```

Return codes

0 Normal completion.
8 Row does not exist, no match was found; CRP is set to TOP (zero). The row ID remains unchanged.
12 Table is not open.
16 Variable value has been truncated, or insufficient space is provided to return all extension variable names.
20 Severe error.

TBSKIP—move the row pointer

Command invocation format

```
ISPEXEC  TBSKIP  table-name  [NUMBER(number)]
                            [SAVENAME(var-name)]
                            [ROWID(rowid-name)]
                            [ROW(rowid)]
                            [NOREAD]
                            [POSITION(crp-name)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('TBSKIP  ', table-name [,number]
                                      [,var-name]
                                      [,rowid-name]
                                      [,rowid]
                                      [,'NOREAD  ']
                                      [,crp-name]);
```

0 Normal completion.
8 CRP would have gone beyond the number of rows in the table. This includes a table empty condition, with CRP set to TOP (zero). The row ID remains unchanged.
12 Table is not open.
16 Variable value has been truncated, or insufficient space is provided to return all extension variable names.
20 Severe error.

TBSORT—sort a table

Command invocation format

```
ISPEXEC  TBSORT  table-name  FIELDS(sort-list)
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBSORT  ', table-name, sort-list);
```

Return codes

0 Normal completion.
12 Table is not open.
16 Numeric convert error.
20 Severe error.

TBSTATS—retrieve table statistics

Command invocation format

```
ISPEXEC  TBSTATS  table-name  [CDATE(date-created-name)]
                              [CTIME(time-created-name)]
                              [UDATE(date-updated-name)]
                              [UTIME(time-updated-name)]
                              [USER(user-name)]
                              [ROWCREAT(row-created-name)]
                              [ROWCURR(rownum-name)]
                              [ROWUPD(row-updated-name)]
                              [TABLEUPD(table-updated-name)]
                              [SERVICE(service-name)]
                              [RETCODE(return-code-name)]
                              [STATUS1(status1-name)]
                              [STATUS2(status2-name)]
                              [STATUS3(status3-name)]
                              [LIBRARY(library)]
                              [VIRTSIZE(virtual-storage-size-name)]
                              [CDATE4D(date-created-name-4-digit)]
                              [UDATE4D(date-updated-name-4-digit)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBSTATS ', table-name  [,date-created-name]
                                       [,time-created-name]
                                       [,date-updated-name]
                                       [,time-updated-name]
                                       [,user-name]
                                       [,row-created-name]
                                       [,rownum-name]
                                       [,row-updated-name]
                                       [,table-updated-name]
                                       [,service-name]
                                       [,return-code-name]
                                       [,status1-name]
                                       [,status2-name]
                                       [,status3-name]
                                       [,library]
```

```
[,virtual-storage-size-name]
[,date-created-name-4-digit]
[,date-updated-name-4-digit]);
```

Return codes

0 Normal completion (returned even if the table does not exist).
16 Variable value has been truncated.
20 Severe error.

TBTOP—set the row pointer to the top

Command invocation format

```
ISPEXEC  TBTOP  table-name
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBTOP   ', table-name);
```

Return codes

0 Normal completion.
12 Table is not open.
20 Severe error.

TBVCLEAR—clear table variables

Command invocation format

```
ISPEXEC  TBVCLEAR  table-name
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);
```

OR

```
CALL  ISPLINK ('TBVCLEAR', table-name);
```

Return codes

0 Normal completion.
12 Table is not open.
20 Severe error.

TRANS—translate data from one Coded Character Set Identifier (CCSID) to another

Command invocation format

```
ISPEXEC  TRANS FRMCCSID(from-ccsid-number)
               TOCCSID(to-ccsid-number)
               FROMVAR(from-variable-name)
               [TOVAR(to-variable-name)]
               [LENGTH(data-length)]
```

Call invocation format

```
CALL  ISPEXEC  (buf-len, buffer)

OR

CALL  ISPLINK ('TRANS   ',from-ccsid-number,to-ccsid-number,
                          from-variable-name
                         [,to-variable-name]
                         [,data-length]);
```

Return codes

0 Normal completion.
4 Translation tables do not support the requested 'to/from' combination.
8 From variable not found.
16 Variable services indicated a translation error or truncation occurred storing the translated data.
20 Severe error.

VCOPY—create a copy of a variable

Command invocation format

```
ISPEXEC  *This service does not apply to APL2 or command
          procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used with this interface*

OR

CALL  ISPLINK ('VCOPY   ', name-list, length-array, value-array
                  [,'LOCATE  '|'MOVE    '] );
```

Return codes

0 Normal completion.
8 One or more variables do not exist.
12 Validation failed.
16 Truncation has occurred during data movement (move mode only).
20 Severe error.

VDEFINE—define function variables

Command invocation format

```
ISPEXEC  *This service does not apply to APL2 or command
          procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used with this interface*

OR

CALL  ISPLINK ('VDEFINE ', name-list, variable, format, length
                                            [,options-list]
                                            [,user-data]);
```

Return codes

0 Normal completion.
8 Variable not found.
16 Data truncation occurred.
20 Severe error.

VDELETE—remove a definition of function variables

Command invocation format

```
ISPEXEC  *This service does not apply to APL2 or
          command procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used with this interface*

OR

CALL  ISPLINK ('VDELETE ', name-list|'*       ');
```

Return codes

0 Normal completion.
8 At least one variable not found.
20 Severe error.

VERASE—remove variables from shared and/or profile pool

Command invocation format

```
ISPEXEC  VERASE  name-list
                 [ASIS|SHARED|PROFILE|BOTH]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('VERASE  ', name-list
       [,'ASIS    '|SHARED  '|'PROFILE '|'BOTH    '] );
```

Return codes

0 Normal completion.
8 At least one variable not found.
20 Severe error.

VGET—retrieve variables from a pool or profile or system symbol

Command invocation format

```
ISPEXEC  VGET  name-list
               [ASIS|SHARED|PROFILE|SYMDEF]
               [SYMNAMES(symname-list)]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('VGET    ', name-list
              [,'ASIS    '|'SHARED  '|'PROFILE '|'SYMDEF  ']
              [,symname-list]);
```

Return codes

0 Normal completion.

8 Variable or system symbol not found.
12 Validation failed.
16 Translation error or truncation occurred during data movement.
20 Severe error.

VIEW—view a data set

Command invocation format

```
ISPEXEC  VIEW  DATASET(dsname)   [VOLUME(serial)]
                                 [PASSWORD(pswd-value)]
                                 [PANEL(panel-name)]
                                 [MACRO(macro-name)]
                                 [PROFILE(profile-name)]
                                 [FORMAT(format-name)]
                                 [MIXED(YES|NO)]
                                 [CONFIRM(YES|NO)]
                                 [WS(YES|NO)]
                                 [CHGWARN(YES|NO)]
                                 [PARM(parm-var)]
OR

ISPEXEC  VIEW  DATAID(data-id)   [MEMBER(member-name)]
                                 [PANEL(panel-name)]
                                 [MACRO(macro-name)]
                                 [PROFILE(profile-name)]
                                 [FORMAT(format-name)]
                                 [MIXED(YES|NO)]
                                 [CONFIRM(YES|NO)]
                                 [WS(YES|NO)]
                                 [CHGWARN(YES|NO)]
                                 [PARM(parm-var)]
OR
ISPEXEC  VIEW  WSFN(ws-filename) [PANEL(panel-name)]
                                 [MACRO(macro-name)]
                                 [PROFILE(profile-name)]
                                 [FORMAT(format-name)]
                                 [MIXED(YES|NO)]
                                 [CONFIRM(YES|NO)]
                                 [WS(YES|NO)]
                                 [CHGWARN(YES|NO)]
                                 [PARM(parm-var)]
                                 [ASCII]
```

Call invocation format

```
CALL  ISPLINK ('VIEW    ', {dsname} ,[serial]
                                    ,[pswd-value]
                                    ,[panel-name]
                                    ,[macro-name]
                                    ,[profile-name]
                                    ,{data-id}
                                    ,[member-name]
                                    ,[format-name]
                                    ,['YES     '|'NO      ']
                                    ,['YES     '|'NO      ')]
                                    ,{ws-filename-buffer-name}
                                    ,['YES'|'NO']
                                    ,['YES'|'NO']
                                    ,[parm-var]
                                    ,{file-var}
                                    ,['ASCII ']);
```

```
OR

CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion

Note: Data can only be saved using the CREATE or REPLACE primary commands.

12 VIEW has been disabled through the ISPF configuration table.

14 Member, sequential data set, or z/OS UNIX file in use.

16 One of these:
- No members matched the specified pattern.
- No members in the partitioned data set.

18 A VSAM data set was specified but the ISPF Configuration Table does not allow VSAM processing.

20 Severe error; unable to continue.

VIIF—view interface

Command invocation format

Command procedures cannot be used to invoke this service.

Call invocation format

```
CALL ISPLINK ('VIIF    ',[data-name] ,profile-name
                       ,rec-format ,rec-len
                       ,read-routine,
                       ,[cmd-routine] ,[dialog-data]
                       ,[edit-len] ,[panel-name]
                       ,[macro-name] ,[format-name]
                       ,['YES     '|'NO      ']
                       ,['YES     '|'NO      ']
                       ,[parm-var] ,[write-routine] );

OR

CALL ISPLINK ('VIIF    ',[data-name] ,' '
                       ,[rec-format] ,[rec-len]
                       ,read-routine ,
                       ,[cmd-routine] ,[dialog-data]
                       ,' ' ,' ' ,' ' ,' ' ,' ' ,' '
                       ,'YES     '
                       ,' ',[write-routine] );
```

Return codes

Read routine return codes:

0 Normal completion.

8 End of data records (no data record returned).

16 Read error. If a read error is encountered when building the initial view display, the VIIF service terminates with a return code of 20. Otherwise, the edit data is redisplayed.

20 Severe error. (VIIF service terminates immediately with a return code of 20.)

Command routine return codes:

0 Normal completion.

4 The PDF component should process the requested function.

12 Command deferred; retain the command on the Command line. View data is redisplayed.
20 Severe error. (VIIF service terminates immediately with a return code of 20.)

VIIF return codes:
0 Normal completion, data saved.
4 Normal completion, data not saved.
12 View has been disabled through the ISPF Configuration table.
16 Unexpected return code received from a dialog-supplied routine. When an unexpected return code is received, the EDIF service terminates immediately with a return code of 16.
20 Severe error; unable to continue.

VMASK—associate an edit mask with a dialog variable

Command invocation format

```
ISPEXEC  *This service does not apply to APL2 or command
          procedures*
```

Call invocation format

```
CALL  ISPLINK ('VMASK   ',name-list{,'FORMAT  '{,'IDATE   '}     }
                                   {           {,'STDDATE '}     }
                                   {           {,'ITIME   '}     }
                                   {           {,'STDTIME '}     }
                                   {           {,'JDATE   '}     }
                                   {           {,'JSTD    '}     }
                                   {,'USER    ','mask',masklen)  }
```

Return codes

0 Normal completion.
8 Variable not found.
20 Severe error.

VPUT—update variables in the shared or profile pool

Command invocation format

```
ISPEXEC  VPUT  name-list [ASIS|SHARED|PROFILE]
```

Call invocation format

```
CALL  ISPEXEC (buf-len, buffer);

OR

CALL  ISPLINK ('VPUT    ', name-list
                 [,'ASIS    '|'SHARED  '|'PROFILE '] );
```

Return codes

0 Normal completion.
8 Variable not found.
16 Truncation occurred while copying variables to the application profile pool.
20 Severe error.

VREPLACE—replace a variable

Command invocation format

```
ISPEXEC  *This service does not apply to
          APL2 or command procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used with this interface*

OR

CALL  ISPLINK ('VREPLACE', name-list, lengths, values);
```

Return codes

0 Normal completion.
16 Truncation has occurred during data movement.
20 Severe error.

VRESET—reset function variables

Command invocation format

```
ISPEXEC  *This service does not apply to
          APL or command procedures*
```

Call invocation format

```
CALL  ISPEXEC  *This service cannot be used with this interface*

OR

CALL  ISPLINK ('VRESET  ');
```

Return codes

0 Normal completion.
20 Severe error.

VSYM service—resolve system symbols

Command invocation format

```
ISPEXEC VSYM name-list
```

Call invocation format

```
CALL ISPEXEC (buf-len, buffer);

OR

CALL ISPLINK ('VSYM    ', name-list);
```

Return codes

0 Normal completion.
4 One or more symbol names not substituted (no corresponding system symbol was found).
8 Variable not found in function pool.
12 Validation failed.
16 Truncation occurred resolving system symbols.
20 Severe error.

WSCON — Connect to a Workstation

Command invocation format

```
ISPEXEC  WSCON  [IP(ip_var_name | *)]
                [LU(lu_var_name)]
                [FI      ]
                [TITLE(title_var_name)]
                [FRAME(STD | FIX | DLG)]
                [BKGRND(STD | DLG)]
                [CODEPAGE(codepage)]
                [CHARSET(character_set)]
                [NOGUIDSP]
                [PANEL(YES | NO | ONERROR)]
```

Call invocation format

```
CALL  ISPLINK ('WSCON   '
              ,[ip_var_name | *]
              ,[lu_var_name]
              ,[FI]
              ,[title_var_name]
              ,[STD | FIX | DLG]
              ,[STD | DLG]
              ,[codepage]
              ,[character_set]
              ,[NOGUIDSP]
              ,[YES | NO | ONERROR]);
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion. Connection established.

8 The user pressed End, Exit, or Cancel from the Initiate Workstation Connection panel without making a connection.

12 Already in GUI mode. Recursive error.

14 Connecting in GUI mode is not supported when in partition mode or split screen.

16 Cannot connect to workstation.

20 Parameters not valid or syntax conflict. For example, both IP and LU were specified.

WSDISCON—disconnect from a workstation

Command invocation format

```
ISPEXEC  WSDISCON
```

Call invocation format

```
CALL  ISPLINK ('WSDISCON');
```

OR

```
CALL ISPEXEC (buf-len, buffer);
```

Return codes

0 Normal completion. User disconnected from workstation.

8 User trying to disconnect from workstation, but there is no current connection.

10 User trying to disconnect from GUI mode, but is connected with GUISCRD or GUISCRW values that are different than the host emulator session. User is not disconnected.

12 User trying to disconnect from a GUI display when running BATCH GUI mode. User is not disconnected.

14 User trying to disconnect from workstation while running the Workstation Tool Integration Configuration program. User is not disconnected.

Chapter 4. Edit macro commands

This chapter contains the syntax and return codes for the ISPF Edit macros. For a complete description of the Edit macros see *z/OS ISPF Edit and Edit Macros*.

AUTOLIST - set or query Autolist mode

Macro command syntax

```
ISREDIT AUTOLIST [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname)  = AUTOLIST

ISREDIT AUTOLIST = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

AUTONUM—set or query Autonum mode

Macro command syntax

```
ISREDIT AUTONUM [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = AUTONUM

ISREDIT AUTONUM = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

AUTOSAVE—set or query Autosave mode

Macro command syntax

```
ISREDIT AUTOSAVE [ON          ]
                 [OFF PROMPT  ]
                 [OFF NOPROMPT]
```

Assignment statement syntax

```
ISREDIT (var1,var2) = AUTOSAVE

ISREDIT AUTOSAVE = [ON          ]
                   [OFF PROMPT  ]
                   [OFF NOPROMPT]
```

Return codes

0 Normal completion.
4 OFF NOPROMPT specified.
20 Severe error.

BLKSIZE—query the block size

Assignment statement syntax

```
ISREDIT (varname) = BLKSIZE
```

Return codes

0 Normal completion.

Note: For a z/OS UNIX file, the BLKSIZE assignment statement returns a value of 0.

12 Syntax error.
20 Severe error.

BOUNDS—set or query the edit boundaries

Macro command syntax

```
ISREDIT BOUNDS [left-col right-col]
```

Assignment statement syntax

```
ISREDIT (var1,var2) = BOUNDS

ISREDIT BOUNDS = [left-col right-col]
```

Return codes

0 Normal completion.
4 Right boundary greater than default; default right boundary used.
12 Invalid boundaries specified.
20 Severe error.

BROWSE—browse from within an edit session

Macro command syntax

```
ISREDIT BROWSE member
```

Return codes

0 Normal completion
12 Your error (invalid member name, recovery pending)
20 Severe error.

BUILTIN—process a built-in command

Macro command syntax

```
ISREDIT BUILTIN cmdname
```

Return codes

n Return code from the built-in command.
20 Severe error.

CANCEL—cancel edit changes

Macro command syntax

```
ISREDIT CANCEL
```

Return codes

0 Normal completion.
20 Severe error.

CAPS—set or query Caps mode

Macro command syntax

```
ISREDIT CAPS [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = CAPS

ISREDIT CAPS = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

CHANGE—change a search string

Macro command syntax

```
ISREDIT CHANGE string-1 string-2 [label-range] [NEXT ] [CHARS ] [X ] [col-1 [col-2]]
                                               [ALL  ] [PREFIX] [NX]
                                               [FIRST] [SUFFIX]
                                               [LAST ] [WORD  ]
                                               [PREV ]
```

Return codes

0 Normal completion.
4 String not found.
8 Change error. String-2 is longer than string-1 and substitution was not performed on at least one change.

12 Inconsistent parameters. The string to be found will not fit between the specified columns.
20 Severe error.

CHANGE_COUNTS—query change counts

Assignment statement syntax

```
ISREDIT (var1,var2) = CHANGE_COUNTS
```

Return codes

0 Normal completion.
20 Severe error.

COMPARE—compare data set

Macro command syntax

```
ISREDIT COMPARE dsname [NEXT ] [SAVE] [SYSIN] [EXCLUDE]
```

Return codes

0 Normal completion
8 Member or data set not found, or an error opening the member or data set occurred.
12 No parameters specified, or another parameter error such as not valid NEXT or member specification.
20 Severe error. SuperC, allocation, or delta file error occurred.

COPY—copy data

Macro command syntax

```
ISREDIT COPY [member        ] [AFTER ] [label] {start-line end-line}
             [(member)      ] [BEFORE]
             [dsname        ]
             [dsname(member)]
             [pathname      ]
```

Return codes

0 Normal completion.
8 End of data reached before last record read.
12 Invalid line pointer (lptr); member not found or BLDL error.
16 End of data reached before first record of specified range was reached.
20 Syntax error (invalid name, incomplete range,), or I/0 error.

CREATE—create a data set member

Macro command syntax

```
ISREDIT CREATE [member        ] [labela] [labelb]
               [(member)      ]
               [dsname        ]
               [dsname(member)]
               [pathname      ]
```

Return codes

0 Normal completion.
8 Member already exists, member not created.
12 Invalid line pointer (lptr). The referenced line does not exist in the file.
20 Syntax error (invalid name or incomplete lptr range), or I/O error.

CTL_LIBRARY—query controlled library status

Assignment statement syntax

```
ISREDIT (var1,var2) = CTL_LIBRARY
```

Return codes

0 Normal completion.
20 Severe error.

CURSOR—set or query the cursor position

Assignment statement syntax

```
ISREDIT (var1,var2) = CURSOR
ISREDIT CURSOR = lptr [col]
```

Return codes

0 Normal completion.
4 Column number beyond data, line number incremented.
12 Invalid line number.
20 Severe error.

Note: To set the cursor to the command line, exit your macro with a return code of 1.

CUT—cut and save lines

Assignment statement syntax

```
ISREDIT CUT [lptr-range] [DEFAULT | clipboardname]
       [REPLACE | APPEND]
```

Return codes

0 Normal completion.
12 Parameter error. Insufficient storage, or no more clipboards available.
20 Severe error.

DATA_CHANGED—query the data changed status

Assignment statement syntax

```
ISREDIT (varname) = DATA_CHANGED
```

Return codes

0 Normal completion.
20 Severe error.

DATA_WIDTH—query data width

Assignment statement syntax

```
ISREDIT (varname) = DATA_WIDTH
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

DATAID—query data ID

Assignment statement syntax

```
ISREDIT (varname) = DATAID
```

Return codes

0 The data ID returned was passed to the editor.
4 Data ID was generated by and will be freed by the editor.
8 A previously generated data ID was returned.
20 Severe error.

DATASET—query the current data set name

Assignment statement syntax

```
ISREDIT (var1,var2,var3) = DATASET
```

Return codes

0 Normal completion.
20 Severe error.

DEFINE—define a name

Macro command syntax

```
ISREDIT  DEFINE name  {MACRO CMD   }
                      {MACRO PGM   }
                      {ALIAS name-2}
```

```
{NOP         }
{RESET       }
{DISABLED    }
```

Return codes

0 Normal completion.
8 RESET was attempted for a name not currently defined, or DEFINE name ALIAS name-2 requested and name-2 is a NOP.
12 DEFINE was attempted for a name not currently defined.
20 Severe error (unknown command).

DELETE—delete lines

Macro command syntax

```
ISREDIT DELETE { ALL  X | NX [lptr-range]}
               {[ALL] X | NX lptr-range }
               {lptr                    }
               {lptr-range              }
```

Return codes

0 Normal (lines deleted successfully).
4 No lines deleted.
8 No standard records exist.
12 Invalid line number.
20 Severe error.

DISPLAY_COLS—query display columns

Assignment statement syntax

```
ISREDIT (var1,var2) = DISPLAY_COLS
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

DISPLAY_LINES—query display lines

Assignment statement syntax

```
ISREDIT (var1,var2) = DISPLAY_LINES
```

Return codes

0 Normal completion.
4 No visible data lines.
8 No existing data lines.
12 Invalid command format.
20 Severe error.

DOWN—scroll down

Macro command syntax

```
ISREDIT DOWN amt
```

Return codes

0 Normal completion.
2 No more data DOWN.
4 No visible lines.
8 No data to display.
12 Amount not specified.
20 Severe error.

EDIT—edit from within an edit session

Macro command syntax

```
ISREDIT EDIT member
```

Return codes

0 Normal completion. Data was saved.
4 Normal completion. Data was not saved.
12 Your error (invalid member name, recovery pending).
14 Member in use.
20 Severe error.
28 No ISREDIT MACRO statement preceded this call, or BROWSE was substituted because of the size of the member being edited.

END—end the edit session

Macro command syntax

```
ISREDIT END
```

Return codes

0 Normal completion.
4 New member saved.
12 END not done, AUTOSAVE OFF PROMPT set, or Data not saved (insufficient space).
20 Severe error.

EXCLUDE—exclude lines from the panel

Macro command syntax

```
ISREDIT EXCLUDE string [label-range] [NEXT ] [CHARS ] [col-1 [col-2]]
                                     [ALL  ] [PREFIX]
                                     [FIRST] [SUFFIX]
                                     [LAST ] [WORD  ]
                                     [PREV ]
```

Return codes

0 Normal completion.
4 String not found.
8 Line(s) not excluded.
12 Inconsistent parameters
20 Severe error.

EXCLUDE_COUNTS—query exclude counts

Assignment statement syntax

```
ISREDIT (var1,var2) = EXCLUDE_COUNTS
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

FIND—find a search string

Macro command syntax

```
ISREDIT FIND string [label-range] [NEXT ] [CHARS ] [X ] [col-1 [col-2]]
                                  [ALL  ] [PREFIX] [NX]
                                  [FIRST] [SUFFIX]
                                  [LAST ] [WORD  ]
                                  [PREV ]
```

Return codes

0 Normal completion.
4 String not found.
12 Syntax error.
20 Severe error.

FIND_COUNTS—query find counts

Assignment statement syntax

```
ISREDIT (var1,var2) = FIND_COUNTS
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

FLIP—reverse excluded status of lines

Macro command syntax

```
ISREDIT FLIP [label-range]
```

Return codes

0 Successful completion. The excluded status of the requested lines was reversed.
20 Severe error.

FLOW_COUNTS—query flow counts

Assignment statement syntax

```
ISREDIT (var1,var2) = FLOW_COUNTS
```

Return codes

0 Normal completion.
20 Severe error.

HEX—set or query Hexadecimal mode

Macro command syntax

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

Assignment statement syntax

```
ISREDIT (var1,var2) = HEX

ISREDIT HEX = [ON DATA]
              [ON VERT]
              [OFF    ]
```

Return codes

0 Normal completion.
20 Severe error.

HIDE—hide excluded lines message

Macro command syntax

```
ISREDIT HIDE X
```

Return codes

0 Normal completion.
20 Severe error.

HILITE—enhanced edit coloring

Macro command syntax

```
ISREDIT HILITE [ON    ] [AUTO   ] [MARGINS(left,right)] [RESET] [PAREN] [FIND] [CURSOR] [SEARCH] [DISABLED]
               [OFF   ] [DEFAULT]
               [LOGIC ] [OTHER  ]
               [IFLOGIC] [ASM   ]
               [DOLOGIC] [BOOK  ]
               [NOLOGIC] [C     ]
                         [COBOL ]
```

```
[DTL    ]
[HTML   ]
[JCL    ]
[PANEL  ]
[PASCAL ]
[PLI    ]
[REXX   ]
[SKEL   ]
[IDL    ]
[SUPERC ]
[XML    ]
```

Return codes

0 Normal completion.

8 One of the following conditions:
- LOGIC or SEARCH not supported in the current environment
- Invalid language
- HILITE unavailable.

12 One of the following conditions:
- HILITE dialog is invalid from an edit macro
- HILITE not available because of the installation defaults
- HILITE not available because the edit panel in use is not enabled for enhanced color
- Other error encountered.

20 Severe error. Possibly extra parameters.

IMACRO—set or query an initial macro

Macro command syntax

```
ISREDIT IMACRO {name | NONE}
```

Assignment statement syntax

```
ISREDIT (varname) = IMACRO

ISREDIT IMACRO = name
```

Return codes

0 Normal completion.

4 IMACRO set not accepted; profile is locked.

12 Invalid name specified.

20 Severe error.

INSERT—prepare display for data insertion

Macro command syntax

```
ISREDIT INSERT lptr [numlines]
```

Return codes

0 Normal completion.

12 Invalid line number.

20 Severe error.

LABEL—set or query a line label

Assignment statement syntax

```
ISREDIT (var1,var2) = LABEL lptr

ISREDIT LABEL lptr = labelname  [level]
```

Return codes

0 Normal completion.
4 Label name not returned, specified line has no label.
8 Label set, but an existing label at the same level was deleted.
12 Line number specified is beyond the end of data.
20 Severe error.

LEFT—scroll left

Macro command syntax

```
ISREDIT LEFT amt
```

Return codes

0 Normal completion.
4 No visible lines.
8 No data to display.
12 Amount not specified.
20 Severe error.

LEVEL—set or query the mod level number

Macro command syntax

```
ISREDIT LEVEL num
```

Assignment statement syntax

```
ISREDIT (varname) = LEVEL

ISREDIT LEVEL = num
```

Return codes

0 Normal completion.
4 Statistics mode is off; the command is ignored.
12 Invalid value specified.
20 Severe error.

LF—realign data on the ASCII linefeed character

Macro command syntax

```
ISREDIT LF
```

Return codes

0 Normal completion.

LINE—set or query a line from the data set

Assignment statement syntax

```
ISREDIT (varname) = LINE lptr

ISREDIT LINE lptr = data
```

Return codes

0 Normal completion.
4 Data truncated (line shorter than data supplied).
8 Variable not found.
12 Invalid line number.
16 Variable data truncated.
20 Severe error.

LINE_AFTER—add a line to the current data set

Assignment statement syntax

```
ISREDIT LINE_AFTER lptr = [DATALINE] data
                          [INFOLINE]
                          [MSGLINE ]
                          [NOTELINE]
```

Return codes

0 Normal completion.
4 Data truncated.
12 Invalid line number.
20 Severe error.

LINE_BEFORE—add a line to the current data set

Assignment statement syntax

```
ISREDIT LINE_BEFORE lptr = [DATALINE] data
                           [INFOLINE]
                           [MSGLINE ]
                           [NOTELINE]
```

Return codes

0 Normal completion.
4 Data truncated.
12 Invalid line number.
20 Severe error.

LINE_STATUS—query source and change information for a line in a data set

Assignment statement syntax

```
ISREDIT (varname) = LINE_STATUS lptr
```

Return codes

0 Normal completion.
12 Line number not valid.
20 Severe error.

LINENUM—query the line number of a labeled line

Assignment statement syntax

```
ISREDIT (varname) = LINENUM label
```

Return codes

0 Normal completion.
4 Line 0 specified.
8 Label specified, but not found (variable set to 0).
12 Invalid line number.
20 Severe error.

LOCATE—locate a line

Specific locate syntax

```
ISREDIT LOCATE lptr
```

Generic locate syntax

```
ISREDIT LOCATE [FIRST] {CHANGE  } [lptr-range]
               [LAST ] {COMMAND }
               [NEXT ] {ERROR   }
               [PREV ] {EXCLUDED}
                       {LABEL   }
                       {SPECIAL }
                       {INFOLINE}
                       {MSGLINE}
                       {NOTELINE}
```

Return codes

0 Normal completion.
4 Line not located.
8 Empty member or data set.
20 Severe error.

LRECL—query the logical record length

Assignment statement syntax

```
ISREDIT (varname) = LRECL
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

MACRO—identify an edit macro

Macro command syntax

```
ISREDIT MACRO [(var1 [,var2,...])] [PROCESS   ]
                                   [NOPROCESS]
```

Return codes

0 Normal completion.
8 No parameters are permitted for this processing.
12 Syntax error.
20 Severe error.

MACRO_LEVEL—query the macro nesting level

Assignment statement syntax

```
ISREDIT (varname) = MACRO_LEVEL
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

MASKLINE—set or query the mask line

Assignment statement syntax

```
ISREDIT (varname) = MASKLINE

ISREDIT MASKLINE = data
```

Return codes

0 Normal completion.
4 Data truncated.
16 Variable data truncated.
20 Severe error.

MEMBER—query the current member name

Assignment statement syntax

```
ISREDIT (varname) = MEMBER
```

Return codes

0 Normal completion.
12 Invalid command format.
20 Severe error.

MEND—end a macro in the batch environment

Macro command syntax

```
ISREDIT MEND
```

Return codes

0 Normal completion.
20 Severe error.

Note: Only required in the MVS/370 environment.

MODEL—copy a model into the current data set

Macro command model name syntax

```
ISREDIT MODEL model-name [qualifier] {AFTER }  lptr  [NOTES  ]
                                     {BEFORE}        [NONOTES]
```

Macro command class name syntax

```
ISREDIT MODEL CLASS class-name
```

Return codes

0 Normal completion.
4 Data truncated (the model exceeded the right-hand margin of the data being edited).
12 Invalid line pointer.
20 Severe error.

MOVE—move a data set member

Macro command syntax

```
ISREDIT MOVE [member  ] [AFTER ] [linenum]
             [(member)] [BEFORE] [label  ]
             [dsname  ]
             [pathname]
```

Return codes

0 Normal completion.

8 End of data before last record read, or the specified data set is in use.
12 Invalid line pointer (lptr); member not found or BLDL error.
16 End of data before first record read.
20 Syntax error (invalid name, incomplete range), or I/O error.

NONUMBER—turn off Number mode

Syntax

```
ISREDIT NONUMBER
```

Return codes

0 Normal completion.
20 Severe error.

NOTES—set or query Note mode

Macro command syntax

```
ISREDIT NOTES [ON | OFF ]
```

Assignment statement syntax

```
ISREDIT (varname) = NOTES

ISREDIT NOTES = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

NULLS—set or query Nulls mode

Macro command syntax

```
ISREDIT NULLS [ON STD]
              [ON ALL]
              [OFF   ]
```

Assignment statement syntax

```
ISREDIT (var1,var2) = NULLS

ISREDIT NULLS = [ON STD]
                [ON ALL]
                [OFF   ]
```

Return codes

0 Normal completion.
20 Severe error.

NUMBER—set or query Number mode

Macro command syntax

```
ISREDIT NUMBER [ON ] [STD      ] [DISPLAY]
               [OFF] [COBOL    ]
                     [STD COBOL]
                     [NOSTD]
                     [NOCOBOL]
                     [NOSTD NOCOBOL]
```

Assignment statement syntax

```
ISREDIT (var1,var2) = NUMBER

ISREDIT NUMBER = [ON ] [STD      ] [DISPLAY]
                 [OFF] [COBOL    ]
                       [STD COBOL]
                       [NOSTD]
                       [NOCOBOL]
                       [NOSTD NOCOBOL]
```

Return codes

0 Normal completion.
20 Severe error.

PACK—set or query Pack mode

Macro command syntax

```
ISREDIT PACK [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = PACK

ISREDIT PACK = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

PASTE—move or copy lines from clipboard

Macro command syntax

```
ISREDIT PASTE [AFTER] lptr [clipboardname]
              [BEFORE] [KEEP]
```

Return codes

0 Normal completion.
12 Parameter error. Clipboard empty or does not exist.
20 Severe error.

PRESERVE—enable saving of trailing blanks

Macro command syntax

```
ISREDIT PRESERVE [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = PRESERVE

ISREDIT PRESERVE = [ON | OFF]
```

Return codes

0 Normal completion.
6 Record format is not variable.
16 Error setting variable.
20 Severe error.

PROCESS—process the panel

Macro command syntax

```
ISREDIT PROCESS [DEST] [RANGE cmd1 [cmd2]]
```

Return codes

0 Normal completion.
4 A RANGE was expected by the macro, but one was not specified; default values set.
8 A DEST (destination) was expected by the macro, but one was not specified; default values set.
12 Both a RANGE and a DEST (destination) were expected by the macro, but were not specified; default values set.
16 You entered incomplete or conflicting line commands.
20 Severe error.

Note: ISPF does not consider a return code of 12 from the PROCESS edit macro command an error. A macro that receives a return code of 12 from the PROCESS edit macro does not terminate.

PROFILE—set or query the current profile

Macro command profile control syntax

```
ISREDIT PROFILE [name] [number]
```

Macro command profile lock syntax

```
ISREDIT PROFILE {LOCK | UNLOCK}
```

Macro command profile reset syntax

```
ISREDIT PROFILE RESET
```

Assignment statement syntax

```
ISREDIT (var1,var2) = PROFILE
```

Return codes

0 Normal completion.
20 Severe error.

RANGE_CMD—query a command that you entered

Assignment statement syntax

```
ISREDIT (varname) = RANGE_CMD
```

Return codes

0 Normal completion.
4 Line command not set.
8 Line command setting not acceptable.
20 Severe error.

RCHANGE—repeat a change

Macro command syntax

```
ISREDIT RCHANGE
```

Return codes

0 Normal completion.
4 String not found.
8 Change error (`string-2` longer than `string-1` and substitution was not performed on at least one change).
12 Syntax error.
20 Severe error.

RECFM—query the record format

Assignment statement syntax

```
ISREDIT (var1,var2) = RECFM
```

Return codes

0 Normal completion.
20 Severe error.

RECOVERY—set or query Recovery mode

Macro command syntax

```
ISREDIT RECOVERY [ON [SUSP]]
                 [OFF [WARN]]
                 [OFF NOWARN]
```

Assignment statement syntax

```
ISREDIT (var1, var2) = RECOVERY

ISREDIT RECOVERY = [ON [SUSP]]
                   [OFF [WARN]]
                   [OFF NOWARN]
```

Return codes

0 Normal completion.
20 Severe error.

RENUM—renumber data set lines

Macro command syntax

```
ISREDIT RENUM [ON ] [STD      ] [DISPLAY]
              [OFF] [COBOL    ]
                    [STD COBOL]
```

Return codes

0 Normal completion.
20 Severe error.

REPLACE—replace a data set or data set member

Macro command syntax

```
ISREDIT REPLACE [member        ] {labela labelb}
                [(member)      ]
                [dsname        ]
                [dsname(member)]
                [pathname      ]
```

Return codes

0 Normal completion.
8 Member in use.
12 Invalid line pointer; member not found or BLDL error.
20 Syntax error (invalid name, incomplete line pointer value), or I/O error.

RESET—reset the data display

Macro command syntax

```
ISREDIT RESET [CHANGE  ] [lptr-range]
              [COMMAND ]
              [ERROR   ]
              [EXCLUDED]
              [HIDE    ]
              [LABEL   ]
              [SOURCE]
              [SPECIAL ]
```

Return codes

0 Normal completion.
20 Severe error.

RFIND—Repeat Find

Macro command syntax

```
ISREDIT RFIND
```

Return codes

0 Normal completion.
4 String not found.
12 Syntax error.
20 Severe error (string not defined).

RIGHT—scroll right

Macro command syntax

```
ISREDIT RIGHT amt
```

Return codes

0 Normal completion.
4 No visible lines.
8 No data to display.
12 Amount not specified.
20 Severe error.

RMACRO—set or query the recovery macro

Macro command syntax

```
ISREDIT RMACRO {name | NONE}
```

Assignment statement syntax

```
ISREDIT (varname) = RMACRO

ISREDIT RMACRO = {name | NONE}
```

Return codes

0 Normal completion.
12 Invalid name specified.
20 Severe error.

SAVE—save the current data

Macro command syntax

```
ISREDIT SAVE
```

Return codes

0 Normal completion.
4 New member saved.
12 Data not saved; not enough PDS space or directory space.
20 Severe error.

SAVE_LENGTH—set or query length for variable-length data

Macro command syntax

```
ISREDIT (variable) = SAVE_LENGTH .lptr
ISREDIT SAVE_LENGTH .lptr = value
```

Return codes

0 Normal completion.
4 Value supplied on set call was out of range. If the supplied length was too great, it is adjusted to equal the maximum record length. Otherwise, the length is adjusted to the length of the nonblank data portion of the record.
6 Record format is not variable. Any value of an assigned request is ignored.
16 Error setting variable.
20 Severe error.

SCAN—set command scan mode

Macro command syntax

```
ISREDIT SCAN [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = SCAN

ISREDIT SCAN = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

SEEK—seek a data string, positioning the cursor

Macro command syntax

```
ISREDIT SEEK string [label-range] [NEXT ] [CHARS ] [X ] [col-1 [col-2]]
                                  [ALL  ] [PREFIX] [NX]
                                  [FIRST] [SUFFIX]
                                  [LAST ] [WORD  ]
                                  [PREV ]
```

Return codes

0 Normal completion.
4 String not found.
12 Syntax error.
20 Severe error.

SEEK_COUNTS—query seek counts

Assignment statement syntax

```
ISREDIT (var1,var2) = SEEK_COUNTS
```

Return codes

0 Normal completion.
20 Severe error.

SESSION—identify type of session

Assignment statement syntax

```
ISREDIT (var1,var2) = SESSION
```

Return codes

0 Normal completion.
20 Severe error.

SETUNDO—set UNDO mode

Macro command syntax

```
ISREDIT SETUNDO [STORAGE]
                [KEEP]
                [RECOVER]
                [ON]
                [OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = SETUNDO

ISREDIT SETUNDO = [STORAGE]
                  [KEEP]
                  [RECOVER]
                  [ON]
                  [OFF]
```

Return codes

0 Successful completion. SETUNDO was turned on or off, or status remains unchanged because UNDO was already on or off.
20 Severe error. Probably a parameter error (something other than STG, REC, or OFF was specified).

SHIFT (—shift columns left

Macro command syntax

```
ISREDIT SHIFT ( lptr [n | 2]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

SHIFT) —shift columns right

Macro command syntax

```
ISREDIT SHIFT ) lptr [n | 2]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

SHIFT <—shift data left

Macro command syntax

```
ISREDIT SHIFT < lptr [n | 2]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

SHIFT > —shift data right

Macro command syntax

```
ISREDIT SHIFT > lptr [n | 2]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

SORT—sort data

Macro command syntax

```
ISREDIT SORT [label-range] [X ] [sort-field1 ... sort-field5]
                           [NX]
```

Return codes

0 Normal completion.
4 Lines were already in sort order.
8 No records to sort.
16 Not enough storage to perform sort.

20 Severe error.

SOURCE—describe format of data

Macro command syntax

```
ISREDIT SOURCE character_encoding
```

Return codes

0 Normal completion.

STATS—set or query Stats mode

Macro command syntax

```
ISREDIT STATS [ON | OFF]
```

Assignment statement syntax

```
ISREDIT (varname) = STATS

ISREDIT STATS = [ON | OFF]
```

Return codes

0 Normal completion.
20 Severe error.

SUBMIT—submit data for batch processing

Macro command syntax

```
ISREDIT SUBMIT [lptr-range]
```

Return codes

0 Normal completion.
20 Severe error (submit failed).

TABS—set or query Tabs mode

Macro command syntax

```
ISREDIT TABS [ON] [STD]
                  [ALL]
                  [tab-character]
             [OFF]
```

Assignment statement syntax

```
ISREDIT (var1,var2) = TABS

ISREDIT TABS = [ON] [STD]
                    [ALL]
                    [tab-character]
               [OFF]
```

Return codes

0 Normal completion.
20 Severe error.

TABSLINE—set or query tabs line

Assignment statement syntax

```
ISREDIT (varname) = TABSLINE

ISREDIT TABSLINE = data
```

Return codes

0 Normal completion.
4 Data truncated.
8 Invalid data detected and ignored.
20 Severe error (invalid input).

TENTER—set up panel for text entry

Macro command syntax

```
ISREDIT TENTER lptr [numlines]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

TFLOW—text flow a paragraph

Macro command syntax

```
ISREDIT TFLOW lptr [col]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

TSPLIT—text split a line

Macro command syntax

```
ISREDIT TSPLIT [lptr col]
```

Return codes

0 Normal completion.
12 Invalid line number.
20 Severe error.

UNNUMBER—remove sequence numbers

Macro command syntax

```
ISREDIT UNNUMBER
```

Return codes

0 Normal completion.
12 Number mode not on.
20 Severe error.

UP—scroll up

Macro command syntax

```
ISREDIT UP amt
```

Return codes

0 Normal completion.
2 No more data UP.
4 No visible lines.
8 No data to display.
12 Amount not specified.
20 Severe error.

USER_STATE—save or restore user state

Assignment statement syntax

```
ISREDIT (varname) = USER_STATE

ISREDIT USER_STATE = (varname)
```

Return codes

0 Normal completion.
20 Severe error.

VERSION—set or query version number

Macro command syntax

```
ISREDIT VERSION num
```

Assignment statement syntax

```
ISREDIT (varname) = VERSION

ISREDIT VERSION = num
```

Return codes

0 Normal completion.
4 Stats mode is off, the command is ignored.

12 Invalid value specified (the version must be 1 to 99).
20 Severe error.

VIEW—view from within an edit session

Macro command syntax

```
ISREDIT VIEW member
```

Return codes

0 Normal completion
12 Your error (invalid member name, recovery pending)
20 Severe error.

VOLUME—query volume information

Assignment statement syntax

```
ISREDIT (var1,var2,var3) = VOLUME
```

Return codes

0 Normal completion.
4 The data set is a multivolume data set and the shared pool variable ZEDMVOL is set to contain all the volume serial numbers of the data set. ZEDMVOL has the length of the number of volumes times six.
20 Severe error.

XSTATUS—set or query exclude status of a line

Assignment statement syntax

```
ISREDIT (varname) = XSTATUS lptr

ISREDIT XSTATUS lptr = X | NX
```

Return codes

0 Normal completion.
8 An attempt to set a line status to NX could not be performed. The line has a pending line command on it. For example, if an excluded line contains an M line command in the line command field, then the `MOVE/COPY IS PENDING` message is displayed and the lines cannot be shown. The reset command can be used to remove your line commands from the line command field.
12 Line number is not an existing line.
20 Severe error.

Chapter 5. SCLM services and macros

This chapter hows the syntax and return codes for the SCLM services as well as the syntax for the SCLM macros. For a complete description of the services and macros see the "SCLM Reference" section in the *z/OS ISPF Software Configuration and Library Manager Guide and Reference*.

SCLM services

ACCTINFO—retrieve accounting information

Command invocation format

```
FLMCMD ACCTINFO,project
               ,[prj_def]
               ,group
               ,type
               ,member
               ,[user_info_table]
               ,[include_table]
               ,[change_code_table]
               ,[ada_cu_table]
               ,[SEARCH|FORWARD|MATCH]
               ,[dd_msgs]
```

Call invocation format

```
lastrc := FLMLNK('ACCTINFO ',sclm_id,
              ,group
              ,type
              ,member
              ,user_info_table
              ,include_table
              ,change_code_table
              ,ada_cu_table
              ,SEARCH|FORWARD|MATCH
              ,$msg_array);
```

Return codes

0 Normal completion. An account record exactly matching the specified criteria was found and the information was stored successfully.

8 Error completion. No account record was found for the specified member.
- If FORWARD was specified then there are no accounting records for the group which match or follow the specified type and member name.
- If MATCH was specified then there is not an account record with the specified group, type and member name.
- If SEARCH was specified then there are no matching account records found when searching up the hierarchy starting from the specified group.

12 Error completion. Refer to the messages for more information.

20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.

24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.

32 Severe error condition. An invalid parameter list was passed to the requested service.

34 Severe error condition. An invalid service was requested.

36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

AUTHCODE—set or retrieve an AUTHCODE

Command invocation format

```
FLMCMD AUTHCODE,project
               ,[prj_def]
               ,group
               ,type
               ,member
               ,[from_authcode]
               ,[to_authcode]
               ,[C|U]
               ,[dd_authmsgs]
               ,[dd_authrept]
```

Call invocation format

```
lastrc := FLMLNK('AUTHCODE',sclm_id,
              ,group
              ,type
              ,member
              ,from_authcode
              ,to_authcode
              ,C|U
              ,dd_authmsgs
              ,dd_authrept);
```

Return codes

0 Normal completion. Authcode changed or reported successfully.

2 Normal completion. Authcode not changed. One of these occurred:
- To_authcode = existing authcode (no change needed)
- From_authcode requested does not equal existing authcode (no change wanted)
- Member is not editable.

4 Warning condition. Segment exists at a lower level with an authcode not equal to the ″to_authcode″ which could overlay the current segment.

8 Error condition. Invalid type, member, or mode parameter. See the dd_authmsgs for details.

12 Severe error condition. Accounting record not found or severe error.

16 Severe error condition. One of these occurred:
- Not authorized to update ″to_authcode″, access_key mismatch, or not authorized to update data set.
- Verification failed.
- Error updating accounting record.
- Invalid group.

SCLM might not produce messages because there was an error invoking the AUTHCODE module.

20 Severe error condition. SCLM does not produce messages because the SCLM ID is not valid.

24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.

32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

BUILD—build a member

Command invocation format

```
FLMCMD BUILD,project
            ,[prj_def]
            ,group
            ,type
            ,member
            ,[userid]
            ,[E|L|N|S]
            ,[C|F|R|U]
            ,[Y|N]
            ,[Y|N]
            ,[prefix_userid]
            ,[dd_bldmsgs]
            ,[dd_bldrept]
            ,[dd_bldlist]
            ,[dd_bldexit]
```

Call invocation format

```
lastrc := FLMLNK('BUILD   ',sclm_id
                           ,group
                           ,type
                           ,member
                           ,{userid|' '}
                           ,{E|L|N|S}
                           ,{C|F|R|U}
                           ,{Y|N}
                           ,{Y|N}
                           ,{prefix_userid | ' '}
                           ,dd_bldmsgs
                           ,dd_bldrept
                           ,dd_bldlist
                           ,dd_bldexit);
```

Return codes

0 Normal completion.

4 Warning condition.

8 Error condition.

12 Severe error condition. Messages are not produced. Error invoking the Build module.

16 Severe error condition. Messages are not produced. Unable to retrieve SCLM ID information.

20 Severe error condition. Messages are not produced. Invalid SCLM ID.

24 Severe error condition. Messages are not produced. SCLM services have not been initialized.

32 Severe error condition. Messages are not produced for one of these reasons:

- Invalid service requested
- Invalid parameter list for the requested service
- The version of the FLMLNK subroutines does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.

36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

DBACCT—retrieve accounting records for a member

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('DBACCT  ',sclm_id
                           ,group
                           ,type
                           ,member
                           ,found_group
                           ,$acct_info
                           ,$list_info
                           ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition. The accounting record could not be found.
8 Error condition. See the `$msg_array` parameter above for more details.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced for one of these reasons:
- Invalid service requested
- Invalid parameter list for the requested service
- The version of the FLMLNK subroutines does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

DBUTIL—generate a tailored data set and report

Command invocation format

```
FLMCMD DBUTIL,project
              ,[prj_def]
              ,[acct_group1|*],[acct_group2]
              ,[acct_group3],[acct_group4]
              ,[acct_group5],[acct_group6]
              ,[acct_type|*],[acct_member|*]
              ,[authcode|*],[change_code|*]
              ,[change_group|*],[change_userid|*]
              ,[language|*],[YES|NO]
              ,[ACCT|BMAP|*]
              ,[IN|OUT|*]
              ,[arch_group],[arch_type],[arch_member]
              ,[EXTENDED|NORMAL|SUBUNIT]
              ,[YES|NO]
              ,[YES|NO]
              ,[report_name],[dd_msgs]
              ,[dd_rept],[dd_tailor]
              ,[report_line]
```

Call invocation format

You cannot use call procedures to start this service.

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
>8 Severe error condition. Messages are not produced.

DELETE—delete database components

Command invocation format

```
FLMCMD DELETE,project
             ,[prj_def]
             ,group
             ,type
             ,member
             ,access_key
             ,[ACCT|BMAP|TEXT]
```

Call invocation format

```
lastrc := FLMLNK('DELETE  ',sclm_id
                           ,group
                           ,type
                           ,member
                           ,access_key
                           ,{ACCT|BMAP|TEXT}
                           ,$msg_array);
```

Return codes

0 Normal completion.

4 Warning condition. The member, accounting record, or build map were not found.

8 Error condition.

20 Severe error condition. Messages are not produced. Invalid SCLM ID.

24 Severe error condition. Messages are not produced. SCLM services have not been initialized.

32 Severe error condition. Messages are not produced for one of these reasons:
- Invalid service requested
- Invalid parameter list for the requested service
- The version of the FLMLNK subroutines does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.

36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

DELGROUP—delete database components from group

Command invocation format

```
FLMCMD DELGROUP,project
               ,[prj_def]
               ,{group|*}
               ,{type|*}
               ,{member|*}
               ,{ACCT|BMAP|TEXT|OUTPUT}
               ,[EXECUTE|REPORT]
               ,[dd_list]
               ,[dd_msgs]
               ,[dd_rept]
               ,[dd_exit]
               ,[pack_del]
               ,[pack_days]
```

Call invocation format

```
lastrc := FLMLNK('DELGROUP',sclm_id
                           ,{group|*}
                           ,{type|*}
                           ,{member|*}
                           ,{ACCT|BMAP|TEXT|OUTPUT}
```

```
                                ,{EXECUTE|REPORT}
                                ,dd_list
                                ,dd_msgs
                                ,dd_rept
                                ,dd_exit
                                ,{Y|N}
                                ,pack_days);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
12 Severe error condition. SCLM does not produce messages because there was an error invoking the DELGROUP module.
16 Severe error condition. SCLM does not produce messages because it was unable to retrieve SCLM ID information.
20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module (for future use).

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

DSALLOC—allocate data sets for group/type

Command invocation format

```
FLMCMD DSALLOC,project
              ,[prj_def]
              ,first_group
              ,[A|P]
              ,total_groups
              ,type
              ,ddname
```

Call invocation format

```
lastrc := FLMLNK('DSALLOC ',sclm_id
                           ,first_group
                           ,{A|P}
                           ,total_groups
                           ,type
                           ,ddname
                           ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition. The $msg_array parameter contains the warning message associated with this condition. A warning occurs if the number of data sets allocated to ddname is less than the number requested in the total_groups parameter.
8 Error condition. The $msg_array parameter contains the error message associated with this condition.

20 Severe error condition. SCLM does not produce messages because the SCLM ID (sclm_id parameter) is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services were not initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- Invalid service requested
- Invalid parameter list for the requested service
- The version of the FLMLNK subroutines does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

EDIT— edit a member of a controlled library

Command invocation format

```
FLMCMD EDIT,project
           ,(prj_def)
           ,group1
           ,(group2)
           ,(group3)
           ,(group4)
           ,type
           ,member
           ,(Y|N)
           ,(imac)
           (prof),
           ,(Y|N)
           ,(Y|N)
           ,(Y|N)
           ,(Y|N)
           ,(authcode)
           ,(chgcode)
           ,(volser)
           ,(dd_editmsgs)
```

Call invocation format

```
lastrc := FLMLNK('EDIT', sclm_id
           ,group1
           ,(group2)
           ,(group3)
           ,(group4)
           ,type
           ,member
           ,(Y|N)
           ,(imac)
           ,(prof)
           ,(Y|N)
           ,(Y|N)
           ,(Y|N)
           ,(Y|N)
           ,(authcode)
           ,(chgcode)
           ,(volser)
           ,(dd_editmsgs));
```

Return codes

Possible return codes are:
0 Normal completion.
8 Error condition. See the dd_editmsgs for details.

12 Severe error condition. SCLM does not produce messages because there was an error invoking the edit module.
16 Verification error from a user exit routine.
20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized. See the SCLM Reference section in the *z/OS ISPF Software Configuration and Library Manager Guide and Reference* for information on initializing an SCLM services session.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of FLMLNK subroutine does not match the version of the SCLM services module.

END—end an SCLM services session

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('END     ',appl_id
                          ,msg_line);
```

Return codes

0 Normal completion.
4 Warning condition. Unable to free an SCLM ID associated with the application ID.
8 Error condition.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- Invalid service requested
- Invalid parameter list for the requested service
- The version of the FLMLNK subroutines does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

EXPORT—extract SCLM accounting information for a group

Command invocation format

```
FLMCMD EXPORT,project
             ,[prj_def]
             ,group
             ,[Y|N]
             ,[dd_msgs]
             ,[dd_rept]
```

Call invocation format

```
lastrc := FLMLNK('EXPORT  ',sclm_id
                           ,group
                           ,{Y|N}
                           ,dd_msgs
                           ,dd_rept);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
12 Severe error condition. SCLM does not produce messages because there was an error invoking the IMPORT module.
16 Severe error condition. SCLM does not produce messages because it was unable to retrieve SCLM ID information.
20 Severe error condition. SCLM does not produced messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module (for future use).

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

FREE—free database from its association with SCLM ID

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('FREE    ',sclm_id
                           ,msg_line);
```

Return codes

0 Normal completion.
8 Error condition.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

GETBLDMP—retrieve build map information

Command invocation format

```
FLMCMD GETBLDMP,project
              ,[prj_def]
              ,group
              ,type
              ,member
              ,bmap_table
              ,[dd_msgs]
```

Call invocation format

```
lastrc := FLMLNK('GETBLDMP',sclm_id
                           ,group
                           ,type
                           ,member
                           ,bmap_table
                           ,$msg_array);
```

Return codes

0 Normal completion. A build map record was found that exactly matched the specified criteria and the information was stored successfully.

4 Normal completion. A build map record was found at a higher level. The information was stored successfully.

8 Error completion. No account record was found for the specified member.

12 Error completion. Refer to the messages for more information.

IMPORT—import SCLM accounting information to current project

Command invocation format

```
FLMCMD IMPORT,project
             ,[prj_def]
             ,group
             ,[authcode|' ']
             ,[change_code|' ']
             ,[userid|' ']
             ,[C|U|R]
             ,[dd_msgs]
             ,[dd_rept]
```

Call invocation format

```
lastrc := FLMLNK('IMPORT  ',sclm_id
                           ,group
                           ,{authcode}
                           ,{change_code}
                           ,{userid}
                           ,{C|U|R}
                           ,dd_msgs
                           ,dd_rept);
```

Return codes

0 Normal completion.

4 Warning condition.

8 Error condition.

12 Severe error condition. SCLM does not produce messages because there was an error invoking the IMPORT module.

16 Severe error condition. SCLM does not produce messages because it was unable to retrieve SCLM ID information.
20 Severe error condition. SCLM does not produced messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module (for future use).

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

INIT—generate an SCLM ID for a database

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('INIT    ',appl_id
                          ,project
                          ,prj_def
                          ,sclm_id
                          ,msg_line);
```

Return codes

0 Normal completion.
8 Error condition.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

LOCK—lock a member or assign an access key

Command invocation format

```
FLMCMD LOCK,project
           ,[prj_def]
           ,group
           ,type
           ,member
           ,[authcode]
           ,[access_key]
           ,[userid]
```

Call invocation format

```
lastrc := FLMLNK('LOCK    ',sclm_id
                          ,group
                          ,type
                          ,member
                          ,{authcode|' '}
                          ,{access_key|' '}
                          ,{userid|' '}
                          ,found_group
                          ,max_prom_group
                          ,$acct_info
                          ,$list_info
                          ,$msg_array);
```

Return codes

0 Normal completion.
8 Error condition.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

MIGRATE—create accounting information for selected members

Command invocation format

```
FLMCMD MIGRATE,project
              ,[prj_def]
              ,group,type,member
              ,[authcode]
              ,[language]
              ,[change_code]
              ,[C|U|F]
              ,[dd_migmsgs]
              ,[dd_miglist]
              ,[dd_migrept]
              ,[date]
              ,[time]
```

Call invocation format

```
lastrc:=FLMLNK('MIGRATE ',sclm_id
              ,group
              ,type
              ,member
              ,authcode
              ,language
              ,change_code
              ,C|U|F
              ,[dd_migmsgs]
              ,[dd_miglist]
              ,[dd_migrept]
              ,[date]
              ,[time]);
```

Return codes

0 Normal completion.
4 Warning condition. See the SCLM messages for more information.
8 Error condition. See the SCLM messages for more information.
20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. SCLM does not produce messages for one of these reasons:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.

NEXTGRP—find the next group in a hierarchy

Command invocation format

```
FLMCMD NEXTGRP,project
              ,[prj_def]
              ,group
              ,[dd_msgs]
```

Call invocation format

```
lastrc := FLMLNK('NEXTGRP ',sclm_id
                           ,group
                           ,dd_msgs);
```

Return codes

0 Normal completion. NEXTGRP completed successfully. Variables are set.
4 Warning condition. The group is already the top group. No variables are set.
8 Error condition. Invalid project, prj_def, or group name.
12 Severe error condition. SCLM might not produce messages because there was an error invoking the NEXTGRP module. For certain conditions messages are available.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

PARSE—parse a member for statistical and dependency information

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('PARSE   ',sclm_id
                           ,group
                           ,type
                           ,member
                           ,language
                           ,{Y|N}
                           ,ddname
```

```
                                ,$stats_info
                                ,$list_info
                                ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition. A parser error occurred.
8 Error condition.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

PROMOTE—promote a member from one library to another

Command invocation format

```
FLMCMD PROMOTE,project
              ,[prj_def]
              ,group
              ,type
              ,member
              ,[userid]
              ,[E|N|S]
              ,[C|U|R]
              ,[dd_prommsgs]
              ,[dd_promrept]
              ,[dd_promexit]
              ,[dd_copyerr]
```

Call invocation format

```
lastrc := FLMLNK('PROMOTE ',sclm_id
                           ,group,type,member
                           ,{userid|' '}
                           ,{E|N|S}
                           ,{C|U|R}
                           ,dd_prommsgs,dd_promrept
                           ,dd_promexit,dd_copyerr);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
12 Severe error condition. Messages are not produced. Error invoking the Promote module.
16 Severe error condition. Messages are not produced. Unable to retrieve SCLM ID information.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.

- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

RPTARCH—generate an SCLM architecture report

Command invocation format

```
FLMCMD RPTARCH,project,[prj_def]
              ,group
              ,type
              ,member
              ,[HL|LEC|CC|GEN|TOP SOURCE|NONE]
              ,dd_rptmsgs
              ,dd_rptrept
```

Call invocation format

You cannot use call procedures to start this service.

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
16 Error condition. Unable to retrieve the SCLM table.

SAVE—lock, parse, and store a member

Command invocation format

```
FLMCMD SAVE,project,[prj_def]
           ,group,type,member
           ,[authcode],[access_key]
           ,[userid],[language]
           ,[Y|N]
           ,[ddname],[C|U]
           ,[C|U]
           ,[change_code]
```

Call invocation format

```
lastrc := FLMLNK('SAVE    ',sclm_id
                          ,group,type,member
                          ,authcode,access_key
                          ,{userid|' '},language
                          ,{Y|N}
                          ,ddname
                          ,{C|U}
                          ,{C|U}
                          ,{Y|N}
                          ,$list_info
                          ,max_prom_group
                          ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.

24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

SCLMINFO—return project information

Command invocation format

```
FLMCMD SCLMINFO,project
               ,[prj_def]
```

Call invocation format

```
lastrc := FLMLNK('SCLMINFO',sclm_id);
```

Return codes

0 Normal completion.
12 Error condition.

START—generate an application ID for a service session

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('START   ',appl_id);
```

Return codes

0 Normal completion.
12 Severe error condition. The maximum application ID limit was exceeded.
16 Severe error condition. An invalid version of the SCLM table was loaded.
20 Severe error condition. An invalid version of the NLS table was loaded.
24 Severe error condition. Unable to load the SCLM table.
28 Severe error condition. Unable to load the NLS table or the SCLM I/O load module.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

STORE—store member information in an accounting record

Command invocation format

You cannot use command procedures to call this service.

Call invocation format

```
lastrc := FLMLNK('STORE   ',sclm_id
                           ,group,type,member
                           ,access_key
                           ,language
                           ,{userid|' '}
                           ,{C|U}
                           ,{Y|N}
                           ,$stats_info,$list_info
                           ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

UNLOCK—unlock a member in a development library

Command invocation format

```
FLMCMD UNLOCK,project
             ,[prj_def]
             ,group
             ,type
             ,member
             ,[access_key]
```

Call invocation format

```
lastrc := FLMLNK('UNLOCK  ',sclm_id
                           ,group
                           ,type
                           ,member
                           ,{access_key|' '}
                           ,$msg_array);
```

Return codes

0 Normal completion.
4 Warning condition.
8 Error condition.
20 Severe error condition. Messages are not produced. Invalid SCLM ID.
24 Severe error condition. Messages are not produced. SCLM services have not been initialized.
32 Severe error condition. Messages are not produced. One of these is true:
- You requested an invalid service.
- You supplied an invalid parameter list for the requested service.
- The version of the FLMLNK subroutine does not match the version of the SCLM services module.

34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

VERDEL—delete version information

Command invocation format

```
FLMCMD VERDEL,project
             ,[prj_def]
             ,group
             ,type
             ,member
             ,date
             ,time
             ,[dd_msgs]
             ,[longdate]
```

Call invocation format

```
lastrc := FLMLNK('VERDEL ',sclm_id,
                 ,group
                 ,type
                 ,member
                 ,date
                 ,time
                 ,$msg_array
                 ,[longdate]);
```

Return codes

0 Normal completion. The audit and version information were deleted.
8 Error completion. No audit and version information was deleted. No audit record was found that matches the specified criteria.
12 Error completion. Refer to the messages for more information.
20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. An invalid parameter list was passed to the requested service.
34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

VERINFO—retrieve version information

Command invocation format

```
FLMCMD VERINFO,project
              ,[prj_def]
              ,group
              ,type
              ,member
              ,[date]
              ,[time]
              ,[user_info_table]
              ,[include_table]
              ,[change_code_table]
              ,[ada_cu_table]
              ,[FORWARD|BACKWARD|MATCH]
              ,[dd_msgs]
              ,[longdate]
```

Call invocation format

```
lastrc := FLMLNK('VERINFO ',sclm_id,
              ,group
              ,type
              ,member
              ,date
              ,time
              ,user_info_table
              ,include_table
              ,change_code_table
              ,ada_cu_table
              ,FORWARD|BACKWARD|MATCH
              ,$msg_array
              ,[longdate]);
```

Return codes

0 Normal completion. An audit record exactly matching the specified criteria was found and the information was stored successfully.

8 Error completion. No audit record was found for the specified member.
- If FORWARD was specified then there are no audit records for the group which match or follow the specified type, member, date and time.
- If BACKWARD was specified then there are no audit records for the group which match or precede the specified type, member, date and time.
- If MATCH was specified then there is not an audit record with the specified group, type and member name.

12 Error completion. Refer to the messages for more information.

20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.

24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.

32 Severe error condition. An invalid parameter list was passed to the requested service.

34 Severe error condition. An invalid service was requested.

36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

VERRECOV—recover a version

Command invocation format

```
FLMCMD VERRECOV,project
              ,[prj_def]
              ,group
              ,type
              ,member
              ,date
              ,time
              ,[to_dataset]
              ,[to_group]
              ,[to_type]
              ,[authcode]
              ,[dd_msgs]
              ,[longdate]
```

Call invocation format

```
lastrc := FLMLNK('VERRECOV',sclm_id,
                ,group
                ,type
                ,member
                ,date
                ,time
```

```
,to_dataset
,to_group
,to_type
,authcode
,$msg_array
,[longdate]);
```

Return codes

0 Normal completion. The audit and version information were recovered.
8 Error completion. No audit and version information was recovered. No audit record was found that matches the specified criteria.
10 Error completion. No audit and version information was recovered. The member could not be locked with the specified authorization code.
12 Error completion. Refer to the messages for more information.
20 Severe error condition. SCLM does not produce messages because the SCLM ID is invalid.
24 Severe error condition. SCLM does not produce messages because SCLM services have not been initialized.
32 Severe error condition. An invalid parameter list was passed to the requested service.
34 Severe error condition. An invalid service was requested.
36 Severe error condition. The version of the FLMLNK subroutine does not match the version of the SCLM services module.

SCLM macros

FLMABEG—define the project name of the project definition

Macro format

```
name FLMABEG
```

FLMAEND—last macro in the project definition

Macro format

```
FLMAEND
```

FLMAGRP—define a group of authorization codes

Macro format

```
name FLMAGRP AC=(code1,code2,...)
```

FLMALLOC—define each DDname in the DDname substitution list for a translator

Macro format

```
FLMALLOC IOTYPE={A|H|I|L|N|O|P|S|U|W}
   [,BLKSIZE=block_size]
   [,CATLG=N|Y]
   [,DDNAME=ddname]
   [,DFLTMEM=default_member]
   [,DFLTTYP=default_type]
   [,DINIT=N|Y]
   [,DIRBLKS=directory_blocks]
   [,DISP=OLD|SHR|MOD|NEW]
   [,INCLS=include_set_name]
   [,KEYREF=keyword_reference]
```

```
   [,LANG=language]
   [,LRECL=record_length]
   [,MALLOC=N|Y]
   [,ALLCDEL=N|Y]
   [,MEMBER=member_name]
   [,NOSAVRC=no_save_rc]
   [,PATHOPT=uss_path_options]
   [,PATHMDE=uss_path_mode]
   [,PATHDSP=uss_path_disposition]
   [,FILEDAT=uss_file_data]
   [,PRINT=N|Y|I]
   [,RECFM=record_format]
   [,RECNUM=number_of_records]
```

FLMALTC—specify alternate control information

Macro format

```
name FLMALTC
     ACCT=primary_accounting_data_set
     [,ACCT2=secondary_accounting_data_set]
     [,DSNAME=dataset_name]
     [,EXPACCT=export_account_data_set]
     [,VERS=primary_audit_control_data_set]
     [,VERS2=secondary_audit_control_data_set]
     [,VERPDS=version_pds_name]
```

FLMATVER—enable the audit and version utility

Macro format

```
FLMATVER
      GROUP=group|*
     ,TYPE=type|*
     ,SEQNUM=STANDARD|STD|COBOL|NONE
     [,VERSION=YES|NO]
     [,VERCOUNT=number_to_retain]
```

FLMCNTRL—specify project-specific control options

Macro format

```
FLMCNTRL     [ACCT=primary_account_data_set|project.ACCOUNT.FILE]

  [,ACCT2=secondary_account_data_set]
  [,EXPACCT=export_account_data_set]
  [,VERS=primary_audit_control_data_set]
  [,VERS2=secondary_audit_control_data_set]
  [,VSAMRLS=NO|YES]
  [,VERPDS=version_pds_name]
  [,VERCOUNT=number_to_retain]
  [,DSNAME=dataset_name_pattern]
  [,DASDUNIT=DASD_unit_name|SYSALLDA]
  [,VIOUNIT=VIO_unit_name|VIO]
  [,MAXLINE=max_line_count|60]
  [,MAXVIO=max_vio_count|5000]
  [,OPTOVER=N|Y]
  [,MEMLOCK=N|Y]
  [,CONTROL=control_data_set]
  [,ADMINID=administrator_userid]

  [,VERCC=change_code_routine]
     [,VERCCDS=change_code_dataset]
     [,VERCCCM=LINK|ATTACH|TSOLNK|ISPLNK]
     [,VERCCOP=change_code_options]
```

```
[,CCVFY=initial_change_code_exit_routine]
   [,CCVFYDS=initial_change_code_exit_dataset]
   [,CCVFYCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,CCVFYOP=initial_change_code_exit_options]

[,CCSAVE=save_change_code_exit_routine]
   [,CCSAVDS=save_change_code_exit_dataset]
   [,CCSAVCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,CCSAVOP=save_change_code_exit_options]

[,AVDVFY=verify_audit_version_delete_exit_routine]
   [,AVDVFYDS=verify_audit_version_delete_exit_dataset]
   [,AVDVFYCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,AVDVFYOP=verify_audit_version_delete_exit_options]

[,AVDNTF=notify_audit_version_delete_exit_routine]
   [,AVDNTFDS=notify_audit_version_delete_exit_dataset]
   [,AVDNTFCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,AVDNTFOP=notify_audit_version_delete_exit_options]

[,BLDINIT=build_initial_user_exit_routine]
   [,BLDINIDS=build_initial_user_exit_dataset]
   [,BLDINICM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,BLDINIOP=build_initial_user_exit_options]

[,BLDNTF=build_notify_user_exit_routine]
   [,BLDNTFDS=build_notify_user_exit_dataset]
   [,BLDNTFCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,BLDNTFOP=build_notify_user_exit_options]

[,PRMINIT=promote_initial_user_exit_routine]
   [,PRMINIDS=promote_initial_user_exit_dataset]
   [,PRMINICM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,PRMINIOP=promote_initial_user_exit_options]

[,PRMVFY=promote_verify_user_exit_routine]
   [,PRMVFYDS=promote_verify_user_exit_dataset]
   [,PRMVFYCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,PRMVFYOP=promote_verify_user_exit_options]

[,PRMCOPY=promote_copy_user_exit_routine]
   [,PRMCPYDS=promote_copy_user_exit_dataset]
   [,PRMCPYCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,PRMCPYOP=promote_copy_user_exit_options]

[,PRMPURGE=promote_purge_user_exit_routine]
   [,PRMPRGDS=promote_purge_user_exit_dataset]
   [,PRMPRGCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,PRMPRGOP=promote_purge_user_exit_options]

[,DELINIT=initial_delete_exit_routine]
   [,DELINIDS=initial_delete_exit_dataset]
   [,DELINICM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,DELINIOP=initial_delete_exit_options]

[,DELVFY=verify_delete_exit_routine]
   [,DELVFYDS=verify_delete_exit_dataset]
   [,DELVFYCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,DELVFYOP=verify_delete_exit_options]

[,DELNTF=notify_delete_exit_routine]
   [,DELNTFDS=notify_delete_exit_dataset]
   [,DELNTFCM=LINK|ATTACH|TSOLNK|ISPLNK]
   [,DELNTFOP=notify_delete_exit_options]
```

FLMCPYLB—identify additional data sets to be concatenated to a DDname

Macro format

```
FLMCPYLB dataset_name|pathname|NULLFILE
         [,VOL=volser]
```

FLMGROUP—define one group in the project definition

Macro format

```
name FLMGROUP
     [AC=(code1,code2,...)]
     [,ALTC=group_control_options]
     [,KEY=N|Y]
     [,PROMOTE=next_group]
```

FLMINCLS—associate include-sets with types in the project hierarchy

Macro format

```
name FLMINCLS
     [SAMEAS=flmincls_name_ | Types=(list_of_types)]
     [CROSLANG=Y|N]
```

FLMLANGL—define a language to SCLM

Macro format

```
FLMLANGL LANG=language
   [,ALCSYSLIB=N|Y]
   [,ARCH=N|Y]
   [,BUFSIZE=buffer_size|100]
   [,CANEDIT=Y|N]
   [,CHKSYSLB=PARSE|BUILD|IGNORE]
   [,COMPOOL=N|Y]
   [,DEPPRCS=Y|N]
   [,DFLTCRF=default_CREF_reference]
   [,DFLTSRF=default_source_reference]
   [,SCOPE=LIMITED|NORMAL|SUBUNIT|EXTENDED]
   [,VERSION=language_version]
   [,LANGDESC=language_description]
   [,MBRLMT=0]
```

FLMLRBLD—rebuild members with a particular language after promotion

Macro format

```
FLMLRBLD
         [GROUP=group_list]
```

FLMSYSLB—define a set of data sets for a language containing project macros or included members

Macro format

```
[language] FLMSYSLB dataset_name
[,INCLS=include_set_name]
```

FLMTCOND—select build translators based on group and return codes

Macro format

```
FLMTCOND
            [ GROUP=group_list|NOTGROUP=group_list]
            [,WHEN=relations_list]
            [,ACTION=RUN|SKIP]
```

FLMTOPTS—select the options based on group

Macro format

```
FLMTOPTS OPTIONS=options_list
            [,GROUP=group_list|NOTGROUP=group_list]
            [,ACTION=APPEND|REPLACE]
```

FLMTRNSL—define once for each translator to be invoked for a language

Macro format

```
[translator label]  FLMTRNSL CALLNAM='call_name'
   [,FUNCTN=PARSE|VERIFY|BUILD|COPY|PURGE]
   ,COMPILE=translator_name
   [,DSNAME=translator_dataset_name]
   [,GOODRC=good_return_code|0]
   [,NOSVEXT=no_save_external_rc|0]
   [,OPTFLAG=N|Y]
   [,OPTIONS=option_list]
   [,PARMKWD=parameter_keyword]
   [,PDSDATA=Y|N]
   [,PORDER=0|1|2|3]
   [,VERSION=translator_version]
   [,CALLMETH=ATTACH|LINK|TSOLNK|ISPLINK]
   [,TASKLIB=translator_ddname]
   [,INPLIST=N|Y]
   [,MBRRC=maximum_good_return_code]
```

Note: See the "SCLM Reference" section in the *z/OS ISPF Software Configuration and Library Manager Guide and Reference* for information about the two translators FLMTPRE and FLMTPST.

FLMTYPE—define one FLMTYPE in the project definition

Macro format

```
name FLMTYPE
     [EXTEND=extended_type]
     [,BACKUP=N|Y]
     [,ISAPACK=N|Y]
     [,PACKFILE=N|Y]
     [,REUSEDAY=number_of_days]
```

Chapter 6. System variables

The system variables are described with type and pool information in the following tables. The variables are also discussed with the ISPF service to which they apply.

Commonly used system variables that a dialog can access are listed below. They are grouped by topic.

The first column gives the name of the variable. The second column indicates in which pool the variable resides. The following abbreviations are used:

func Function pool
shr Shared pool
prof Profile pool
any Any pool.

The third column indicates the variable's type. The following abbreviations are used:

in Input variable, set by a dialog to provide information to ISPF
out Output variable, set by ISPF to provide information to dialogs
non Non-modifiable output variable
i/o Both an input and an output variable.

The fourth column gives the length of the variable.

The fifth column gives a brief description of the variable.

Numeric system variables set by ISPF are right-justified and padded with zeros on the left, if necessary. If a program function uses the VCOPY service to access the variable, the value will be in character string format rather than in fixed binary format.

Configuration utility

Name	Pool	Type	Len	Description
ZCFGCMPD	shr	non	10	Current Configuration module compilation date. ZCFGCMPD contains the national language delimiter and contains the date in the format YYYY/MM/DD. For countries that use a delimiter other than a slash (/), that delimiter replaces the slash in the date representation.
ZCFGCMPT	shr	non	5	Current Configuration module compilation time. ZCFGCMPT contains the national language delimiter and contains the time in the format HH:MM. For countries that use a delimiter other than a colon (:), that delimiter replaces the colon in the time representation. **Note:** This field will be blank for a configuration module compiled with a previous version of ISPF.
ZCFGKSRC	shr	non	54	Keyword source data set and member for the current configuration module. **Note:** This field will be blank for a configuration module compiled with a previous version of ISPF.
ZCFGLVL	shr	non	8	Current Configuration module level.
ZCFGMOD	shr	non	8	Current Configuration module name.

Time and date

Name	Pool	Type	Len	Description
ZDATE	shr	non	8	Current date. The format of ZDATE depends on the current national language (see ZDATEF and ZDATEFD).
ZDATEF	shr	non	8	Current national language date format using the characters DD for day, MM for month, and YY for year. ZDATEF contains the national language delimiter. For example, DD/MM/YY, YY/MM/DD, MM.DD.YY. For countries that use a delimiter other than a slash (/), that delimiter replaces the slash in the date representation.
ZDATEFD	shr	non	8	The date format as described under ZDATEF but with the national language convention instead of DD, MM, and YY.
ZDATESTD	shr	non	8	Current date with a 4-digit year (YYYY/MM/DD). The format of ZDATESTD depends on the current national language (see ZDATEF and ZDATEFD).
ZDAYOFWK	shr	non	8	The name of the day of the week.
ZDAY	shr	non	2	Day of month (2 characters)
ZJDATE	shr	non	6	Day-of-year date (format yy.ddd)
ZJ4DATE	shr	non	8	Day-of-year date (format yyyy.ddd)
ZMONTH	shr	non	2	Month of year (2 characters)
ZSTDYEAR	shr	non	4	All 4 digits of the current year (4 characters).
ZTIME	shr	non	5	Time of day (format hh:mm)
ZTIMEL	shr	non		Time of day (format hh:mm:ss:TQ —where *T* is tenths of a second, and *Q* is hundredths)
ZYEAR	shr	non	2	Year (2 characters)

The current date is displayed in the appropriate format for the session language, where DD=DAY, MM=MONTH, and YY=YEAR. For countries that use a delimiter other than a slash (/), that delimiter replaces the slash in the date representation.

General

Name	Pool	Type	Len	Description
Z	shr	non	0	Null Variable
ZACCTNUM	shr	non	40	The MVS account number specified at logon time.
ZAPLCNT	shr	non	4	Number of times APL invoked for a logical screen
ZAPPLID	shr	non	8	Application identifier
ZAPPTTL	any	in	N/A	When running in GUI mode, the title to be displayed in the window frame. **Note:** If the panel is to be displayed in a pop-up window, the value specified in ZWINTTL will be used instead of ZAPPTTL.
ZBDMAX	shr	i/o	9	Maximum number of displays that can occur within a batch mode session. This value is obtained from the BDISPMAX keyword on the ISPSTART command.
ZBDMXCNT	shr	non	9	Count of current number of displays in a batch mode session
ZCS	shr	non	5	NLS currency symbol
ZCSDLL	shr	non	8	File name of the DLL required for this level of code for the Client/Server
ZDECS	shr	non	1	NLS decimal separator character
ZDEL	prof	non	1	The delimiter is used to separate stacked commands. The default delimiter is a semicolon (;).
ZENTKTXT	any	in	12	When you are running in GUI mode, the name that appears on the Enter key push button. If this variable is not found, “Enter” appears on the push button.
ZENVIR	shr	non	32	Environment description: • Characters 1 to 8 contain the product name and sequence number, in the form `ISPF` *x.y*. The sequence number *x.y* indicates the following: 5.9 means ISPF for z/OS Version 1 Release 9.0 5.8 means ISPF for z/OS Version 1 Release 8.0 5.7 means ISPF for z/OS Version 1 Release 7.0 5.6 means ISPF for z/OS Version 1 Release 6.0 5.5 means ISPF for z/OS Version 1 Release 5.0 5.2 means ISPF for z/OS Version 1 Release 2.0 5.0 means ISPF for z/OS Version 1 Release 1.0 OR 5.0 means ISPF for OS/390 Version 2 Release 10.0 4.8 means ISPF for OS/390 Version 2 Release 8.0 **Note:** See also the system variables ZISPFOS and ZOS390RL. • Characters 9 to 16 contain the generic operating system name (MVS). • Characters 17 to 24 contain the operating system environment (TSO or BATCH). • Characters 25 to 32 contain blanks and are reserved.
ZEURO	shr	non	1	The EURO currency symbol.
ZGUI	shr	non	68	Workstation address or name (in character format) if ISPSTART is issued with the GUI parameter or if specified on the Settings GUI invocation panel. ZGUI will be set to blank if ISPSTART is issued without the GUI parameter or if GUI is not invoked from the Settings panel.
ZISPFOS	shr	non	30	The level of ISPF code that is running as part of z/OS on your system. This level might or might not match the z/OS level found in ZOS390RL.
ZISPFRC	shr	in	8	Return code from ISPSTART-selected dialog to invoking application.

System variables

Name	Pool	Type	Len	Description
ZKEYHELP	any	in	8	Keys help panel identifier. If a keys help panel is not specified on the referenced keylist, the application can provide the keys help panel name in this variable. If the help panel name is present as part of the referenced keylist definition, it takes precedence over the ZKEYHELP value. This system variable must be redefined each time the keys help panel is to change.
ZLANG	prof	non	8	Session language
ZLOGO	shr	non	3	Indicates whether the user has requested bypass of LOGO panel. NO indicates that the user has specified the NOLOGO keyword at the time ISPF was called, thus, requesting that the LOGO panel be bypassed. Otherwise, the value of the variable will be YES.
ZLOGON	shr	non	8	Stepname of TSO logon procedure
ZNESTMAC	any	in	2	When set to a value of NO, REXX and CLIST edit macros are not invoked as nested commands, even when the NESTMACS parameter is specified on the ISPSTART command.
ZMLPS	shr	non	3	Indicates whether the ISPF Profile Sharing feature is active. ZMLPS has a value of either YES or NO.
ZOS390RL	shr	non	16	Indicates the z/OS release running on your system.
ZPANELID	shr	non	8	The name of the currently displayed panel.
ZPFKEY	shr	non	4	The name of the PF key (PFxx) in effect when the user exits the panel. If ZPFKEY = PF00 then no PF key is in effect.
ZPLACE	prof	i/o	7	Command line placement (ASIS or BOTTOM)
ZPREFIX	shr	non	8	TSO user prefix
ZPROFAPP	prof	in	8	Name of application profile pool extension table
ZSCRCUR	shr	non	4	Displays the number of logical screens currently in use.
ZSCREENC	shr	non	5	Cursor position within the logical screen data.
ZSCREENI	shr	non	?	Logical screen data. Size depends upon your screen size.
ZSCRNAME	shr	in	8	Screen name set by dialog. The screen name is in effect only for the select level in which it was defined. Option 7.3 can alter ZSCRNAME, but this will have no impact.
ZSCRMAX	shr	non	4	Displays the number of logical screens allowed by the installation.
ZSCTPREF	shr	non	4	First site command table prefix
ZSCTPRE2	shr	non	4	Second site command table prefix
ZSCTPRE3	shr	non	4	Third site command table prefix
ZSCTSRCH	shr	non	1	Search order for site command tables relative to system command table. Set to either B (Before ISP) or A (After ISP).
ZSEQ	shr	non	5	Unique number within the sysplex.
ZSM	shr	i/o	3	Indicates whether session manager panels will be used for ISPF options 4 and 6. This variable is initialized from the ISPF configuration table keyword USE_SESSION_MANAGER at startup and stored in the shared variable pool. Once initialized it can only be changed with Option 0 - Settings or by use of the RESET_USE_SESSION_MANAGER configuration option.
ZSYSICON	shr	non	8	The 8-character variable that contains the command to be executed when the system icon is double-clicked or **close** is selected.

Name	Pool	Type	Len	Description
ZSYSID	shr	non	8	The 8-character SYSNAME obtained from the SYS1.PARMLIB member IEASYSxx which is read at IPL time. NONAME is the default value of SYSNAME. The operator can change this value at IPL time. See the *z/OS MVS Initialization and Tuning Reference* for more information.
ZSYSNODE	shr	non	12	The network node name of your installation's JES. This name identifies the local JES in a network of systems or system complexes being used for network job entry (NJE) tasks. The node name returned in ZSYSNODE derives from the NODE initialization statement of JES. If the system finds that the subsystem is not active, the ZSYSNODE variable contains the string `--INACTIVE--` (note the string delimiters). If the system finds that the subsystem is neither JES2 4.3 or later, nor JES3 5.1.1 or later, the ZSYSNODE variable contains the string `--DOWNLEVEL--` (note the string delimiters). The value in ZSYSNODE remains the same throughout the ISPF session. **Note:** If, for instance, the JES subsystem is taken down during an ISPF session and the node name is changed, the value in ZSYSNODE will still contain the value as determined at ISPF initialization.
ZSYSPLEX	shr	non	8	The MVS sysplex name as found in the COUPLExx or LOADxx member of SYS1.PARMLIB. If no sysplex name is specified in SYS1.PARMLIB, ZSYSPLEX contains blanks.
ZSYSPROC	shr	non	8	TSO Logon Procedure name. In foreground, will have the name of the current logon procedure; in batch, will have the value 'INIT'; a Started Task will have the Started Task procedure name.
ZTEMPF	shr	non	44	Name of temporary data set for file tailoring output
ZTEMPN	shr	non	8	DDNAME of temporary data set for file tailoring output
ZTERMCID	shr	non	5	CCSID coded character set identifier of the terminal. Set by ISPF based on the code page and character set of the terminal. If the terminal code page and character set cannot be queried or if they are not supported by ISPF, this variable will be blank.
ZTERMCP	shr	non	4	CECP support 4-digit code page. **Note:** ZTERMCS is defined as character length 4. It cannot handle 5-character character sets. For example, the character set 65535 is displayed in ZTERMCS as ″5535″. This does not mean that ISPF has defined character set 5535 (X'159F'). Two other Z variables, ZTERMCS5 and ZTERMCP5, for character set and code page respectively, were created to handle 5-character character sets and code pages. For example, the character set 65535 is displayed in ZTERMCP5 as 65535.
ZTERMCP5	shr	non	5	CECP support 5-digit code page
ZTERMCS5	shr	non	5	CECP support 5-character set
ZTERMCS	shr	non	4	CECP support 4-digit character set
ZTHS	shr	non	1	NLS thousands separator character
ZTS	shr	non	1	NLS time separator character
ZTSICMD	shr	non	32767	The entire initial invocation command string which invoked the ISPF environment. If storage cannot be obtained at startup, only the first 50 characters will be saved. The maximum length is 32767.
ZTSSCMD	shr	non	32767	SELECT portion of the initial invocation command. The maximum length is 32767.
ZUCTPREF	shr	non	4	First user command table name
ZUCTPRE2	shr	non	4	Second user command table name

System variables

Name	Pool	Type	Len	Description
ZUCTPRE3	shr	non	4	Third user command table name
ZUSER	shr	non	8	User ID
ZVERB	shr	out	8	Command verb after a SETVERB command table action
ZWINTTL	any	in	N/A	Title to be displayed in pop-up window frame
ZWSCDPG	shr	non	4	When running in GUI mode, the code page of the workstation. When not running in GUI mode, value will be blank.
ZWSCON	shr	non	68	TCP/IP or APPC address when ISPF session is connected to a workstation.
ZWSOPSYS	shr	non	16	Operating system of workstation to which the session is connected. The first 10 characters are the operating system name, followed by a blank, followed by two 2-digit numbers separated by a blank. These numbers are returned to ISPF from the operating system and change by version and release.

Terminal and function keys

Name	Pool	Type	Len	Description
ZCOLORS	shr	non	4	Number of colors supported by the terminal type (either 1 or 7)
ZDBCS	shr	non	3	DBCS terminal capability (YES or NO)
ZFKA	prof	non	8	Current state of the function key area form (LONG, SHORT, OFF (no display))
ZGE	shr	non	3	Terminal support for graphic escape order: **YES** graphic escape is supported **NO** graphic escape is not supported **Note:** If you are running in GUI mode, ZGE will be set to NO.
ZHILITE	shr	non	3	Extended highlighting availability (YES or NO)
ZIPADDR	shr	non	15	TCP/IP address of the currently connected TN3270 workstation. Entering the TERMSTAT QUERY option of the ENVIRON command will refresh the value.
ZIPPORT	shr	non	4	TCP/IP port number of the currently connected TN3270 workstation. Entering the TERMSTAT QUERY option of the ENVIRON command will refresh the value.
ZLUNAME	shr	non	8	VTAM LU name of the current TSO session. Entering a TERMSTAT QUERY command will refresh the value.
ZKEYS	prof	out	4	Number of Function keys
ZKLAPPL	shr	non	4	If KEYLIST is ON and it is a panel with the)PANEL statement, this contains the application id where the current keylist came from.
ZKLNAME	shr	non	8	If KEYLIST is ON and it is a panel with the)PANEL statement, this contains the name of the current keylist.
ZKLTYPE	shr	non	1	If KEYLIST is ON and it is a panel with the)PANEL statement, this contains either P (for Private) or S (for Shared) for the current keylist.
ZKLUSE	prof	i/o	1	If KEYLIST is ON this contains Y, if it is OFF, it contains an N.
ZPFCTL	prof	i/o	5	User authorization to use PFSHOW command • USER—User controls function key display with PFSHOW command • ON—Display function key definitions on all panels • OFF—Do not display function key definitions

Name	Pool	Type	Len	Description
ZPFFMT	prof	i/o	4	Number of Function key definitions displayed per line • SIX—Always display six keys per line • MAX—Display as many keys as will fit on each line
ZPFSET	prof	i/o	4	Function key definition set displayed • PRI—Primary set (1-12) • ALT—Alternate set (13-24) • ALL—All keys (1-24)
ZPFSHOW	prof	out	4	PFSHOW command status
ZPFxx	prof	i/o	255	Setting for Function keys: ZPF13-ZPF24 contain settings for the primary keys (for 12-key terminals: physical keys 1-12; for 24-key terminals: physical keys 13-24) ZPF01-ZPF12 contain settings for the alternate keys (for 24-key terminals only: physical keys 1-12) The maximum length is 255.
ZPFLxx	prof	i/o	8	Setting for Function key labels: ZPFL13-ZPFL24 contain labels for the primary keys ZPFL01-ZPFL12 contain labels for the alternate keys
ZPRIKEYS	prof	i/o	4	Indicates the set of Function keys that will be the primary keys • LOW—1 to 12 are primary keys • UPP—13 to 24 are primary keys
ZSCREEN	shr	non	1	Logical screen number up to 32 screens (1-9, A-W)
ZSCREEND	shr	non	4	Screen depth available for dialog use. In batch mode, this variable is set by the value specified for BATSCRD on the ISPSTART call.
ZSCREENW	shr	non	4	Screen width available for dialog use. In batch mode this variable is set by the value specified for BATSCRW on the ISPSTART call. ZSCREEND and ZSCREENW are generally the dimensions of the physical display screen. There are two exceptions: 1. On a 3290, if a dialog is executing on a display with a width of 160 characters and the user does a vertical split, then ZSCREENW is 80. 2. On a 3278 model 5, if a user has specified SCREEN FORMAT IS STD, then ZSCREENW is 80 and ZSCREEND is 24, rather than the maximum physical size of 132 by 27.
ZSCRMAXD	shr	non	4	Maximum screen depth available for dialog use. In batch mode, this variable is set by the value specified for BATSCRD on the ISPSTART call.
ZSCRMAXW	shr	non	4	Maximum screen width available for dialog use. In batch mode, this variable is set by the value specified for BATSCRW on the ISPSTART call. ZSCRMAXD and ZSCRMAXW are identical to ZSCREEND and ZSCREENW, except for terminals on which an alternate size is available. In that case, ZSCRMAXD and ZSCRMAXW contain the screen configuration size that produces the largest screen. For the 3290, these variables contain sizes of the hardware partition on which ISPF is operating.
ZSPLIT	shr	non	3	Split-screen mode in effect (YES or NO)
ZTERM	prof	out	8	Terminal type as defined by option 0

Scrolling

Name	Pool	Type	Len	Description
ZAMT	prof	i/o	4	Scroll amount for functions such as Dialog Test, the Keylist Utility, the Command Table Utility, and the LIBDEF Utility
ZSCBR	prof	i/o	4	Scroll amount for the BROWSE service
ZSCED	prof	i/o	4	Scroll amount for the EDIT service
ZSCML	prof	i/o	4	Scroll amount for member lists
ZSCRML	shr	non	1	Specifies if ISPF should scroll to the first member selected in the member list after processing or disable the member list from automatic scrolling and instead place the cursor in front of the last member selected.
ZSCROLLA	shr	out	4	Value from scroll amount field (PAGE, MAX, number)
ZSCROLLD	any	in	4	Value to be used as default scroll value for scrollable dynamic areas and table display
ZSCROLLN	shr	out	4	Scroll number as computed from the value in the scroll amount field
ZXSMAX	shr	non	4	Maximum scroll amount allowed to be used in any scroll operation.
ZXSMIN	shr	non	4	Minimum scroll amount allowed to be used in any scroll operation.
ZUSC	prof	i/o	4	Scroll amount for the Data Set List Utility

PRINTG command

Name	Pool	Type	Len	Description
ZASPECT	func	in	4	Aspect ratio of printed output from PRINTG
ZDEVNAM	func	in	8	Device name for PRINTG
ZFAMPRT	func	non	4	Family printer type for PRINTG

Table display service

Name	Pool	Type	Len	Description
ZTDADD	func	out	3	More rows needed to satisfy scroll request (YES|NO)
ZTDAMT	func	out	4	Number of rows that the dialog should add to satisfy scroll
ZTDLROWS	func	in	6	Number of rows in the logical table (dynamic table expansion)
ZTDLTOP	func	in	6	Maps current top row in physical table to its position in logical table.
ZTDMARK	any	in	See note	User-defined text for table display Bottom-of-Data marker **Note:** Value can be any length that is not more than the screen width.
ZTDMSG	any	in	8	User-defined message ID for table display top-row-displayed indicator
ZTDRET	func	in	8	Defines whether dialog wants to use scroll return feature.
ZTDROWS	func	out	6	Number of table rows upon return from table display
ZTDSCRP	func	in/out	6	CRP of top row to be displayed after the scroll
ZTDSELS	func	out	4	Number of selected table rows upon return from each table display
ZTDSIZE	func	out	4	Size (number of model sets) of the table display scrollable section
ZTDSRID	func	out	6	Rowid of the row pointed to by ZTDSCRP
ZTDTOP	func	out	6	Row number (CRP) of top row displayed during most recent table display

Name	Pool	Type	Len	Description
ZTDVROWS	func	out	6	Number of visible table rows upon return from table display

LIST service

Name	Pool	Type	Len	Description
ZLSTLPP	shr	non	4	Number of lines per page in list data set
ZLSTNUML	shr	non	4	Number of lines written to current list data set page
ZLSTTRUN	shr	non	4	List data set record length truncation value

LOG and LIST data sets

Name	Pool	Type	Len	Description
ZLOGNAME	shr	non	44	Contains the fully qualified data set name of the log data set.
ZLSTNAME	shr	non	44	Contains the fully qualified data set name of the list data set.

Dialog error

Name	Pool	Type	Len	Description
ZERRALRM	func	out	3	Message alarm indicator (YES or NO)
ZERRHM	func	out	8	Name of help panel associated with error message
ZERRLM	func	out	512	Long error message text
ZERRMSG	func	out	8	Error message-id
ZERRSM	func	out	24	Short error message text
ZERRTYPE	func	out	8	Error message type
ZERRWIND	func	out	6	Error message window type

Tutorial panels

Name	Description
ZCONT	Name of next continuation panel
ZHINDEX	Name of first index panel
ZHTOP	Name of top panel
ZIND	YES specifies an index page
ZUP	Name of parent panel

Selection panels

Name	Description
ZCMD	Command input field
ZPARENT	Parent menu name (when in *explicit chain mode*)
ZPRIM	YES specifies panel is a primary option menu

Name	Description
ZSEL	Command input field truncated at first period

DTL panels or panels containing a)PANEL section

Name	Pool	Type	Len	Description
ZCURFLD	func	out	8	Name of field (or list column) containing the cursor when the user exits the panel.
ZCURINX	func	out	8	For table display panels, the current row number of the table row containing the cursor. The value ZCURINX is in character format. If the cursor is not within a table row, this value will be 0.
ZCURPOS	func	out	4	Position of the cursor within the field specified by ZCURFLD when the user exits the panel. The value in ZCURPOS is in character format. If the cursor is not within a field, ZCURPOS will contain a 1.

Note: These variables will contain the values that would result if they were set to .CURSOR, .CSRPOS, and .CSRROW, as the first statements in the panel's)PROC section.

Chapter 7. Dialog variables

This topic describes the ISPF dialog variables.

The following table lists the dialog function pool variables that are both read from and written to by several of the PDF library access services. For details of function pool variables written by other services, refer to the *z/OS ISPF Services Guide*.

The variables are listed in alphabetical order. The first column lists the variable name. The second column indicates the variable's type, which corresponds to the format parameter of the ISPF VDEFINE service. The third column specifies the variable's length, which corresponds to the length parameter of the VDEFINE service.

The fourth column lists the PDF services that either read from or write to the variable. An R in parentheses (R) after a service name indicates that the service, when called, reads from the given variable. A W in parentheses (W) after a service name indicates that the service, when called, writes to the given variable. All variables are available to a dialog unless otherwise indicated.

The last column contains a brief description of the contents of the variable and any restrictions on the value of the variable.

Dialog variables

Variable Name	Format	Length	Service (Access)	Description
ZCMD	Char	256	LMMDISP(W)	Primary Command field from member list panel if the command is not a valid ISPF or PDF primary command.
ZDLBLKSZ	Char	5	LMDLIST(W)	Block size.
ZDLCATNM	Char	44	LMDDISP(R), LMDLIST(W)	Name of the catalog in which the data set was located.
ZDLCDATE	Char	10	LMDLIST(W)	Creation date.
ZDLDEV	Char	8	LMDLIST(W)	Device type.
ZDLDSNTP	Char	8	LMDLIST(W)	DS name type ('PDS', 'LIBRARY', or ' ').
ZDLDSORG	Char	4	LMDLIST(W)	Data set organization.
ZDLEDATE	Char	10	LMDLIST(W)	Expiration date.
ZDLEXT	Char	3	LMDLIST(W)	Number of extents used.
ZDLEXTX	Char	5	LMDLIST(W)	Number of extents used (long format).
ZDLLRECL	Char	5	LMDLIST(W)	Logical record length.
ZDLMIGR	Char	3	LMDLIST(W)	Whether the data set is migrated (YES or NO).
ZDLMVOL	Char	1	LMDLIST(W)	Multivolume indicator (Y or N).
ZDLOVF	Char	3	LMDLIST(W)	Whether variables ZDLEXTX and ZDLSIZEX are used (YES or NO).
ZDLRDATE	Char	10	LMDLIST(W)	Date last referenced.
ZDLRECFM	Char	5	LMDLIST(W)	Record format.
ZDLSIZE	Char	6	LMDLIST(W)	Data set size in tracks.
ZDLSIZEX	Char	12	LMDLIST(W)	Data set size in tracks (long format).
ZDLSPACU	Char	10	LMDLIST(W)	Space units, one of the following: CYLINDERS, MEGABYTES, KILOBYTES, BYTES, BLOCKS or TRACKS.
ZDLUSED	Char	3	LMDLIST(W)	Percentage of used tracks or pages (PDSE).
ZDLVOL	Char	6	LMDLIST(W)	Volume serial.
ZDSN	Char	44	LMMDISP(W)	Name of the first or only data set in the concatenation of the member list being displayed. This variable is only available for member list panels.
ZDST	Char	54	BRIF (W) EDIF (W)	Title line data name for EDIF and BRIF.
ZEDBDSN	Char	44	EDIT (R) EDREC(W)	Backup data set name for standard edit recovery.
ZEDILMSG	Char	240	Any Edit macro	Long message text. Corresponds to the first 240 bytes of the message that would be displayed if the command were entered from the command line instead of within an edit macro.
ZEDISMSG	Char	24	Any Edit macro	Short message text. Corresponds to the short message that would be displayed if the command were entered from the command line instead of within an edit macro.
ZEDITCMD	Char	8	Any Edit macro	The last primary command entered in Edit.
ZEDMSGNO	Char	8	Any Edit macro	Message ID. Corresponds to the message that would be displayed if the command were entered from the command line instead of within an edit macro.

Variable Name	Format	Length	Service (Access)	Description
ZEDROW	Fixed	4	EDIT (R) EDREC(W)	Row number of entry in standard edit recovery table.
ZEDSAVE	Char	8	Data_changed EDIT macro command	END command will save data (SAVE or NOSAVE).
ZEDTDSN	Char	44	EDIT (R) EDREC(W)	Target data set name for standard edit recovery.
ZEDTMCMD	Char	8	Any Edit macro	The edit command entered that caused an edit macro to run. Can be the macro name or other name is the edit DEFINE command was used to define an alias.
ZEDTMEM	Char	8	EDIT (R) EDREC(W)	Target member name (if applicable) for standard edit recovery.
ZEDTRD	Char	6	EDIT (R) EDREC(W)	Volume serial of target data set for standard edit recovery.
ZEDUSER	Char	[1]	EDIT (R) EDREC(W)	User data table extension for standard edit recovery.
ZEIBSDN	Char	54	EDIF (R) EDIREC(W)	Backup data name for EDIF edit recovery.
ZEIROW	Fixed	4	EDIF (R) EDIREC(W)	Row number of entry in EDIF edit recovery table.
ZEITDSN	Char	54	EDIF (R) EDIREC(W)	Target data name for EDIF edit recovery.
ZEIUSER	Char	[1]	EDIF (R) EDIREC(W)	User data table extension variable for EDIF edit recovery.
ZERRALRM	Char	3	ALL(W)	The value YES if an alarm was specified in the message definition; otherwise, the value NO. Set when ISPF services issue a return code of 8 or greater.
ZERRHM	Char	8	ALL(W)	The name of a Help panel, if one was specified in the message definition. Set when ISPF services issue a return code of 8 or greater.
ZERRLM	Char	512	ALL(W)	Long-message text in which variables have been resolved. Set when ISPF services issue a return code of 8 or greater.
ZERRMSG	Char	8	ALL(W)	Message ID. Set when ISPF services issue a return code of 8 or greater.
ZERRSM	Char	24	ALL(W)	Short-message text in which variables have been resolved. Set when ISPF services issue a return code of 8 or greater.
ZGRPLVL	Char	8	LMHIER (W)	ISPF table variable that contains the level of this ISPF library in the controlled hierarchy.
ZGRPNME	Char	8	LMHIER (W)	ISPF table variable that contains the ISPF library group name.
ZLAC	Char	2	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Authorization code of the member.
ZLALIAS	Char	8	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Name of the real member of which this member is an alias.
ZLAMODE	Char	3	LMMDISP(W) LMMFIND(W) LMMLIST(W)	AMODE of the member.

Dialog variables

Variable Name	Format	Length	Service (Access)	Description
ZLATTR	Char	20	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Load module attributes. See the *z/OS ISPF Services Guide*.
ZLCDATE	Char	8	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Date on which the specified member was created. A character string in the national format. For example, yy/mm/dd or mm/dd/yy. If no value exists for this variable, the PDF component will set the value to blanks.
ZLC4DATE	Char	10	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(W)	Date on which the specified member was created, in 4-character year format. A character string in the national format. For example, yyyy/mm/dd or mm/dd/yyyy. If no value exists for this variable, the PDF component will set the value to blanks.
ZLCNORC	Fixed	4	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Current number of records in the specified member. A number from 0 to 65 535. If no value exists for this variable, the PDF component will set the value to blanks.
ZLINORC	Fixed	4	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Number of records in the specified member when it was first created. A number from 0 to 65 535.
ZLLIB	Fixed	4	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Position of the specified member in the concatenated data sets. A number from 1 to 4.
ZLMDATE	Char	8	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Date on which the specified member was last modified. A character string in the national format. (For example, *yy/mm/dd* or *mm/dd/yy*.) If no value exists for this variable, the PDF component will set the value to blanks.
ZLM4DATE	Char	10	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(W)	Date on which the specified member was last modified, in 4-character year format. A character string in the national format. (For example, *yyyy/mm/dd* or *mm/dd/yyyy*.) If no value exists for this variable, the PDF component will set the value to blanks.
ZLMEMBER	Char	8	LMMDISP(W)	Name of the current selected member.
ZLMNORC	Fixed	4	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	The number of records that have been modified in the specified member. A number from 0 to 65 535.
ZLMOD	Fixed	4	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Modification level of the specified member. A number from 0 to 99.
ZLMTIME	Char	5	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Time when the specified member was last modified. A character string in the form hh:mm.

Variable Name	Format	Length	Service (Access)	Description
ZLMSEC	Char	2	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Seconds value of last modified time.
ZLSSI	Char	8	LMMDISP(W) LMMFIND(W) LMMLIST(W)	SSI (System Status Index) of the load module.
ZLPDSUDA	Char	62	LMMDISP(W)	A character string containing the contents of the user data area in the PDS directory entry of the specified member if the member's statistics are not in PDF format.
ZLRMODE	Char	3	LMMDISP(W) LMMFIND(W) LMMLIST(W)	RMODE of the member.
ZLSIZE	Char	8	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Load module size (in Hex).
ZLTTR	Char	6	LMMDISP(W) LMMFIND(W) LMMLIST(W)	TTR of the member.
ZLUSER	Char	7	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	User ID of user who last modified the specified member.
ZLVERS	Fixed	4	LMMADD(R) LMMDISP(W) LMMFIND(W) LMMLIST(W) LMMREP(R)	Version number of the specified member. A number from 1 to 99. If no value exists for this variable, the PDF component will set the value to blanks.
ZMEMCNT	Char	8	LMMLIST(W)	Number of members in the member list.
ZMLCOLS	Char	80	LMMDISP(W)	A character string that contains the member statistics column headings that appear on the member list panel display. This variable is only available for member list panels.
ZMLCR	Fixed	4	LMMDISP(W)	The relative number in the member list of the member that appears at the top of the member list display. Its range is from 1-99 999. This variable is only available for member list panels.
ZMLTR	Fixed	4	LMMDISP(W)	Number of members in the member list. Its range is from 1-99 999. This variable is only available for member list panels.
ZMSRTFLD	Char	8	ALL(W)	Contains the field name used to sort a member list. Field name corresponds to the title line used in member list panels, with the exceptions of the 'VV MM' field which is returned as VVMM, and the attributes field which is returned as ATTRIBUT.
ZSCALIAS	Char	1	LMINIT(W)	Data set name is an alias ('Y' or 'N').
ZSCLM	Char	1	LMMDISP(W) LMMFIND(W) LMMLIST(W)	Last updater of member. 'Y' indicates SCLM was last updater. 'N' indicates PDF.

Dialog variables

Variable Name	Format	Length	Service (Access)	Description
ZSCMVOL	Char	1	LMINIT(W)	Data set name is multivolume ('Y' or 'N').
ZUSERMAC	Char	9	EDIT(R) EDIF(R) VIEW(R) VIIF(R)	Application-wide edit macro.

1. Length limited only by ISPF restrictions on the length of table extension variables.

PDF non-modifiable variables

The following read-only variables are available to PDF component dialogs:

Variable Name	Format	Length	Service (Access)	Description
ZCUNIT	Char	8	none	Unit name to be used for temporary allocations. This variable comes from ISPF configuration table keyword PDF_DEFAULT_UNIT.
ZCUSIZE	Fixed	4	none	Number of kilobytes available for use by the edit UNDO command when running in SETUNDO STORAGE mode. This variable comes from ISPF configuration table Keyword UNDO_STORAGE_SIZE. See *z/OS ISPF Edit and Edit Macros* for further information.
ZICFPRT	Char	3	none	ICF indicator. 'YES' - All foreground print requests will be processed using ICF. 'NO' - ICF will not be used. This variable comes from ISPF configuration table keyword PRINT_USING_ICF.
ZPDFREL	Char	8	none	PDF version number in the form "PDF x.y ". The x.y is a sequence number. If x.y: • <= 4.2 means the x.y version.release of PDF • = 4.3 means ISPF for OS/390 Release 2 • = 4.4 means PDF 4.2.1 and ISPF OS/390 Release 3
ZSESS	Char	8	none	This variable contains either 'Y' or 'N' and comes from the ISPF configuration table keyword USE_SESSION_MANAGER. See the description of the general system variable ZSM for additional information.
ZSWIND	Char	4	none	Sliding window value used by PDF for determining the century of 2-character years. This variable comes from ISPF configuration table keyword YEAR_2000_SLIDING_RULE. Dates less than or equal to this value are 20xx. Dates greater than this value are 19xx.

Chapter 8. Dialog Tag Language (DTL) tags

The following table is an alphabetic summary of the supported Dialog Tag Language (DTL) tags for z/OS V1R9.0 ISPF. The table shows the tag, tells whether an end tag is required (Yes) or optional (No), and lists the tag's attributes (if any) and the tag content (if any) in italics. The table also lists which tags you can nest within the tag, as well as which tags you can code the tag within.

Table 1. Tag summary

Tag	End tag	Attributes	Nested tags	Used within
AB	Yes	MNEMGEN=YES | NO ABSEPSTR=ab-separator-string ABSEPCHAR=ab-separator-character	ABC	PANEL
ABC	No	HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname PDCVAR=pdc-variable-name *choice-description-text*	COMMENT M PDC PDSEP SOURCE	AB
ACTION	No	RUN=internal-command-name | %varname PARM=parameters | %varname APPLCMD=NO | YES TYPE=CMD | PGM | PANEL | WSCMD | WSCMDV | EXIT NEWAPPL | NEWAPPL=application-id NEWWINDOW PASSLIB NEWPOOL SUSPEND SCRNAME=screen-name NOCHECK ADDPOP OPT=option | %varname MODE=LINE | FSCR LANG=APL | CREX BARRIER NEST WSDIR=ws-directory WSINVOKE=MODELESS | MODAL WSSIZE=MAX | MIN WSVIEW=VIS | INVIS SETVAR=variable-name VALUE=1 | string | %varname TOGVAR=variable-name VALUE1=0 | string | %varname VALUE2=1 | string | %varname		CHOICE PDC

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
AREA	Yes	MARGINW=1 | n MARGIND=0 INDENT=n DEPTH=n | * EXTEND=OFF | ON | FORCE DIV=NONE | BLANK | SOLID | DASH | TEXT DIVWIDTH=MAX | MIN FORMAT=START | CENTER | END TEXT=divider-text WIDTH=n DIR=VERT | HORIZ	COMMENT DA DIVIDER DTACOL DTAFLD GA GENERATE GRPHDR INFO LSTFLD PNLINST REGION SELFLD SOURCE	HELP PANEL
ASSIGNI	No	VALUE=test-value RESULT=assigned-value		ASSIGNL
ASSIGNL	Yes	DESTVAR=destination-variable-name	ASSIGNI	DTAFLD
ATTENTION	Yes	*text*	DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL XMP	LI LP P
ATTR	No	ATTRCHAR=code TYPE=DATAIN | DATAOUT | CHAR INTENS=HIGH | LOW | NON | %varname CAPS=OFF | ON | IN | OUT | %varname JUST=ASIS | LEFT | RIGHT | %varname PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname SKIP=OFF | ON | %varname GE=OFF | ON | %varname COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname HILITE=USCORE | BLINK | REVERSE | %varname NUMERIC=OFF | ON | %varname FORMAT=EBCDIC | DBCS | MIX | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname PAS=OFF | ON | %varname CKBOX=OFF | ON | %varname CUADYN=CEF | EE | LEF | NEF | VOI | LID | LI | CH | CT | DT | ET | FP | NT | PIN | PT | SAC | SI | SUC | WASL | WT | %varname CSRGRP=NO | YES | n ATTN=OFF | ON | %varname		DA

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
BOTINST	No	COMPACT *instruction-text*	HP PS RP	PANEL
CAUTION	Yes	*text*	DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL XMP	LI LP P
CHDIV	No	TYPE=NONE | SOLID | DASH | TEXT GUTTER=1 | n FORMAT=START | CENTER | END *divider-text*	HP	SELFLD CHOICE

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
CHECKI	No	TYPE= RANGE PARM1=low-bound | %varname PARM2=high-bound | %varname ALPHA CHARS PARM1=EQ PARM2=character-set VALUES PARM1=EQ PARM2=value-list VALUESX PARM1=NE PARM2=value-list BIT NAME NAMEF PICT PARM1=EQ PARM2=pictstring PICTCN PARM1=mask-character PARM2=field-mask PARM3=string NUM DBCS LISTV PARM1=EQ PARM2=%varlist LISTVX PARM1=NE PARM2=%varlist ALPHAB LEN PARM1=operator | %varname PARM2=length | %varname EBCDIC ENUM DSNAME DSNAMEF DSNAMEFM DSNAMEPQ DSNAMEQ MIX HEX FILEID INCLUDE PARM1=IMBLK PARM2=ALPHA | ALPHAB | NUM PARM3=ALPHA | ALPHAB | NUM IDATE STDDATE JDATE JSTD ITIME STDTIME IPADDR4		CHECKL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
CHECKL	Yes	MSG=message-identifier	CHECKI	VARCLASS
CHOFLD	No	DATAVAR=field-data VARCLASS=variable-class-name HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname USAGE=BOTH | IN | OUT REQUIRED=NO | YES MSG=message-identifier AUTOTAB=NO | YES ENTWIDTH=n FLDSPACE=n ALIGN=START | CENTER | END DISPLAY=YES | NO NOENDATTR PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname PSVAR=point-and-shoot-variable | %varname PSVAL=point-and-shoot-value | %varname PAS=%varname EXPAND ATTRCHANGE=NO | YES | NEW INIT=initial-value IMAPNAME=image-name | %varname IMAPNAMEP=image-namep | %varname PLACE=ABOVE | BELOW | LEFT | RIGHT | %varname ATTRCHAR=code CAPS=OFF | ON *choice-description-text*	ACTION COMMENT HP PS RP SOURCE	CHOICE
CHOICE	No	NAME=choice-name HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname CHECKVAR=variable-name MATCH=1 | string NOMATCH=0 | string AUTOTAB=YES | NO SELCHAR='char(s),n' PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname HIDE HIDEX UNAVAIL=variable-name UNAVAILMAT=1 | string TRUNC=n AUTOSEL=YES | NO *choice-description-text*	ACTION CHOFLD COMMENT HP PS RP SOURCE	SELFLD
CMD	No	NAME=internal-command-name ALTDESCR=command-description *external-command-name*	CMDACT T	CMDTBL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
CMDACT	No	ACTION= 'SELECT=select-parameters' 'ALIAS=internal-command-name parameters' PASSTHRU SETVERB BACKWARD CANCEL EXIT EXHELP FKA FORWARD HELP PANELID RETRIEVE %varname application-command ASIS		CMD
CMDAREA	No	HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname PMTLOC=BEFORE NOINIT PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname NAME=cmdarea-variable-name ENTWIDTH=n PMTTEXT=YES | NO CMDLOC=DEFAULT | ASIS CMDLEN=DEFAULT | MAX AUTOTAB=NO | YES SCROLLVAR=scroll-variable SCRVHELP=NO | YES | scroll-help-panel-name |*scroll-help-message-id | %varname | *%varname SCROLLTAB=NO | YES SCRCAPS=OFF | ON PSBUTTON=cmd-pb-text PSVAR=point-and-shoot-variable | %varname PSVAL=point-and-shoot-value | %varname IMAPNAME=image-name | %varname IMAPNAMEP=image-namep | %varname PLACE=ABOVE | BELOW | LEFT | RIGHT | %varname CAPS=OFF | ON NOJUMP=OFF | ON VARDCL=YES | NO *command-prompt-text*	HP	PANEL
CMDTBL	Yes	APPLID=application-identifier SORT=NO | YES	CMD	

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
COMMENT	No	TYPE=END | CCSID | PANEL | ATTR | ABCINIT | ABCPROC | INIT | REINIT | PROC | HELP | PNTS | LIST *comment-text*		ABC AREA CHOICE DA DTACOL DTAFLD HELP LSTCOL LSTFLD LSTGRP MSGMBR PANEL PDC REGION SELFLD
COMPOPT	No	REPLACE | NOREPLACE SCREEN | DISK NODBCS | DBCS NOKANA | KANA KEYLAPPL=xxxx NOPANEL | PANEL NOMSGSUPP | MSGSUPP NOCUASUPP | CUASUPP PREP | NOPREP CUAATTR | NOCUAATTR NOLSTVIEW | LSTVIEW STATS | NOSTATS NOSCRIPT | SCRIPT NOLISTING | LISTING NOFORMAT | FORMAT NOMSGEXPAND | MSGEXPAND LOGREPL | NOLOGREPL LISTREPL | NOLISTREPL ACTBAR | NOACTBAR GUI | NOGUI VERSION | NOVERSION NOMERGESAREA | MERGESAREA NODISPLAY | DISPLAY NODISPLAYW | DISPLAYW DSNCHK | NODSNCHK GRAPHIC | NOGRAPHIC ZVARS | NOZVARS NODBALIGN | DBALIGN NOMCOMMENT | MCOMMENT NOVPADC | PADC ADD RESET *national-language*	None	
COPYR	No	*copyright-text*		

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
DA	Yes	NAME=varname EXTEND=OFF | ON | FORCE LVLINE=variable-name SCROLL=OFF | ON | CMDLINE USERMOD=usermod-code | %varname DATAMOD=datamod-code | %varname DEPTH=n | * WIDTH=n SHADOW=shadow-name DIV=NONE | BLANK | SOLID | DASH | TEXT FORMAT=START | CENTER | END TEXT=divider-text SCROLLVAR=scroll-variable SCRVHELP=NO | YES | scroll-help-panel-name |*scroll-help-message-id | %varname | *%varname SCROLLTAB=NO | YES SCRCAPS=OFF | ON INITATTR=NT | CT | ET | WT | WASL HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname	ATTR COMMENT SOURCE	AREA PANEL REGION
DD	No	*definition-description*	DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL XMP	DL
DDHD	No	*definition-description-header*	HP PS RP	DL
DIVIDER	No	TYPE=NONE | SOLID | DASH | TEXT GAP=YES | NO GUTTER=1 | n NOENDATTR FORMAT=START | CENTER | END *divider-text*	HP	AREA DTACOL PANEL REGION

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
DL	Yes	TSIZE=10 | 'S1, S2,... Sn' BREAK=NONE | FIT | ALL COMPACT NOSKIP INDENT=n FORMAT=START | CENTER | END DIVEND=NO | YES SPLIT=NO | YES	DD DDHD DLDIV DT DTHD DTDIV DTHDIV	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP
DLDIV	No	TYPE=NONE | SOLID | DASH | TEXT GAP=YES | NO GUTTER=1 | n FORMAT=START | CENTER | END *divider-text*	HP	DL
DT	No	FORMAT=START | CENTER | END NOSKIP SPLIT=NO | YES *definition-term*	DTSEG HP PS RP	DL
DTACOL	Yes	PMTWIDTH=n | * | ** ENTWIDTH=n DESWIDTH=n | * SELWIDTH=n | * FLDSPACE=n PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname PMTFMT=CUA | ISPF | NONE | END AUTOTAB=NO | YES ATTRCHANGE=NO | YES | NEW PMTLOC=BEFORE | ABOVE DBALIGN=YES | NO | PROMPT | FIELD | FORCE VARCLASS=variable-class-name REQUIRED=NO | YES CAPS=OFF | ON VARDCL=YES | NO	COMMENT DIVIDER DTAFLD GRPHDR SELFLD SOURCE	AREA PANEL REGION

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
DTAFLD	No	NAME=field-name DATAVAR=field-data VARCLASS=variable-class-name HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname USAGE=BOTH | IN | OUT REQUIRED=NO | YES MSG=message-identifier AUTOTAB=NO | YES ENTWIDTH=n PMTWIDTH=n | * | ** DESWIDTH=n | * FLDSPACE=n ALIGN=START | CENTER | END PMTLOC=BEFORE | ABOVE DISPLAY=YES | NO NOENDATTR PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname PMTFMT=CUA | ISPF | NONE | END PSVAR=point-and-shoot-variable | %varname PSVAL=point-and-shoot-value | %varname PAS=%varname CSRGRP=NO | YES | n EXPAND FLDWIDTH=n ATTRCHANGE=NO | YES | NEW INIT=initial-value DEPTH=n | %varname IMAPNAME=image-name | %varname IMAPNAMEP=image-namep | %varname PLACE=ABOVE | BELOW | LEFT | RIGHT | %varname DBALIGN=YES | NO | PROMPT | FIELD | FORCE PMTSKIP=NO | YES DESSKIP=NO | YES FLDTYPE=CUA | ISPF COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname ATTRCHAR=code CAPS=OFF | ON NOJUMP=OFF | ON AUTOTYPE=PROJECT | GROUP1 | GROUP2 | GROUP3 | GROUP4 | TYPE | MEMBER | DSN AUTOVOL=volser-name AUTODMEM=YES | NO VARDCL=YES | NO *prompt-text*	ASSIGNL COMMENT DTAFLDD HP PS RP SOURCE SCRFLD	AREA DTACOL PANEL REGION
DTAFLDD	No	*description*	HP PS RP	DTAFLD
DTDIV	No			DL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
DTHD	No	*definition-term-header*	HP PS RP	DL
DTHDIV	No			DL
DTSEG	No			DT
FIG	Yes	FRAME=RULE | NONE WIDTH=PAGE | COL NOSKIP *figure-content*	DL FIGCAP HP NOTE NOTEL NT OL P PARML PS RP SL UL XMP	ATTENTION CAUTION DD INFO LI LP NT PD WARNING
FIGCAP	No	*figure-caption-text*	HP PS RP	FIG
GA	No	NAME=graphic-area-name EXTEND=OFF | ON | FORCE DEPTH=n | * WIDTH=n DIV=NONE | BLANK | SOLID | DASH | TEXT FORMAT=START | CENTER | END TEXT=divider-text LVLINE=variable-name		AREA PANEL REGION
GENERATE	Yes	SUBSTITUTE=NO | YES	ATTR COMMENT SOURCE	AREA HELP PANEL REGION
GRPHDR	No	FORMAT=START | CENTER | END | NONE WIDTH=n FMTWIDTH=n INDENT=n HEADLINE=NO | YES DIV=NONE | BLANK | SOLID | DASH DIVLOC=AFTER | BEFORE | BOTH COMPACT STRIP *group-heading-text*	HP PS RP	AREA DTACOL PANEL REGION

Summary of DTL tags

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
HELP	Yes	NAME=help-panel-name HELP=hhelp-panel-name | %varname HELPDEF=helpdef-id WIDTH=50 | n | FIT DEPTH=10 | n | FIT CCSID=n TUTOR KEYLIST=key-list-name KEYLTYPE=PRIVATE | SHARED APPLID=application-id EXPAND=xy WINTITLE=window-title APPTITLE=application-title MERGESAREA=NO | YES MSGLINE=YES | NO IMAPNAME=image-name | %varname IMAPROW=n | %varname IMAPCOL=n | %varname ZUP=zup-id ZCONT=zcont-id *help-panel-title*	AREA COMMENT DIVIDER GENERATE HP INFO REGION SOURCE TEXTLINE	
HELPDEF	No	ID=helpdef-id HELP=hhelp-panel-name | %varname WIDTH=n | FIT DEPTH=n | FIT CCSID=n KEYLIST=key-list-name KEYLTYPE=PRIVATE | SHARED APPLID=application-id EXPAND=xy WINTITLE=window-title APPTITLE=application-title MERGESAREA=NO | YES IMAPNAME=image-name | %varname IMAPROW=n | %varname IMAPCOL=n | %varname		
H1	No	COMPACT *heading-text*		INFO
H2/H3/H4	No	COMPACT *heading-text*	HP PS RP	INFO

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
HP	Yes	TYPE=ET | CH | CT | FP | LEF | LI | NT | PT | SAC | TEXT | WASL | WT COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname INTENSE=varname *phrase-to-be-highlighted*		ATTENTION BOTINST CAUTION CHDIV CHOICE CMDAREA DD DDHD DIVIDER DT DTAFLD DTAFLDD DTHD FIG FIGCAP GRPHDR H2 H3 H4 HELP LI LINES LP LSTCOL LSTGRP NOTE NT P PANEL PD PNLINST PT SELFLD TOPINST WARNING XMP
INFO	Yes	WIDTH=format-width | * INDENT=n	DIVIDER DL FIG Hn LINES NOTE NOTEL NT OL P PARML SL SOURCE UL XMP	AREA HELP PANEL REGION
KEYI	No	KEY=virtual-key CMD=internal-command-name CASE=UPPER | MIXED FKA=NO | YES | LONG | SHORT PARM=parm-string *FKA-text*		KEYL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
KEYL	Yes	NAME=key-list-name HELP=help-panel-name ACTION=UPDATE | DELETE APPLID=application-id	KEYI	
LI	No	SPACE=NO | YES NOSKIP *item-text*	ATTENTION CAUTION DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL WARNING XMP	NOTEL OL SL UL
LINES	Yes	NOSKIP *text*	DL HP NOTE NOTEL NT OL P PARML PS RP SL UL XMP	ATTENTION CAUTION DD INFO LI LP NT PD WARNING
LIT	Yes	*literal-display-value*		XLATI
LP	No	NOSKIP *implied-paragraph*	ATTENTION CAUTION DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL WARNING XMP	NOTEL OL SL UL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
LSTCOL	No	DATAVAR=column-data VARCLASS=variable-class-name HELP=NO | YES | help-panel-name | * help-message-id | %varname | *%varname USAGE=BOTH | IN | OUT REQUIRED=NO | YES MSG=message-id COLWIDTH=data-width ALIGN=START | CENTER | END AUTOTAB=NO | YES LINE=n CLEAR POSITION=n FORMAT=START | CENTER | END TEXT=descriptive-text TEXTLOC=BEFORE | AFTER TEXTFMT=START | CENTER | END TEXTLEN=n TEXTSKIP=NO | YES NOENDATTR PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname PAS=OFF | ON | %varname CSRGRP=NO | YES | n ATTRCHANGE=NO | YES | NEW COLSPACE=n COLTYPE=CUA | ISPF | EE | VOI | LID COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname CAPS=OFF | ON DISPLAY=YES | NO VARDCL=YES | NO *column-heading*	COMMENT HP PS RP SOURCE SCRFLD	LSTFLD LSTGRP
LSTFLD	Yes	RULES=NONE | HORIZ | VERT | BOTH ROWS=NOSCAN | SCAN | %varname DIV=NONE | BLANK | SOLID | DASH | char SCROLLVAR=scroll-variable SCRVHELP=NO | YES | scroll-help-panel-name |*scroll-help-message-id | %varname | *%varname SCROLLTAB=NO | YES SCRCAPS=OFF | ON ATTRCHANGE=NO | YES | NEW VARDCL=YES | NO	COMMENT LSTCOL LSTGRP LSTVAR SOURCE	AREA PANEL REGION
LSTGRP	Yes	HEADLINE=NO | YES | DASH ALIGN=CENTER | START | END *column-group-heading*	COMMENT HP LSTCOL LSTGRP LSTVAR PS RP SOURCE	LSTFLD LSTGRP

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
LSTVAR	No	DATAVAR=variable-model-name LINE=n *column-heading*	COMMENT HP PS RP SOURCE	LSTFLD LSTGRP
M	No	*mnemonic-character*		ABC PDC
MSG	No	SUFFIX=message-suffix-number HELP=help-panel-name | %varname | * MSGTYPE=INFO | WARNING | ACTION | CRITICAL | %varname LOCATION=AREA | MODAL | MODAL(L) | MODELESS | MODELESS (L) | %varname DISP=KANA | NOKANA ALARM=NO | YES | %varname ABBREV=NONE | KEYWORD | VALUE | BOTH FORMAT=FLOW | ASIS SMSG=short-message-text *message-text*	VARSUB	MSGMBR
MSGMBR	Yes	NAME=message-member-name CCSID=n WIDTH=76 | 68	COMMENT MSG	
NOTE	No	NOSKIP INDENT=n TYPE=ET | CH | CT | FP | LEF | LI | NT | PT | SAC | TEXT | WASL | WT COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname TEXT=alternate-note-heading *note-text*	HP PS RP	ATTENTION CAUTION DD FIG INFO LI LINES LP PD WARNING XMP
NOTEL	Yes	COMPACT NOSKIP SPACE=NO | YES INDENT=n TYPE=ET | CH | CT | FP | LEF | LI | NT | PT | SAC | TEXT | WASL | WT COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname TEXT=alternate-note-heading	LI LP	ATTENTION CAUTION DD FIG INFO LI LINES LP PD WARNING XMP

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
NT	Yes	NOSKIP INDENT=n TYPE=ET | CH | CT | FP | LEF | LI | NT | PT | SAC | TEXT | WASL | WT COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname TEXT=alternate-note-heading *note-text*	DL FIG HP LINES OL P PARML PS RP SL UL XMP	ATTENTION CAUTION DD FIG INFO LI LINES LP PD WARNING XMP
OL	Yes	COMPACT NOSKIP SPACE=NO | YES INDENT=n TEXT=OL-heading-text	LI LP	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP
P	No	COMPACT INTENSE=varname INDENT=n OFFSET=n SPACE=NO | YES *paragraph-text*	ATTENTION CAUTION HP PS RP WARNING	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
PANDEF	No	ID=pandef-id HELP=help-panel-name | %varname DEPTH=n | FIT WIDTH=n | FIT | %varname KEYLIST=key-list-name KEYLTYPE=PRIVATE | SHARED APPLID=application-id CCSID=n WINDOW=YES | NO WINTITLE=window-title APPTITLE=application-title PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname EXPAND=xy MERGESAREA=NO | YES ENTKEYTEXT=enter-key-text IMAPNAME=image-name | %varname IMAPROW=n | %varname IMAPCOL=n | %varname TMARGIN=n BMARGIN=n		

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
PANEL	Yes	NAME=panel-name HELP=help-panel-name | %varname PANDEF=pandef-id DEPTH=22 | n | FIT WIDTH=76 | n | FIT | %varname KEYLIST=key-list-name KEYLTYPE=PRIVATE | SHARED APPLID=application-id CURSOR=cursor-field CSRINDEX=index-value CSRPOS=position-value CCSID=n MENU PRIME TUTOR WINDOW=YES | NO WINTITLE=window-title APPTITLE=application-title PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname EXPAND=xy MSGLINE=YES | NO TITLINE=YES | NO CMDLINE=YES | NO ATTRUSE=NO | YES | ALL ENDATTR=DEFAULT | TEXT TYPE=BOTH | GUI | NOGUI SMSG=short-msg-fieldname LMSG=long-msg-fieldname ASIS ACTBAR MERGESAREA=NO | YES PANELSTMT=YES | NO ENTKEYTEXT=enter-key-text IMAPNAME=image-name | %varname IMAPROW=n | %varname IMAPCOL=n | %varname TMARGIN=n BMARGIN=n ERRORCHECK=NO | YES ZUP=zup-id ZCONT=zcont-id AUTONRET=NO | YES AUTOTCMD=NO | YES | PROC *panel-title-text*	AB AREA BOTINST CMDAREA COMMENT DA DIVIDER DTACOL DTAFLD GA GENERATE GRPHDR HP INFO LSTFLD PNLINST REGION SELFLD SOURCE TEXTLINE TOPINST	

Summary of DTL tags

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
PARML	Yes	TSIZE=10 | 'S1 S2... Sn' BREAK=ALL | FIT | NONE COMPACT SKIP INDENT=n FORMAT=START | CENTER | END DIVEND=NO | YES SPLIT=NO | YES	PLDIV PT PTDIV PD	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP
PD	No	*parameter-description*	DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL XMP	PARML
PDC	No	HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname UNAVAIL=unavail-variable-name CHECKVAR=check-variable-name MATCH=1 | match-string ACC1=key1 ACC2=key2 ACC3=key3 *pull-down-description-text*	ACTION COMMENT M SOURCE	ABC
PDSEP	No			PDC
PLDIV	No	TYPE=NONE | SOLID | DASH | TEXT GAP=YES | NO GUTTER=1 | n FORMAT=START | CENTER | END *divider-text*	HP	PARML
PNLINST	No	COMPACT *instruction-text*	HP PS RP	AREA REGION PANEL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
PS	Yes	VAR=point-and-shoot-variable-name | %varname VALUE=point-and-shoot-value | %varname | * CSRGRP=NO | YES | n DEPTH=n | %varname IMAPNAME=image-name | %varname IMAPNAMEP=image-namep | %varname PLACE=ABOVE | BELOW | LEFT | RIGHT | %varname *point-and-shoot-text*		ATTENTION BOTINST CAUTION CHOFLD CHOICE DD DDHD DT DTAFLD DTAFLDD DTHD FIG FIGCAP GRPHDR H2 H3 H4 LI LINES LP LSTCOL LSTGRP NOTE NT P PD PNLINST PT SELFLD TOPINST WARNING XMP
PT	No	FORMAT=START | CENTER | END NOSKIP SPLIT=NO | YES *parameter-term*	HP PS PTSEG RP	PARML
PTDIV	No			PARML
PTSEG	No			PT
REGION	Yes	DIR=VERT | HORIZ INDENT=n WIDTH=n | * DEPTH=n | * EXTEND=OFF | ON | FORCE ALIGN=YES | NO GRPBOX=NO | YES GRPWIDTH=n GRPBXVAR=variable-name GRPBXMAT=1 | string LOCATION=DEFAULT | TITLE *group-box-title*	COMMENT DA DIVIDER DTACOL DTAFLD GA GENERATE GRPHDR INFO LSTFLD PNLINST REGION SELFLD SOURCE	AREA HELP PANEL REGION

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
RP	Yes	HELP= help-panel-name | help-message-id | %varname | *%varname *reference-phrase*		ATTENTION BOTINST CAUTION CHOFLD CHOICE DD DDHD DT DTAFLD DTAFLDD DTHD FIG FIGCAP GRPHDR H2 H3 H4 LI LINES LP LSTCOL LSTGRP NOTE NT P PD PNLINST PT SELFLD TOPINST WARNING XMP
SCRFLD	Yes	DISPLEN= n | %varname INDVAR=ind-var INDVAL='ind-chars' LINDVAR=lind-var LINDVAL='lind-char' RINDVAR=rind-var RINDVAL='rind-char' SINDVAR=sind-var SINDVAL='sind-chars' LCOLIND=lcol-var LCOLDISP= NO | YES RCOLIND=rcol-var RCOLDISP= NO | YES SCALE=scale-var SCROLL= ON | OFF | %varname FLDSPOS= BELOW | ABOVE	COMMENT SOURCE	DTAFLD LSTCOL

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
SELFLD	Yes	NAME=field-name HELP=NO | YES | help-panel-name | *help-message-id | %varname | *%varname TYPE=SINGLE | MULTI | MENU | MODEL | TUTOR PMTLOC=ABOVE | BEFORE PMTWIDTH=n | * | ** SELWIDTH=n | * ENTWIDTH=2 | n | 'e1 e2...en' REQUIRED=NO | YES MSG=message-identifier FCHOICE=1 | 0 AUTOTAB=YES | NO DEPTH=n | * EXTEND=OFF | ON | FORCE TRAIL='trail-var-1 trail-var-2 ... trail-var-n' CHOICECOLS=1 | n CHOICEDEPTH=n | * CWIDTHS='w1 w2...wn' PAD=NULLS | USER | char | %varname PADC=NULLS | USER | char | %varname OUTLINE=NONE | L | R | O | U | BOX | %varname SELMSG=selfld-msg-identifier SELMSGU=selfld-msg-unavailable INIT=YES | NO | init-value VERIFY=YES | NO REFRESH=YES | NO SELFMT=START | END CHKBOX=YES | NO ZGUI=YES | NO CSRGRP=NO | YES | n TSIZE='s1 s2...sn' LISTTYPE=RADIO | LISTBOX | DDLIST | COMBO LISTREF=list-name LISTDEPTH=n DBALIGN=YES | NO | FIELD | FORCE NOSEL=no-selection-value SELDEFAULT=x PMTSKIP=NO | YES FLDTYPE=CUA | ISPF COLOR=WHITE | RED | BLUE | GREEN | PINK | YELLOW | TURQ | %varname INTENS=HIGH | LOW | NON | %varname HILITE=USCORE | BLINK | REVERSE | %varname SELCHECK=NO |YES VARDCL=YES | NO *field-prompt-text*	CHDIV CHOICE COMMENT HP PS RP SOURCE	AREA DTACOL PANEL REGION

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
SL	Yes	COMPACT NOSKIP SPACE=NO | YES INDENT=n TEXT='SL-heading-text'	LI LP	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP
SOURCE	Yes	TYPE=PROC | REINIT | INIT | ABCINIT | ABCPROC *text*		ABC AREA CHOICE DA DTACOL DTAFLD HELP LSTCOL LSTFLD LSTGRP PANEL PDC REGION SELFLD
T	No			CMD
TEXTLINE	Yes		DTAFLD TEXTSEG	HELP PANEL
TEXTSEG	No	EXPAND=AFTER | BEFORE | BOTH WIDTH=n *text*	HP	TEXTLINE
TOPINST	No	COMPACT *instruction-text*	HP PS RP	PANEL
UL	Yes	COMPACT NOSKIP SPACE=NO | YES INDENT=n TEXT=UL-heading-text	LI LP	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING XMP

Table 1. Tag summary (continued)

Tag	End tag	Attributes	Nested tags	Used within
VARCLASS	No	NAME=variable-class-name TYPE='CHAR maximum length' 'DBCS maximum length' 'MIXED maximum length' 'ANY maximum length' 'EBCDIC maximum length' '%varname maximum length' ITIME STDTIME IDATE STDDATE JDATE JSTD 'VMASK maximum-length' 'NUMERIC total-digits 0 | fractional-digits' MSG=message-identifier	CHECKL XLATL	
VARDCL	No	NAME=name VARCLASS=variable-class-name		VARLIST
VARLIST	Yes		VARDCL	
VARSUB	No	VAR=variable-name		MSG
WARNING	Yes	*text*	DL FIG HP LINES NOTE NOTEL NT OL P PARML PS RP SL UL XMP	LI LP P
XLATI	No	VALUE=internal-value *displayed-value*	LIT	XLATL
XLATL	Yes	FORMAT=NONE | UPPER TRUNC=n | char MSG=message-identifier	XLATI	VARCLASS
XMP	Yes	NOSKIP *text*	DL HP NOTE NOTEL NT OL P PARML PS RP SL UL	ATTENTION CAUTION DD FIG INFO LI LINES LP NT PD WARNING

Appendix. Accessibility

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/Library Server versions of z/OS books in the Internet library at:

`http://www.ibm.com/servers/eserver/zseries/zos/bkserv/`

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