“When behaviors aren’t the same anymore, 
Migration actions are called for.”

This document is customized for a migration from z/OS V1R9 
(with JES at the z/OS V1R9 level). Migration actions that are not 
relevant to a migration from z/OS V1R9 to z/OS V1R11 are not 
shown.
Migration (from z/OS V1R9)

Version 1  Release 11
Seventeenth Edition, January 2010

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This edition applies to version 1 release 11 of z/OS (5694-A01) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition is customized and is available only from the Web. It is customized for migrating from a z/OS V1R9 system that has the z/OS V1R9 level of JES. Migration actions that are not relevant to a migration from z/OS V1R9 to z/OS V1R11 are not shown.

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About this document

This customized document describes how to migrate to z/OS® Version 1 Release 11 (V1R11) from z/OS V1R9. This document is customized in that it shows only the migration actions that are relevant to a migration from z/OS V1R9 and not from the other release supported for migration to z/OS V1R11, which is z/OS V1R10. In addition, two levels of JES are supported but this document assumes a migration from the z/OS V1R9 level of JES.

This document does not explain how to exploit new functions in z/OS. For that information, see the many publications that pertain to the z/OS base elements and optional features.

Who should read this document

This document is intended for system analysts, system programmers, system administrators, security administrators, network administrators, database administrators, and other members of an information technology team who have experience installing and managing z/OS, and want to plan for and implement the installation of z/OS V1R11.

How this document is organized

The first four chapters of this document are general in scope, that is, not devoted to a specific z/OS base element or optional feature. Chapter 1 is an introduction, Chapter 2 describes migration actions for everyone (that is, system-level actions), Chapter 3 describes hardware migration actions, and Chapter 4 summarizes sysplex migration actions.

The remaining chapters are devoted to the specific elements and features that have migration actions, with one element or feature per chapter. These chapters are in alphabetic order — from BCP (Chapter 5) to z/OS UNIX® (Chapter 30). Within each chapter, the following standard organization is used:

- Migration actions to perform before installing z/OS V1R11
- Migration actions to perform before the first IPL of z/OS V1R11
- Migration actions to perform after the first IPL of z/OS V1R11

How to use this document

Use this document as your initial source for z/OS migration information. Where appropriate, this document refers you to other documents for additional information.

Within this document, read Chapter 1, “Introduction,” on page 1. You can then proceed sequentially through the subsequent chapters or in whatever order you prefer based on element or feature interest. The chapters are in alphabetic order by name of element or feature, once you pass the chapter on migration actions for everyone, the chapter on hardware migration actions, and the chapter on sysplex migration actions. Another way to proceed is to concentrate first on preinstall migration actions within each chapter, then pre-IPL migration actions, and then post-IPL migration actions. These actions are clearly identified by major headings within each chapter.
Conventions and terminology used in this document

When this document refers to IBM® System z® servers without stating a specific server, it refers to all of the following servers:

- IBM System z10 Enterprise Class (z10 EC)
- IBM System z10 Business Class (z10 BC)
- IBM System z9® Enterprise Class (z9 EC), formerly the IBM System z9 109 (z9-109)
- IBM System z9 Business Class (z9 BC)
- IBM eServer™ zSeries® 990 (z990)
- IBM eServer zSeries 890 (z890)
- IBM eServer zSeries 900 (z900)
- IBM eServer zSeries 800 (z800)

Important terms you should understand are:

- **Migration.** Migration is the first of two stages in an upgrade to a new release of z/OS. (The second stage is exploitation.) During this stage you install your new system with the objective of making it functionally compatible with the previous system. After a successful migration, the applications and resources on the new system function the same way (or similar to the way) they did on the old system or, if that is not possible, in a way that accommodates the new system differences so that existing workloads can continue to run. Migration does not include exploitation of new functions except for new functions that are now required.

- **Exploitation.** Exploitation is the second of two stages in an upgrade to a new release of z/OS. (The first stage is migration.) During this stage you do whatever customizing and programming are necessary to take advantage of (exploit) the enhancements available in the new release.

- **Coexistence.** Coexistence is the situation in which two or more systems at different software levels share resources. The resources could be shared at the same time by different systems in a multisystem configuration, or they could be shared over a period of time by the same system in a single-system configuration.

Examples of coexistence are two different JES releases sharing a spool, two different service levels of DFSMSdfp sharing catalogs, multiple levels of SMP/E processing SYSMODs packaged to exploit the latest enhancements, or an older level of the system using the updated system control files of a newer level (even if new function has been exploited in the newer level).

The sharing of resources is inherent in multisystem configurations that involve Parallel Sysplex® implementations. But other types of configurations can have resource sharing too. Examples of configurations where resource sharing can occur are:

- A single processor that is time-sliced to run different levels of the system, such as during different times of the day
- A single processor running multiple images by means of logical partitions (LPARs)
- Multiple images running on several different processors in either Parallel Sysplex or non-Parallel Sysplex configurations

The way in which you make it possible for earlier-level systems to coexist with the most current level is to install coexistence and fallback PTFs on the earlier-level systems.

- **Fallback.** Fallback is a return to the prior level of a system. Fallback can be appropriate if you migrate to a new release and, during testing, encounter severe
problems that can be resolved by backing out the new release. By installing coexistence and fallback PTFs on the “old” system before you migrate, the old system can tolerate changes that were made by the new system during testing.

To identify the timing of migration actions, this document uses three types of headings:

- **Actions to perform before installing z/OS V1R11.** These are migration actions that you perform on your current system, either because they require the current system or because they are possible on the current system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made. Examples are installing coexistence and fallback PTFs on your current system, discontinuing use of hardware or software that will no longer be supported, and starting to use existing functions that were optional on prior releases but required in z/OS V1R11.

- **Actions to perform before the first IPL of z/OS V1R11.** These are migration actions that you perform after you have installed z/OS V1R11 but before the first time you IPL. These actions require the z/OS V1R11 level of code to be installed but do not require it to be active. That is, you need the z/OS V1R11 programs, utilities, and samples in order to perform the migration actions, but the z/OS V1R11 system does not have to be IPLed in order for the programs to run. Examples are running sysplex utilities and updating the RACF database template.

  It is possible to perform some of the migration actions in this category even earlier. If you prepare a system on which you will install z/OS V1R11 by making a clone of your old system, you can perform migration actions that involve customization data on this newly prepared system before installing z/OS V1R11 on it. Examples of such migration actions are updating configuration files and updating automation scripts.

- **Actions to perform after the first IPL of z/OS V1R11.** These are migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions. An example is issuing RACF commands related to new functions. Note that the term “first IPL” does not mean that you have to perform these actions after the very first IPL, but rather that you need z/OS V1R11 to be active to perform the task. You might perform the task quite a while after the first IPL.

Each migration action within the headings above is presented using the following standard format:

- A title that identifies the migration action.
- **Description.** This is a brief description of the functional change that caused the migration action.
- **Element or feature.** This is the name of the base element or optional feature that changed.
- **When change was introduced.** This is the z/OS release in which the change was introduced.
- **Applies to migration from.** The migration action is relevant if you are migrating from this release.
- **Timing.** This is when you should perform the migration action. There are three categories: before installing z/OS, before first IPL, or after first IPL. (For SMP/E there are two categories: after installing SMP/E but before starting to use it, and after starting to use SMP/E.)
• **Is the migration action required?** This question refers to the migration action identified by the title. The answer can be one of the following:
  - **Yes.** The migration action is required in all cases.
  - **Yes, if...** The migration action is required only in a certain case. Most of the migration actions in this document are in this category.
  - **No, but recommended...** The migration action is not required but is recommended because it is a good programming practice, because it will be required in the future, or because it resolves unacceptable system behavior (such as poor usability or poor performance) even though resolution might require a change in behavior.

• **Target system hardware requirements.** This is hardware required by the functional change. It could be processor and peripheral devices; drivers, engineering changes, or patches needed; or specific hardware functions that must be active.

• **Target system software requirements.** This is software required by the functional change. It could be z/OS optional features, software products, and PTFs that are needed on the target system, as well as specific software functions that must be active.

• **Other system (coexistence or fallback) requirements.** These are requirements placed on an earlier release by the functional change in the new release. The earlier release could be running on a system that shares resources (coexists) with the new system or it could be the release from which you are migrating (and to which you might want to fall back).

• **Restrictions.** These are any known limits on how the function can be used.

• **System impacts.** These are any known impacts of using the function, such as increased storage or more time required to run.

• **Steps to take.** This is what you have to do to perform the migration action.

• **Reference information.** This is a pointer to additional information that helps you perform the migration action.

The order in which the migration actions are presented does not imply importance or chronology.

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**Related information**

See [z/OS Introduction and Release Guide](http://www.ibm.com) for an introduction to z/OS and an overview of the new functions in each release of z/OS.

See [z/OS Planning for Installation](http://www.ibm.com) for a summary of installation changes in each release of z/OS, driving system hardware and software requirements, target system hardware and software requirements, the coexistence-migration-fallback policy, required releases of IBM middleware products, and considerations for planning future installations.

Summary of changes

This topic summarizes the changes made to this document.

Summary of Changes
for GA22-7499-16
January 2010
z/OS Version 1 Release 11

This document contains information previously presented in GA22-7499-15, which supports z/OS V1R11.

New information:

- The following migration actions are new:
  1. "Verify SMP/E utility parameters to support assembling JES2 and SDSF" on page 19.
  2. "Track CSVRTLS services" on page 80.
  3. "Update procedures for varying systems out of the sysplex" on page 82.
  4. "Ensure correct use of CIRB" on page 90.
  5. "Ensure your ESQA specification in IEOASYSxx is adequate" on page 98.
  6. "Remove all unnamed console definitions" on page 102.
  8. "Keep the real frames included in GRS real storage consumption for use" on page 116.
  9. "ICSF: Modify ICSF startup procedure" on page 175.
  10. "ICSF: Ensure PKCS #11 applications call C_Finalize() prior to calling dlclose()" on page 167.
  11. "System SSL: Modify applications to address disablement of SSL V3 and TLS session renegotiation" on page 171.
  12. "DFSMSdftp: Specify a control interval size for the IDCAMS DEFINE DATA component" on page 183.
  15. "DFSMSdftp: Accommodate layout change of IEHLIST LISTVTOC command output with FORMAT option" on page 192.
  16. "DFSMSdftp: Evaluate applications for sensitivity to changes to IDCAMS LISTCAT command output" on page 218.
  17. "DFSMSdss: Update the storage size for jobs that invoke ADRDSSU" on page 205.
  18. "DFSMSdss: Enable or disable the Catalog Search Interface" on page 224.
  20. "Accommodate the removal of message $HASP301" on page 274.
  22. "Identify the JES3 auxiliary address space to your security product" on page 280.
  23. "Update post-SAF user exits" on page 309.
24. “Modify programs and JCL that use the LRECL of the IRRADU00 output
data sets” on page 315.
25. “Ensure access to HMC for WTOR reply” on page 319.

- In “z/OS V1R9 coexistence and fallback PTFs” on page 10:
  - For BCP, an entry was added for PTF UA45080 (APAR OA27032).
  - For BCP, an entry was added for PTF UA47789 (APAR OA26037).
  - For BCP, an entry for APAR OA26085 was added.
  - For Communications Server, an entry was added for PTF UA44025 (APAR OA26490).
  - For DFSMSdfp, PTF UA48146 was added to APAR OA29235.
  - For DFSMSdfp, PTF UA48233 was added to APAR OA29102.
  - For DFSMSshm, PTF UA48184 was added to APAR OA29178.
  - For JES3, an entry for APAR OA29420 was added.

- A new section, “System REXX health check considerations”, has been added to “Using IBM Health Checker for z/OS for migration checking” on page 2.
- In “Do not specify volume information on allocations intended to uncatalog a data set” on page 101, changes have been made to reflect a new migration option available with APAR OA27917.
- Information about BPXBATCH1 has been added to “IP Services: Run the syslog daemon in the background when starting from the UNIX shell” on page 147.
- An IBM Health Check for z/OS Tip has been added to “IP Services: Migrate from BIND DNS 4.9.3 function” on page 132.
- A new Guideline has been added to “IP Services: Accept the new resolver behavior of saving the results of DNS queries” on page 148.
- A Note has been added to “OCSF: Migrate the directory structure” on page 169 regarding Software Cryptographic Service Provider 2.

**Changed information:**
- In “Install coexistence and fallback PTFs” on page 8, Step 2 in the "Steps to take" section has been updated.
- “Remove SYS1.SVCLIB, SYS1.NUCLEUS, and PASSWORD from global resource serialization RNLs” on page 81 has been updated.
- “Allocate the WLM couple data set” on page 119 has been updated.
- “zFS: Ensure that sysplex_admin_level=2 is available on all systems in a shared file system environment” on page 238 has been updated.
- “IP Services: Run the syslog daemon in the background when starting from the UNIX shell” on page 147 has been updated.
- “DFSMSdfp: Add columns ODSTATF, ODRETDT, and ODINSTID to OAM object directory tables” on page 191 has been moved to “DFSMS actions to perform before the first IPL.” In the previous edition of this document, the migration action was incorrectly categorized as a migration action to perform before installing z/OS V1R11.
- “SMB: Permit the SMB server user ID to BPX.DAEMON” on page 241 has been moved to “Distributed File Service actions to perform before the first IPL.” In the previous edition of this document, the migration action was incorrectly categorized as a migration action to perform after the first IPL.
- “Accommodate changes for data sets allocated by the RECEIVE command” on page 328 has been updated.
• “Migrate from HFS file systems to zFS file systems” on page 335 has been updated.

Deleted information:
• The migration action, "Update CKPTSPACE BERTNUM=", has been removed and replaced by "Activate z11 mode" on page 276.

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

Summary of Changes
for GA22-7499-15
September 2009
z/OS Version 1 Release 11

This document contains information previously presented in GA22-7499-14, which supports z/OS V1R10.

New information:
• Approximately 67 migration actions are new, resulting from enhancements in z/OS V1R11.

Deleted information:
• Approximately 73 migration actions were deleted because they applied to migrations from z/OS V1R8, and that release is not supported for migration to z/OS V1R11.
• The "Security Server" topic, "Run dynamic parse," has been removed because the task is a one-time customization action and not a migration action that is performed every release.

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.
Chapter 1. Introduction

Upgrading to a new release of z/OS is usually a two-stage process:

- **Stage 1: Migration.** During this stage you install your new system with the objective of making it functionally compatible with the previous system. After a successful migration, the applications and resources on the new system function the same way (or similar to the way) they did on the old system or, if that is not possible, in a way that accommodates the new system differences so that existing workloads can continue to run. Migration does not include exploitation of new functions except for new functions that are now required.

- **Stage 2: Exploitation.** During this stage you do whatever customizing and programming are necessary to take advantage of (exploit) the enhancements available in the new release.

**Typical migration steps**

It is possible to make migration changes at the same time you make the changes necessary to exploit new functions in the new release. However, the more prudent approach is to do your migration first and then exploit new functions. The typical steps to accomplish this are:


2. Perform as many of the migration actions as you can on your existing (“old”) system so that you have fewer actions to perform after you install z/OS V1R11. In this information, the actions you can perform on your existing system are identified by headings that say **actions to perform before installing z/OS V1R11**. (Note that not all of the actions are required. Some depend on your environment, configuration, and workload, and are identified accordingly.) These actions should be made to, or copied (cloned) to, all existing systems that will be migrated to z/OS V1R11.

3. Use IBM Health Checker for z/OS to assist with some migration actions. See “Using IBM Health Checker for z/OS for migration checking” on page 2.

4. Order and install coexistence and fallback service for any system that will share resources with a z/OS V1R11 system. (See “Install coexistence and fallback PTFs” on page 8.) This service needs to be installed on all systems that will coexist with z/OS V1R11 and all systems that will be migrated to z/OS V1R11 (and which you might fall back to).

5. Prepare the driving system. For driving system requirements, see the topic about preparing the driving system in [z/OS Planning for Installation](http://www.ibm.com/eserver/zseries/).

6. Order and install z/OS V1R11. If you use a ServerPac, refer to [ServerPac: Installing Your Order](http://www.ibm.com/eserver/zseries/). If you use a CBPDO, refer to [z/OS Program Directory](http://www.ibm.com/eserver/zseries/).

7. Prepare target system hardware and software. During this step, perform the migration actions identified by headings that say **actions to perform before the first IPL of z/OS V1R11**. (Again, not all of the actions are required. Some depend on your environment, configuration, and workload, and are identified accordingly.)

8. IPL the new z/OS V1R11 system with your updated customization and configuration files.
8. Perform any migration actions identified by headings that say actions to perform after the first IPL of z/OS V1R11. (Again, not all of the actions are required. Some depend on your environment, configuration, and workload, and are identified accordingly.)

Use IBM Health Checker for z/OS to assist with some migration actions. See “Using IBM Health Checker for z/OS for migration checking.”

9. Deploy z/OS V1R11 to other systems within a sysplex, data center, and enterprise.

The migration is now complete.

10. When you are confident that a system, or in some cases all systems in a sysplex, are not going to fall back to z/OS V1R10 or z/OS V1R9 exploit the functions introduced in z/OS V1R11.

11. Deploy this exploitation on other systems (again within a sysplex, data center, and eventually enterprise).

Using IBM Health Checker for z/OS for migration checking

Beginning with z/OS V1R10, the IBM Health Checker for z/OS infrastructure is being exploited for migration purposes. Checks are being added to help you determine the applicability of various migration actions. Before you migrate to your new z/OS release, you should use these new checks to assist with migration planning. After you migrate, you should rerun them to verify that the migration actions were successfully performed. As with any IBM Health Checker for z/OS check, no updates are made to the system. These new migration checks only report on the applicability of specific migration actions on a system, and only on the currently active system.

The migration checks are very similar to the other checks provided by IBM Health Checker for z/OS. The only differences are:

- The names of migration checks follow the convention
  ZOSMIGV_vrr_component_program_name (or, for ICSF, ICSFMIG_vnnn_component_program_name). Notice the “MIG” characters followed immediately by the release identifier. This convention tells you that the check helps with migration and it tells you the release in which the migration action was introduced. If the release in which the migration action was introduced is not known, the name will be ZOSMIGREC.

- By default, migration checks are inactive. This is because you might not want to know about migration actions during nonmigration periods.

System REXX health check considerations

All exploiters of the System REXX support in z/OS require that the System REXX customization be performed. IBM Health Checker for z/OS health checks are one example of possible System REXX exploitation. In addition, any compiled REXX execs must have the proper runtime support available from the Alternate Library for REXX (available in z/OS since V1R9) or from the IBM Library for REXX on zSeries (5695-014). Several IBM Health Checker for z/OS migration health checks have been written in compiled System REXX. These health checks rely upon the System REXX customization and runtime activities being completed. If System REXX (and the security environment that System REXX requires) have not been properly customized, then System REXX health checks will not execute successfully.
For System REXX customization activities, refer to "System REXX" in z/OS MVS Programming: Authorized Assembler Services Guide.

For compiled REXX exec runtime availability, see "Alternate Library for REXX Customization Considerations" in z/OS Program Directory or refer to product documentation accompanying IBM Library for REXX on zSeries.

As stated previously, migration checks are intended to be used on your current z/OS release and then again after you have migrated to your new z/OS release. The steps you might follow in each of these two scenarios are shown below.

On your current z/OS release:

1. **Install the latest migration checks.** Review all the latest health checks (for both best practices and migration) by using the functional PSP bucket HCHECKER (which is SMP/E FIXCAT IBM.Function.HealthChecker). If you want to see all IBM Health Checker for z/OS checks see [http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html](http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html).

   You might want to install the PTFs during a regular service window so that an IPL is scheduled afterwards. Checks are often added by a function when it is started or restarted, so you might find that installing the PTFs before a scheduled IPL works best for you. Additional migration checks can be added at different times, so having all the latest ones installed prior to making your migration plans is recommended.

2. **Activate the migration checks appropriate to your migration path.** Because the naming convention for migration checks indicates which release introduced the corresponding migration actions, you can activate just the checks appropriate for your migration path. Using SDSF (or another method for viewing checks, such as filters), you can view ahead of time which migration checks you have available on your system. For example, if you are migrating from z/OS V1R9 to z/OS V1R11, you need to activate the migration checks for changes that occurred in both z/OS V1R10 and z/OS V1R11. If you are migrating from z/OS V1R10 to z/OS V1R11, you only need to activate the migration checks for changes that occurred in z/OS V1R11. There are many ways to make a check active, as well as many ways of using wildcards to include specific checks. Here are some examples of using the MODIFY command to make checks active:

   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,*MIG*)`
   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,ICSFMIG*)`
   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,ZOSMIGV1R11)`

   Remember that for z/OS, two naming conventions are used: one for ICSF (that starts with ICSFMIGnnnn) and one for the rest of z/OS (that starts with ZOSMIGVvvvRrr). Use a wildcard filter that includes the intended migration checks.

3. **Review the migration check output and rerun checks as appropriate.** Any exceptions should be addressed in your migration plan. If you can complete the migration action prior to moving to the new z/OS release, you can rerun the check to verify that it was completed correctly on your current system.

4. **Deactivate the migration checks if you desire.** If you no longer desire to have the migration checks active, you can deactivate them similar to the way you activated them. For example:

   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,*MIG*)`
   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,ICSFMIG*)`
   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,ZOSMIGV1R11)`
After you have migrated to the new z/OS release, the steps are similar:

1. **Install the latest migration checks.** New migration checks might be available for your new z/OS system since you installed it. Therefore, review all the latest health checks (for both best practices and migration) by using the functional PSP bucket HCHECKER (which is SMP/E FIXCAT IBM.Function.HealthChecker). If you want to see all IBM Health Checker for z/OS checks that are available, see [http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html](http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html).

2. **Activate the migration checks appropriate to your migration path.** For migration verification, activate the checks appropriate on the release you are migrating from, migrating through, and migrating to. For example, if you are migrating from z/OS V1R9 to z/OS V1R11, you need to activate the migration checks for changes that occurred in both z/OS V1R10 and z/OS V1R11. If you are migrating from z/OS V1R10 to z/OS V1R11, you only need to activate the migration checks for changes that occurred in z/OS V1R11. Here are some examples of using the MODIFY command to make checks active. (These are the same activation commands shown previously):
   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,*MIG*)`
   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,ICSFMIG*)`
   - `F HZSPROC,ACTIVATE,CHECK=(IBM*,ZOSMIGV1R11)`

3. **Review the migration check output and rerun checks as appropriate.** Any exceptions, which could indicate that a migration action was not performed correctly, should be addressed. Rerun the check after the corrections have been made.

4. **Deactivate the migration checks.** Once your migration verification is complete, deactivate the migration checks similar to the way you activated them. For example (using the same deactivation commands shown previously):
   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,*MIG*)`
   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,ICSFMIG*)`
   - `F HZSPROC,DEACTIVATE,CHECK=(IBM*,ZOSMIGV1R11)`

Within this document, the migration actions that have checks are clearly identified within the migration actions. All of the checks are made by IBM Health Checker for z/OS but, as stated earlier, some of the checks are the new migration checks (identified by names that start with ZOSMIGVvvRrr or ICSFMIGnnnn) and others are regular health checks.

Note that not all migration actions in this document are addressed by checks; many migration actions do not lend themselves to programmatic checking. Therefore, use this document to prepare your migration plan and do not rely solely on checks.

### Using "as-is" IBM Migration Checker for z/OS

Prior to having programmatic assistance in determining and verifying migration actions with IBM Health Checker for z/OS, an “as-is” tool called IBM Migration Checker for z/OS was made available as a Web download. This tool consists of batch programs that check the applicability of approximately 30 migration actions on your currently running system. The tool remains available from the Web. However, no updates to it are planned. You may still use the programs within the tool, and many of them might continue to provide assistance to you for migration actions associated with z/OS V1R9 and beyond.
To get the tool, go to the z/OS Download Web site at [http://www.ibm.com/eserver/zseries/zos/downloads/](http://www.ibm.com/eserver/zseries/zos/downloads/) To find out exactly which checks the tool can perform, see the Web page that has the download button for downloading the tool.

Because the tool is provided “as-is”, it is not supported by the IBM Service organization. Problems are to be reported to the tool owner as described in the documentation that accompanies the tool.
Chapter 2. Migration actions for everyone

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This topic describes general migration actions that apply to everyone, regardless of which elements and features you use.

Migration actions for everyone before installing z/OS V1R11

This topic describes general migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Review PSP buckets

Description: You should check the preventive service planning (PSP) “buckets” for important software and hardware installation and maintenance information that occurs too late in the development cycle to be included in the product publications. Included are PTFs for both service and small programming enhancements (SPEs).

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take:

1. Identify which PSP buckets to review. For this task you will need to know:
   - PSP bucket upgrade IDs (or “upgrades”). The most relevant upgrades are those related to z/OS V1R11 and its servers. The z/OS V1R11 upgrade is ZOSV1R11; the server upgrades are shown in Table 1.
   - FIXCAT values if you use the SMP/E REPORT MISSINGFIX command in conjunction with the FIXCAT type of HOLDDATA (as mentioned in the tip below). The FIXCAT values are shown in Table 1. Note that the values shown are for the minimum support necessary for the servers. If you exploit additional functions on a server, the FIXCAT value will have additional qualifiers.

<table>
<thead>
<tr>
<th>Server</th>
<th>Upgrade</th>
<th>FIXCAT value</th>
</tr>
</thead>
<tbody>
<tr>
<td>z10 EC</td>
<td>2097DEVICE</td>
<td>IBM.Device.Server.z10-EC-2097</td>
</tr>
<tr>
<td>z10 BC</td>
<td>2098DEVICE</td>
<td>IBM.Device.Server.z10-BC-2098</td>
</tr>
<tr>
<td>z9 EC</td>
<td>2094DEVICE</td>
<td>IBM.Device.Server.z9-EC-2094</td>
</tr>
<tr>
<td>z9 BC</td>
<td>2096DEVICE</td>
<td>IBM.Device.Server.z9-BC-2096</td>
</tr>
<tr>
<td>z990</td>
<td>2084DEVICE</td>
<td>IBM.Device.Server.z990-2084</td>
</tr>
<tr>
<td>z890</td>
<td>2086DEVICE</td>
<td>IBM.Device.Server.z890-2086</td>
</tr>
<tr>
<td>z900</td>
<td>2064DEVICE</td>
<td>IBM.Device.Server.z900-2064</td>
</tr>
<tr>
<td>z800</td>
<td>2066DEVICE</td>
<td>IBM.Device.Server.z800-2066</td>
</tr>
</tbody>
</table>


3. Review the PSP buckets and take whatever actions are prescribed.

**Tip:** To simplify finding the appropriate PSP bucket and identifying which PTFs listed in the PSP bucket need to be installed on your system, you can use SMP/E FIXCATS and the REPORT MISSINGFIX command. (The FIXCAT values are shown in Table 1.) Alternatively, you can use the Technical Help Database for Mainframe Preventive Service Planning Buckets [http://www14.software.ibm.com/webapp/set2/psp/srchBroker](http://www14.software.ibm.com/webapp/set2/psp/srchBroker) and the Enhanced PSP Tool (EPSPT). The Web site provides a search capability as well as pull down lists for types of PSP buckets. The types supported include Processors, z/OS, and Functions. So you can simply select the processor, function, or release you are preparing for and click Go.

**Reference information:**
- For z/OS subsets, see [z/OS Program Directory](http://www14.software.ibm.com/webapp/set2/psp/srchBroker)
- For details about the SMP/E REPORT MISSINGFIX command, see [SMP/E Commands](http://www14.software.ibm.com/webapp/set2/psp/srchBroker)

**Install coexistence and fallback PTFs**

**Description:** Coexistence and fallback PTFs installed on pre-z/OS V1R11 systems allow those systems to coexist with z/OS V1R11 systems during your migration, and allow backout from z/OS V1R11 to the previous systems if necessary. Coexistence and fallback are important because they allow you to migrate systems in a multisystem configuration to z/OS V1R11 using rolling IPLs (one system at a time), allowing for continuous application availability.
<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>Install the appropriate PTFs:</td>
</tr>
<tr>
<td></td>
<td>• “z/OS V1R9 coexistence and fallback PTFs” on page 10</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Before introducing z/OS V1R11 into your environment, install coexistence and fallback PTFs on all pre-z/OS V1R11 systems with which your z/OS V1R11 system will coexist. To obtain the PTF numbers, use any of the following three methods:

- **Preferred automated method:** Use the SMP/E V3R5 REPORT MISSINGFIX command in conjunction with the FIXCAT type of HOLDDATA, as follows:
  1. Order and install SMP/E V3R5 (which is the SMP/E level that is integrated in z/OS V1R11 and V1R10).
  2. Acquire and RECEIVE the latest HOLDDATA onto your pre-z/OS V1R11 systems. Use your normal service acquisition portals or download the HOLDDATA directly from [http://service.software.ibm.com/holdata/390holddata.html](http://service.software.ibm.com/holdata/390holddata.html). Ensure you use the FULL file (last 730 days) to receive the FIXCAT HOLDDATA, as the other files do not contain FIXCAT HOLDDATA.
  3. Run the SMP/E REPORT MISSINGFIX command on your pre-z/OS V1R11 systems and specify a Fix Category (FIXCAT) value of “IBM.Coeistence.z/OS.V1R11”. The report will identify any missing coexistence and fallback PTFs for that system. For complete information about the REPORT MISSINGFIX command, see [SMP/E Commands](#). Periodically, you might want to acquire the latest HOLDDATA and rerun the REPORT MISSINGFIX command to find out if there are any new coexistence and fallback PTFs.

- **Alternative automated method:** Use the Enhanced PSP Tool (EPSPT) as follows:
  2. Download the extract file from your current release’s ZOSGEN PSP bucket subset. The extract file’s “Cross Product Dependencies” section contains the list of coexistence PTFs to be installed on your current release.
  3. Run the EPSPT using the extract file as input.
  4. Resolve any outstanding discrepancies that the EPSPT identifies.

Periodically, you might want to download the extract file from your current release’s ZOSGEN PSP bucket subset and rerun the EPSPT to find out if there are any new coexistence PTFs.

- **Manual method:**
  - For migration from z/OS V1R9, use the list in “z/OS V1R9 coexistence and fallback PTFs” on page 10. Also check PSP bucket ZOSV1R9 ZOSGEN PSP.
Reference information: For an explanation of the z/OS coexistence-migration-fallback policy, see the coexistence and fallback topic in *z/OS Planning for Installation*.

### z/OS V1R9 coexistence and fallback PTFs

Install, on z/OS V1R9, the coexistence and fallback PTFs listed in [Table 2](#).

#### Table 2. Coexistence and fallback PTFs needed on z/OS V1R9 systems

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BCP:</strong> Fixes a problem that occurs when a new cross-system type ENF code is defined in z/OS V1R11. Specifically, the problem occurs when a pre-z/OS V1R11 system receives an unknown ENF signal code and does not clean up the storage associated with the unknown code.</td>
<td>UA44704 (APAR OA26493)</td>
</tr>
<tr>
<td><strong>BCP:</strong> z/OS V1R11 provides GRS GQSCAN/ISQQUERY ENQ constraint relief. The PTF is required for GQSCAN processing to send message formats to later-level systems. The support on a z/OS V1R11 systems detects whether the PTF has not been applied to peers and prevents any peers without the PTF from joining a sysplex. The support also prevents offending earlier-level systems that do not have the PTF from coming into the sysplex once the earlier-level system has successfully joined.</td>
<td>UA46863 (APAR OA24172)</td>
</tr>
<tr>
<td><strong>BCP:</strong> z/OS V1R11 systems can run with a sysplex CDS formatted to support the new system status detect protocol. The PTF allows systems at earlier releases to coexist with systems that are running with a sysplex CDS that has been formatted to support the new system status detection protocol. All systems must have the PTF installed or be at release z/OS V1R11 and running with a sysplex couple data set formatted for this new system status detect function in order for the function to become enabled.</td>
<td>UA47789 (APAR OA26037)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Allows Optimized Schema Representations (OSRs) generated on z/OS V1R11 systems to be used by z/OS XML System Services on z/OS V1R9 systems.</td>
<td>UA46859 (APAR OA28153)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Allows a z/OS V1R10 system to successfully activate a WLM policy on lower level systems. This does not allow lower level systems to support service definitions that were modified on z/OS V1R10.</td>
<td>UA39716 (APAR OA17252), UA41279 (APAR OA25013)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Causes the z/OS V1R9 program management binder to reject a PO5 PMAR level with the z/OS V1R10 (and later) PO sublevel.</td>
<td>UA39319 (APAR OA20962)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Allows a z/OS V1R9 system to tolerate changes made in z/OS V1R10 to console data that is passed between members of a sysplex.</td>
<td>UA39760 (APAR OA18204)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Prevents all WTORs and retained action messages that are outstanding on pre-z/OS V1R10 systems when a z/OS V1R10 or later system joins a sysplex from appearing twice in the response to a D R command that is processed on the z/OS V1R10 or later system.</td>
<td>UA40988 (APAR OA24850)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Allows a z/OS V1R9 system to tolerate changes made in z/OS V1R10 to resource recovery services (RRS) as RRS saves data during startup.</td>
<td>UA39874 (APAR OA23153)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R9 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BCP:</strong> For applications or middleware that use the IBM Workload Manager (WLM) routing services (for example, TCP/IP Sysplex Distributor, DB2 DDF, or WebSphere WAS): install this PTF on all z/OS V1R9 systems in the same sysplex before IPLing a system with z/OS V1R11. Under some circumstances, z/OS V1R11 systems (and pre-z/OS V1R11 systems with the PTF installed) show free capacity values lower than systems without the PTF. Therefore, systems without the PTF might get significantly more work routed to them than systems with the PTF, or z/OS V1R11 systems.</td>
<td>UA45080 (APAR OA27032)</td>
</tr>
<tr>
<td><strong>BCP:</strong> Before installing z/OS V1R11 and GDPS V3.4 (or later) together on a K-system (GDPS Controlling system), the PTFs for APAR OA26085 must be installed and active on every other system in the sysplex. The installed PTFs ensure correct messages are issued and correct actions are taken in the event of a loss of time synchronization.</td>
<td>UA49199 and UA49201, and (APAR OA26085)</td>
</tr>
<tr>
<td><strong>Communications Server:</strong> Install the PTF to prepare for future high performance routing (HPR) enhancements. The PTF prevents a prior release from regressing its HPR pipes to use the base mode adaptive rate-based (ARB) congestion control algorithm.</td>
<td>UA44025 (APAR OA26490)</td>
</tr>
<tr>
<td><strong>Communications Server:</strong> Allows pre-z/OS V1R11 systems to successfully establish secure connections using TLSv1.1 with z/OS V1R11 systems. Without the PTF, pre-z/OS V1R11 systems are not able to recognize the protocol level for TLSv1.1 and will reset the connection.</td>
<td>UK41040 (APAR PK72201)</td>
</tr>
<tr>
<td><strong>Cryptographic Services:</strong> Allows an earlier system to tolerate the new AES master key in a CKDS in z/OS V1R11. Also, for a PKDS that is shared between z/OS V1R11 ICSF and a prior ICSF, the PTF allows updates to be made to the PKDS from the prior ICSF.</td>
<td>PTF UA44730 for FMID HCR7740 (APAR OA26579), PTF UA44731 for FMID HCR7750 (APAR OA26579)</td>
</tr>
<tr>
<td><strong>Cryptographic Services:</strong> In z/OS V1R10, the LRECL of the PKA key data set (PKDS) was increased. (See “ICSF Increase the size of your PKDS” on page 175.) Without the PTF, the increase in size could cause problems when the PKDS is shared between multiple levels of ICSF. The PTF allows an earlier level of ICSF to perform I/O with either the existing PKDS or the larger PKDS. It also prevents the earlier level of ICSF from creating or using RSA keys that are larger than 2048 bits.</td>
<td>UA37971 (APAR OA21807)</td>
</tr>
<tr>
<td><strong>DFSMsdf:</strong> Tolerates extended address volume enhancements in z/OS V1R11. Specifically, the PTF restores EFSAMs properly and properly handles the updating and preservation of EATTR and P9DSCB fields.</td>
<td>UA00022 (APAR OA26996), UA48146 (APAR OA29235), UA48233 (APAR OA29102)</td>
</tr>
<tr>
<td><strong>DFSMsdf:</strong> In z/OS V1R10 (and later), multiple lock structures are supported. The PTF prevents a z/OS V1R9 system from opening a data set that z/OS V1R10 or later has already opened to a secondary lock structure. (Current sharing can still be performed by using the current lock structure, IGWLOCK00.) The PTF also provides toleration of new shared structures and communication that is done between SMVSAM instances.</td>
<td>UA42230 (APAR OA25754)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R9 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSMSdfp: In z/OS V1R11, Extended Address Volume support is enhanced to allow an extent that starts in track-managed space and ends in cylinder-managed space. This PTF allows a VSAM data set allocated in z/OS V1R11 with an extent starting in track-managed space and ending in cylinder-managed space to be processed from z/OS V1R10. With this PTF this VSAM file could be referenced, extended, partial released and scratched. In addition the DADSM convert routines were changed to tolerate and validate extents that start in track-managed space and end in cylinder-managed space. In z/OS V1R11, the extended attribute data set attribute, EATTR, can be assigned to data sets. This PTF allows DADSM create and extend functions in z/OS V1R10 to honor the specified EATTR value when allocating and extending files. For example, an EATTR=NO value for a VSAM file can be specified in z/OS V1R11 during allocation, but processed in z/OS V1R10 during extend processing. With this PTF the z/OS V1R10 will use the NO value for EATTR during extend. In addition DADSM create interfaces have been changed to support the recording of the passed EATTR value in the format 1/8 DSCB. This PTF also removes STAT084 errors in the OBTAIN, CVAFSEQ, CVAFDIR, and CVAFFILT macros. This allows data set list builders like ISPF and IEHLIST LISTVTOC (and many others) to display/see DSCBs with extended attributes as long as EADSCB=OK has been specified. In other words what you see on z/OS V1R11 is what you will see on z/OS V1R10. The stat084 used to be set for a data set with extended attribute DSCBs where the data set type described by this DSCB was not supported in the release for EAS.</td>
<td>UA46207 (APAR OA26623)</td>
</tr>
<tr>
<td>DFSMSdfp: Allows pre-z/OS V1R11 systems to share the data set separation profile that contains both old and new syntax in an SMS sysplex environment. Without the PTF, pre-z/OS V1R11 systems cannot recognize the new syntax, and the data set separation function is disabled. With the PTF, pre-z/OS V1R11 systems will ignore the new data set separation by volume syntax and continue to function as before.</td>
<td>UA46069 (APAR OA25344)</td>
</tr>
</tbody>
</table>
| DFSMSdfp: Causes a z/OS V1R9 system to do the following:
  - Fail OSREQ DELETE and OSREQ RETRIEVE requests for objects greater than 268 435 456 bytes.
  - Skip OSMC processing of objects greater than 268 435 456 bytes.
  - Recognize the new P value in the FULL column of the TAPEVOL and VOLUME tables as permanently marked full. | UA39934 (APAR OA22026) |
<p>| DFSMSdfp: Allows z/OS V1R9 DFSMSdfp OAM to tolerate enhancements made in z/OS V1R11 for 2 GB object support for tape and OAM archive retention. | UA46464 (APAR OA26334) |</p>
<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSMSdfp: Allows the new (in z/OS V1R10 and later) P volume full value to be displayed as “yes” in the volume full column on the Mountable Optical Volume List ISMF panel (DGTLGP31) of a z/OS V1R9 system.</td>
<td>UA39959 and, if Japanese, UA39960 (APAR OA22400)</td>
</tr>
<tr>
<td>DFSMSdfp: In z/OS V1R10, the LSPACE macro’s parameter list was extended to support extended address volumes (EAVs). The PTF allows a z/OS V1R9 system to tolerate the change.</td>
<td>UA40221 (APAR OA22449)</td>
</tr>
<tr>
<td>DFSMSdfp: Allows a DEVSERV QDASD command issued on z/OS V1R9 to report the actual size of an extended address volume even though the volume cannot be brought online. (Extended address volume support was introduced in z/OS V1R10.)</td>
<td>UA40229 (APAR OA21487)</td>
</tr>
<tr>
<td>DFSMSdss: Allows a z/OS V1R9 system to restore a data set that was dumped from an extended address volume on z/OS V1R10. See the APAR for additional information.</td>
<td>UA44190 (APAR OA26354)</td>
</tr>
<tr>
<td>DFSMSshm: Causes z/OS V1R9 to ignore the ALL keyword on BDELETE, HBDELETE, and ARCBDEL commands, allowing these commands to function correctly on z/OS V1R9 when the ALL keyword is used.</td>
<td>UA48184 (APAR OA29178)</td>
</tr>
<tr>
<td>DFSMSshm: Support is added for preserving the EATTR value.</td>
<td>UA00028 (APAR OA27146)</td>
</tr>
<tr>
<td>DFSMSshm: Allows pre-z/OS V1R11 DFSMSshm systems to recall and recover data sets from a z/OS V1R11 DFSMSshm LFS migration and backup copies from NOOVERFLOW and OVERFLOW volumes. Use of the ARECOVER command to recover ML1 data sets that are LFS will recover to ML1 volumes on pre-z/OS V1R11 systems.</td>
<td>UA46268 (APAR OA26330)</td>
</tr>
<tr>
<td>DFSMSshm: Allows a z/OS V1R9 system to tolerate backups created with the z/OS V1R10 (or later) NEWNAME SPHERE(NO) and GVCN(YES) keywords.</td>
<td>UA39926 (APAR OA23786)</td>
</tr>
<tr>
<td>DFSMSshm: Allows a pre-z/OS V1R11 DFSMSshm to read the z/OS V1R11 SMS copy pool definitions without error. In earlier releases, DFSMSshm backs up a copy pool that has been defined in z/OS V1R11, however, the backup command will fail if the SMS copy pool definition indicates that the catalog information is required to be captured. The FREEVOL and AUDIT commands on pre-z/OS V1R11 systems are also updated to tolerate the new CSI information data sets on ML1. (Audit commands on a pre-z/OS V1R11 release will not detect errors from the new support.)</td>
<td>UA46226 (APAR OA26328), UA46074 (APAR OA26497), UA46092 (APAR OA26498), UA47253 (APAR OA28743)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R9 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFSMSHsm: Allows pre-z/OS V1R11 systems to tolerate the new CDS record provided with the enhancement for maintaining retained data set backup copy. In earlier releases, DFSMSHsm fails a data set backup request that would cause an active backup copy to become a retained backup version. The following functions will not process retained backup versions on pre-z/OS V1R11 systems: RECOVER, BDELETE, EXPIREBV, DELVOL, AUDIT, RECYCLE, and FREEVOL BVOL AGE. In most cases, a warning message is issued when DFSMSHsm skips over a retained copy.</td>
<td>UA46358 (APAR OA26327)</td>
</tr>
<tr>
<td>DFSMSHsm: Allows a z/OS V1R9 system to tolerate enhanced CDS backup of XCF events in z/OS V1R10 and later.</td>
<td>UA39940 (APAR OA22211)</td>
</tr>
<tr>
<td>DFSMSHsm: If you are using DFSMSHsm to manage extended address volumes on a z/OS V1R10 or later system, the PTF allows a z/OS V1R9 system to recall or recover an EAS data set with a format-8 or format-9 DSCB if the data set was migrated to, or backed up on, z/OS V1R10 or later. The PTF also allows VCC keywords specified in the management class to be processed correctly.</td>
<td>UA40306 (APAR OA22804)</td>
</tr>
<tr>
<td>DFSMSrmm: Enables an application that has been updated to handle multiple resources, to be compiled and run on a pre-z/OS V1R11 system. The updated application can run on any release and will get the benefit only when the PTF is installed. The callers' code will work whether or not the PTF is installed.</td>
<td>UA46198 (APAR OA25714)</td>
</tr>
<tr>
<td>DFSMSrmm: Allows a z/OS V1R9 system to tolerate the DFSMSrmm CDS changes made in the TS1130 device support enhancement provided by APAR OA22132 and integrated in z/OS V1R10 and later.</td>
<td>UA40426 and, if Japanese, UA40427 (APAR OA22706)</td>
</tr>
<tr>
<td>DFSMSrmm: Allows a z/OS V1R9 system to tolerate the new EDGHSHKP RPTEXT command in SYSIN. The PTF is required only if you want to prepare in advance to override the z/OS V1R10 and later RPTEXT XREPTEXT DD default processing, which is to create only extended (X) records.</td>
<td>UA38172 (APAR OA23177)</td>
</tr>
<tr>
<td>Distributed File Service: Provides a base for future function in zFS. For more information about this PTF, see “zFS: Ensure that sysplex_admin_level=2 is available on all systems in a shared file system environment” on page 238.</td>
<td>UA45616 (APAR OA25026)</td>
</tr>
<tr>
<td>HCD: In z/OS V1R10 and later, HCD allows multiple users to work simultaneously on the IODF. The PTFs prevent earlier z/OS releases from accessing an IODF prepared for multiuser access.</td>
<td>UA90386 and, if Japanese, UA90388 (APAR OA22842)</td>
</tr>
<tr>
<td>IBM TDS: Allows new directory attributes in z/OS V1R10 (and later) for an IBM TDS LDAP server to be tolerated by z/OS V1R9.</td>
<td>UA38112 and, if Japanese, UA38113 (APAR OA22022)</td>
</tr>
<tr>
<td>Element or feature, and function provided by PTFs</td>
<td>z/OS V1R9 PTFs (and corresponding APARs)</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>ISPF:</strong> Allows pre-z/OS V1R11 systems to display ISPF panels that exploit the new INEXIT panel definition statement. Without the PTF, pre-z/OS V1R11 systems will not be able to recognize the new syntax, and panels that might otherwise display correctly will not display because of a syntax error.</td>
<td>UA46303 (APAR OA26999)</td>
</tr>
<tr>
<td><strong>JES2:</strong> Allows members running z/OS V1R9 JES2 (FMID HJE7740) to coexist in a multi-access spool (MAS) with members running z/OS V1R11 JES2 (FMID HJE7760).</td>
<td>UA46530 (APAR OA25093)</td>
</tr>
<tr>
<td><strong>JES3:</strong> Allows members running z/OS V1R9 JES3 (FMID HJS7740) to coexist with members running z/OS V1R11 JES3 (FMID HJS7760).</td>
<td>UA48639 (APAR OA29420)</td>
</tr>
<tr>
<td><strong>JES3:</strong> Supports WLM APAR OA17252.</td>
<td>UA39863 (APAR OA21882)</td>
</tr>
<tr>
<td><strong>NFS:</strong> Causes a z/OS V1R9 NFS Server to ignore site attributes that are new in z/OS V1R11. Note that on fallback you must remove any exploitation of the new function from your export file and any mount commands.</td>
<td>UA46261 (APAR OA25864)</td>
</tr>
<tr>
<td><strong>NFS:</strong> A new NFS server processing attribute was added in z/OS V1R10 to better support ACLs between the z/OS server and z/OS client. The new attribute indicates that the server is communicating with a z/OS client, not some other client. The value is set automatically by the client; no user action is required. However, pre-z/OS V1R10 NFS servers must tolerate the existence of the new attribute.</td>
<td>UA37369 (APAR OA22759)</td>
</tr>
<tr>
<td><strong>NFS:</strong> Allows a z/OS V1R9 system to read the z/OS V1R10 and later NFS mount handle database, resulting in the NFS server being able to start successfully.</td>
<td>UA40245 (APAR OA24257)</td>
</tr>
<tr>
<td><strong>SDSF:</strong> Allows z/OS V1R9 systems to use the SDSF z/OS V1R11 level of parmlib member ISFPRMxx.</td>
<td>UK90015 (APAR PK66761)</td>
</tr>
<tr>
<td><strong>SDSF:</strong> Allows z/OS V1R9 SDSF to tolerate (by ignoring) new keywords added to parmlib member ISFPRMxx in z/OS V1R10. This allows z/OS V1R9 systems to share the same SDSF parmlib member with z/OS V1R10 or later systems. Note that only z/OS V1R9 and later SDSF can share parmlib members.</td>
<td>UK90012 and, if Japanese, UK33993 (APAR PK51434)</td>
</tr>
<tr>
<td><strong>Security Server:</strong> In z/OS V1R10 and later, the Network Authentication Service of base element Integrated Security Services exploits RACF password phrase support to allow the use of Kerberos passwords longer than eight characters. Kerberos keys are generated whenever a Kerberos principal’s RACF password or password phrase is changed. The PTF allows pre-z/OS V1R10 images that share the same RACF database with a V1R10 or later image to associate Kerberos key expiration with the password phrase expiration value when Kerberos keys are generated on the V1R10 or later image based upon RACF password phrase change, and to continue to base Kerberos key expiration on the password expiration value when Kerberos keys are generated based upon RACF password change.</td>
<td>UA42084 (APAR OA24616)</td>
</tr>
</tbody>
</table>
Use SoftCap to identify the effect of capacity changes

**Description:** The Software Migration Capacity Planning Aid (SoftCap) is a PC-based tool that evaluates the effects of software release migrations.

**Element or feature:** Multiple.

**When change was introduced:** General migration action not tied to a specific release.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** Before installing z/OS V1R11.

**Is the migration action required?** No, but recommended to help in assessing processor capacity and available resources when migrating to new software levels.

**Target system hardware requirements:** This tool runs on your workstation. Requirements are:
- A Pentium® III class or faster processor.
- An SVGA display 1024 x 768 or better.
- Approximately 5 MB of hard disk space for the SoftCap application and user’s guide, plus 40 MB for the IBM Java™ 1.5 runtime environment.

**Target system software requirements:** This tool runs on your workstation. Requirements are:
- Windows® Vista or Windows XP.
- IBM Java 1.5 or later runtime environment. This environment is available with the tool.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

---

**Table 2. Coexistence and fallback PTFs needed on z/OS V1R9 systems (continued)**

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R9 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMP/E:</strong> Allows SMP/E V3R4 (which is in z/OS V1R7, V1R8, and V1R9) to quietly ignore new FIXCAT HOLD statements that will be present in IBM product and service offerings. In addition, the PTF provides support for SMP/E users who share SMPCSI data sets between pre-z/OS V1R10 systems and z/OS V1R10 (and later) systems.</td>
<td>U00701 (APAR IO07480)</td>
</tr>
<tr>
<td><strong>TSO/E:</strong> In z/OS V1R10 (and later), the IKJTSOxx parmlib member has a new statement, LOGON. The PTF causes this new operand to be ignored if it is encountered on z/OS V1R9 during syntax checking of parmlib member IKJTSOxx. It also ensures that the TSO/E PARMLIB LIST ROUTE(*) command will display system settings correctly in a mixed sysplex environment.</td>
<td>UA39739 (APAR OA20525)</td>
</tr>
<tr>
<td><strong>z/OS UNIX:</strong> Provides a base for future function in zFS.</td>
<td>UA45844 (APAR OA24745)</td>
</tr>
</tbody>
</table>
Steps to take:

- Download SoftCap from one of the following Web sites:
- Run SoftCap to determine your expected increase in CPU utilization (if any) and to identify your storage requirements, such as how much storage is needed to IPL.

Reference information: SoftCap User's Guide, which is provided with the tool.

Add or change volumes to keep your z/OS root file system in a single data set

Description: Because of release enhancements and service, the size of the z/OS root file system (or “version root file system”) continues to grow from release to release. As of z/OS V1R10, the size of the z/OS root file system, whether HFS or zFS, was approximately 3100 cylinders on a 3390 Direct Access Storage Device. This is close to the limit of 3339 cylinders on a 3390-3 device.

It is advisable to have the z/OS root file system within a single data set for ease of management.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended for ease of management if your z/OS root file system resides on a 3390-3 volume (or another DASD volume that is close to the 3390-3 limit of 3339 cylinders).</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

Steps to take: To keep the z/OS root file system in a single data set, do one of the following:

- Move your z/OS root file system to a larger DASD volume geometry.
- Use multiple volumes for the z/OS root file system data set.

If your z/OS root data set cannot fit on the volume or volumes you have defined for it, divide the z/OS root, with the smaller file systems being managed together.

Remember that all systems to which you deploy the z/OS root file system need sufficient DASD space to hold the z/OS root.
Beginning with z/OS V1R11 ServerPac, the default device type is changed to 3390-9 instead of 3390-3 in the Modify System Layout panels.

Tips:
- File systems for subsystems and products other than the z/OS product itself might also increase in size. When examining the volume for how much space your z/OS file system is using, check other product file system sizes too.
- Use IBM Health Checker for z/OS check CHECK(IBMUSS, ZOSMIGREC_ROOT_FS_SIZE) to determine whether a volume has enough space for the z/OS root file system. This capability is available in z/OS V1R9 with APAR OA28684 (PTF UA49361) and z/OS V1R10 with APAR OA28684 (PTF UA49362).

Reference information: For more information about multivolume data sets, see z/OS DFSMS Implementing System-Managed Storage.

Verify that you have enough XCF groups in your CDS and enough XCF members in your XCF groups

Description: Over time, as various z/OS functions and applications exploit XCF services, you must ensure that there is enough space in the sysplex couple data set for all the XCF groups and members that are to be defined by the exploiters. It is possible that your sysplex couple data set could contain an inadequate number of XCF groups or members.

Element or feature: Multiple.

When change was introduced: General migration action not tied to a specific release.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? No, but recommended to ensure you have an adequate number of XCF groups and members formatted in your sysplex couple data sets.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:
1. Issue the DISPLAY XCF,COUPLE command on your current system. Notice the values of MAXGROUP and PEAK for your sysplex couple data sets. These values show you the maximum number of XCF groups that the couple data sets can support, and the peak number of XCF groups ever in use in the sysplex. Also notice the values of MAXMEMBER and PEAK for your sysplex couple data sets. These values show you the maximum number of members that the couple data set can support in one group, and the greatest number of members ever in use in the largest group in the sysplex.
2. If your peak member value is close to the maximum member value, you might want to reformat your sysplex couple data sets to support a larger maximum number of members to be used by any one group.

Tip: Use IBM Health Checker for z/OS check XCF_SYSPLEX_CDS_CAPACITY, which checks the adequacy of the number of groups, members, and systems for which a sysplex CDS is formatted.

Reference information:
- For information about formatting sysplex couple data sets with the MAXGROUP and MAXMEMBER parameters, see z/OS MVS Setting Up a Sysplex.
- For information about the DISPLAY XCF command, see z/OS MVS System Commands.

Verify SMP/E utility parameters to support assembling JES2 and SDSF

Description: The assembler utility parameters must be updated to support assembling of JES2 and SDSF source modules.

| Element or feature: | Multiple. |
| When change was introduced: | z/OS V1R11. |
| Applies to migration from: | z/OS V1R10 and z/OS V1R9. |
| Timing: | Before installing z/OS V1R11. |
| Is the migration action required? | Yes. |
| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

Steps to take: Ensure you have the following parameters for your assembler utility in the SMP/E OPTION entry that will be used to install and maintain z/OS:

REP UTILITY(ASMA90) NAME(ASMA90)
  PARM(DECK,NOOBJECT,GOFF,LIST(133),OPTABLE(UNI))
  PRINT(ASMPRINT)  /* see below */
  RC(0).

- DECK, NOOBJECT must always be specified in the PARM list. For example, PARM(DECK,NOOBJECT).
- As of z/OS V1R11, JES2 modules require GOFF and LIST(133) to assemble correctly. For example, PARM(DECK,NOOBJECT,GOFF,LIST(133)).
  - When you specify LIST(133), you must either:
    - Specify a unique output file to direct assembler output, for example, PRINT(ASMPRINT). You must then provide a DDDEF in your target and DLIB zones (or a JCL DD card) for ASMPRINT specifying SYSOUT.
    - Or, provide a JCL DD card such as //SYSPRINT DD SYSOUT=* ,LRECL=133,RECFM=FBA.

Note: ServerPacs produced at Package Version 22.10.19 and higher have the assembler utility parameters updated in the SMP/E OPTION provided.
Upgrade Windows 2000, 98, 95, and NT clients

**Description:** z/OS does not support service for client operating systems whose service is withdrawn by the operating system manufacturer. As a result, IBM no longer supports service for clients running Windows 2000, Windows 98, Windows 95, or Windows NT® Workstation 4.xx.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>13 August 2002 in the z/OS V1R4 availability announcement.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because z/OS does not support service for client operating systems whose service is withdrawn by the operating system manufacturer.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Use a supported follow-on to Windows 2000, Windows 98, Windows 95, or Windows NT Workstation 4.xx.

**Reference information:** For more information, see [SMP/E Commands](#) and [HLASM Installation and Customization Guide](#).

Discontinue use of IBM Virtualization Engine Enterprise Workload Manager for z/OS

**Description:** z/OS V1R11 does not support:

- IBM Virtualization Engine Enterprise Workload Manager for z/OS V1.1.0 (5655-M76)
- IBM Virtualization Engine Enterprise Workload Manager for z/OS V2.1.0 (5655-EWM)

If you are using either of these products, they will be deleted during installation of z/OS V1R11.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use either of the IBM Virtualization Engine Enterprise Workload Manager for z/OS products.</td>
</tr>
</tbody>
</table>

**Reference information:** For client software supported with z/OS, see the [Software requirements](#) topic in [z/OS Planning for Installation](#).
**Steps to take:** IBM Virtualization Engine Enterprise Workload Manager (EWLM) V2.1 (5733-EWM) has no replacement. IBM is providing a transition for EWLM V2.1 clients to an IBM STG Lab Services-based offering. Contact STG Lab Services (stgls@us.ibm.com) for more information. In addition, IBM Tivoli offers workload automation and monitoring solutions with the Tivoli Workload Automation Family of products:

- Tivoli Dynamic Workload Broker and Tivoli Workload Scheduler
- Tivoli Workload Scheduler
- Tivoli Composite Application Manager for Response Time Tracking

If you want to preserve your existing copy of IBM Virtualization Engine Enterprise Workload Manager for z/OS V1R10 and EWLM V2.1, you can create a back up. However, keep in mind these products are no longer service supported.

**Reference information:** None.

---

**Accept the CustomPac Installation Dialog default file system of zFS**

**Description:** For hierarchical files that are switchable between zFS and HFS, the CustomPac Installation Dialog now sets the default to zFS. This is another step in the implementation of zFS as the strategic z/OS file system. Note that all file systems are still delivered as HFSs.

**Element or feature:** Multiple.

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** Before installing z/OS V1R11.

**Is the migration action required?** No, but recommended if you want to continue to use HFS data sets for your CustomPac order.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

- For any file systems that you would like to be HFS (and not zFS) use the CHANGE DSNTYPE ZFS HFS command within the CustomPac Installation dialog to convert the file systems to HFS. Note that any HFS data sets in your saved configuration will be changed to zFS as of z/OS V1R11, and if you want them to remain as HFS you must issue the command above.
Subsequent saved configurations used after z/OS V1R11 will also be affected, and saved HFS file systems will be converted to zFS unless you change the file system type to HFS.

Reference information: ServerPac: Using the Installation Dialog

Migration actions for everyone before the first IPL of z/OS V1R11

This topic describes general migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Set up an IPCS environment

Description: The interactive problem control system (IPCS) is a tool in the BCP that provides formatting and analysis support for dumps and traces. You must set up an IPCS environment so that you can process any dumps taken on the newly-built z/OS system.

Element or feature: Multiple.

When change was introduced: General migration action not tied to a specific release.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if the target system cannot be used for native IPCS and usage of IPCS for information produced by the target system is necessary.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: Ensure that the current IPCS data sets are accessible from an earlier system for debugging a dump. You can ensure this by putting the IPCS data sets on a volume that is shared between your current system and your earlier system.

Tip: If it is necessary to have unique IPCS data set names for your current system (because you already have the IPCS data sets with similar names on your earlier system), you can create a unique alias in your catalog that resolves to the current IPCS data sets. This will allow you to have “duplicately” named IPCS data sets, which are uniquely referenced.

When using unique aliases, remember that you may have to update the security definition for the unique high-level qualifier used in the catalog.

Restrictions: None.

System impacts: None.
Steps to take: Set up an IPCS environment. For guidance, use the information listed in “Reference information” below. During setup, ensure that your logon procedure points to the target system’s level of IPCS data sets, which are shown in Table 3.

**Table 3. IPCS data set requirements for a logon procedure or DD name allocation**

<table>
<thead>
<tr>
<th>DD name</th>
<th>Data set name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATTABL</td>
<td>SYSLIATTLIB, if applicable</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>IPCSPARM</td>
<td>SYSLIPARM</td>
<td>This is the data set that contains all the shipped z/OS V1R11 parmlib IPCS members. If the copies of BLSCECT and all the other IPCS members are not at z/OS V1R11 level, then IPCS might fail when you attempt to use it.</td>
</tr>
<tr>
<td></td>
<td>SYSLAPARMLIB, if applicable</td>
<td>This is a JES2 data set. If you use JES2, ensure that this data set corresponds to the level of JES2 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td></td>
<td>SYSLIAITPARMLIB, if applicable</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>ISPMLIB</td>
<td>SYSLISBLMSG0</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td></td>
<td>SYSLIAITMSG0, if applicable</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>ISPLIB</td>
<td>SYSLISBSKEL0</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td></td>
<td>SYSLISBSKEL0</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>ISPTLIB</td>
<td>SYSLISBSKEL0</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
</tbody>
</table>
Table 3. IPCS data set requirements for a logon procedure or DD name allocation (continued)

<table>
<thead>
<tr>
<th>DD name</th>
<th>Data set name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPLIB</td>
<td>SYS1.MIGLIB</td>
<td>This data set was added in z/OS V1R7. It is a PDSE data set that complements SYS1.MIGLIB. This data set is used along with SYS1.MIGLIB for IPCS.</td>
</tr>
<tr>
<td></td>
<td>SYS1.SIEAMIGE</td>
<td>This data set is needed if the system on which the dump was taken has different BCP and JES levels than the system on which the dump will be examined using IPCS.</td>
</tr>
<tr>
<td></td>
<td>SYS1.SHASMIG, if applicable</td>
<td>This is a JES2 data set. If you use JES2, ensure that this data set corresponds to the level of JES2 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td></td>
<td>SYS1.SIATMIG, if applicable</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>SYSEXEC</td>
<td>SYS1.SIATCLI0, if applicable</td>
<td>This is a JES3 data set. If you use JES3, ensure that this data set corresponds to the level of JES3 that you are running with z/OS V1R11.</td>
</tr>
<tr>
<td>SYSPROC</td>
<td>SYS1.SBLSCL10</td>
<td></td>
</tr>
</tbody>
</table>

Reference information:
- For more information about IPCS, see [z/OS MVS IPCS Customization](#).
- For more information about the correct logon procedure updates, see the [z/OS Program Directory](#).
- For information about setting up the JES2 IPCS environment, see [z/OS JES2 Diagnosis](#).
- For information about setting up the JES3 IPCS environment, see [z/OS JES3 Diagnosis](#).
- [z/OS Communications Server: IP Diagnosis Guide](#).

Use IBM-supplied parmlib and proclib members

Description: Ensure that all new and changed parmlib and proclib members that are shipped in z/OS V1R11 are updated in your parmlib and proclib concatenations.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:
- For parmlib, add the data set pointed to by the z/OS V1R11 PARMLIB DDDEF to your parmlib concatenation. The data set should generally be added last in the concatenation, and you should make sure that the other data sets in the concatenation do not have members with the same names as IBM-supplied members. If you place the data set on the system residence volume and use an indirect catalog entry, future migrations will not require this particular migration step.
- For proclib:
  1. Ensure that the default proclib members have been copied to your default proclib to pick up the new and changed members. An example of a change is the following: the LLA startup procedure was updated in z/OS V1R10 (and z/OS V1R9 by APAR OA21932) to specify REGION=0M.
  2. Update individual sample members provided and ensure they are accessible to the system, as shown in the table of proclib member updates in z/OS Program Directory.
  3. Ensure that the procedure libraries listed in the table of libraries to be added to the proclib concatenation in z/OS Program Directory have been placed in the necessary procedure library concatenations and are available to the system.

Reference information: For lists of parmlib and proclib members that are shipped, see z/OS Program Directory.

Migrate /etc and /var system control files
Description: The /etc and /var directories contain system control files: the /etc directory contains customization data that you maintain and the /var directory contains customization data that IBM maintains.

The following elements and features use /etc:
- CIM. See "Update the environment file" on page 125.
- Communications Server (IP Services component). See "IP Services: Update /etc configuration files" on page 155.
- Cryptographic Services (PKI Services and System SSL components).
- DCE Base Services.
- DFSMSrmm.
- Distributed File Service. The SMB server uses /etc/dfs.
- IBM HTTP Server.
- IBM TDS (LDAP server component).
- Infoprint Server. See "Remount the Printer Inventory and copy other files that were customized" on page 256.
- Library Server. See "Library Server actions to perform before the first IPL of z/OS V1R11" on page 293.
- z/OS UNIX. See "Update z/OS UNIX configuration files changed by IBM" on page 339.
The following elements and features use /var:

- Cryptographic Services (OCSF component). See “OCSF: Migrate the directory structure” on page 169.
- DFSMSrmm.
- IBM TDS (LDAP server component) uses /var/ldap.
- Infoprint Server. See “Remount the Printer Inventory and copy other files that were customized” on page 256.

During installation, subdirectories of /etc and /var are created. If you install z/OS using ServerPac or SystemPac®, some files are loaded into /etc and /var because of the customization performed in ServerPac and SystemPac. You have to merge the files in /etc and /var with those on your previous system. If you install z/OS using CBPDO, you should copy the files from your old system to the z/OS V1R11 /etc and /var subdirectories.

After merging or copying the contents of /etc and /var, you have to inspect and modify the files as necessary to reflect z/OS V1R11 requirements.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
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<tbody>
<tr>
<td>When change was introduced:</td>
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</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Copy files from your old system to the z/OS V1R11 /etc and /var subdirectories, and then modify the files as necessary to reflect z/OS V1R11 requirements. If you have other files under your existing /var directory, then you will have to merge the old and new files under /var. The easiest way to do this is to create a clone of your current /var file system and then copy the new /var files into the clone.

Many z/OS UNIX utilities are available for comparing and copying directory structures and files. Two that are especially helpful for /etc and /var migration work are:

- **diff** (with the `-r` option, for recursion): This utility is very useful for comparing the path structures and file contents, and has many options available. The **dircmp** utility has fewer options for directory comparisons, and the **cmp** utility stops after the first difference in a file comparison and has output that is more cumbersome.
- **pax**: The `-rw` option works like a copy (instead of making or extracting from a single file archive) for directories, symbolic links, and files. Consider the `-pe` option for saving the attributes when doing the copy. The `-k` option prevents overwriting of existing files.

To determine what you need to migrate, first compare the ServerPac's `/etc` and `/var` file systems with your existing `/etc` and `/var` file systems. Mount a copy of your existing `/etc` and `/var` file systems to a location outside the ServerPac file system. For instance, you might have your ServerPac file systems at `/ServerPac/zOS_Rx/etc` and `/ServerPac/zOS_Rx/var` and your existing file systems at `/Service/ImageX/etc` and `/Service/ImageX/var`. You might have several file systems to mount that are copies of each of your image's `/etc` and `/var` file systems (ImageX, ImageY, and ImageZ, for instance). To compare the ServerPac and existing system's `/etc` and `/var`, you can run two z/OS UNIX commands, such as:

```
diff -r /ServerPac/zOS_Rx/etc /Service/ImageX/etc
diff -r /ServerPac/zOS_Rx/var /Service/ImageX/var
```

These command results will give you a list of the changes that your existing system's `/etc` and `/var` file systems are missing—both the structure differences and the file content differences.

Once you know the directories, symbolic links, and files you are missing from your existing system, there are several ways to propagate the ServerPac information forward:

- You could use the **pax** command (with the `-k` option) to copy from the ServerPac `/etc` and `/var` file systems to each of your existing system's `/etc` and `/var` file systems. For example:

  ```
cd /ServerPac/zOS_Rx/etc
pax -rvwk -pe * /Service/ImageX/etc
```

  Another example:

  ```
cd /ServerPac/zOS_Rx/var
pax -rvwk -pe * /Service/ImageX/var
```

  The **pax** command is a good choice because it copies all files, directories, and symbolic links for each file system from the ServerPac system using a single command without overlaying any existing files.

- You could rerun the product-supplied MKDIR jobs to recreate the directories and symbolic links on each of your existing system's `/etc` and `/var` file systems. (A list of the MKDIR jobs is found in [z/OS Program Directory](#) and the other program directories for the products that were in your ServerPac order.) MKDIR jobs are designed to be run multiple times without damaging your existing file system. For the files under `/var/ocsf`, rerun the OCSF-supplied `ocsf_install_crypto` installation script. Or, you can combine these jobs and script them into a single batch job to make the execution more consolidated and repeatable.

After you have made the changes to a copy of your existing image's `/etc` and `/var` file systems, you can unmount them and use them for your deployment of the ServerPac system, as your schedule indicates. Remember, you are using copies of your existing `/etc` and `/var` file systems, and you are preserving what you had previously by modifying copies, so your customization for those specific existing images is not lost.

**Reference information**: None.
Update automation and procedures for changed and deleted messages

**Description:** Every release, many messages change and some are deleted. If you use automation programs to handle messages, or you have operator or other procedures that deal with messages, you should update the programs or procedures appropriately.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use automation programs or other procedures to handle messages.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Review the lists of changed and deleted messages at Summary of message changes in [z/OS Summary of Message and Interface Changes](#). Update programs that automate on these messages and make other necessary accommodations.

Also, see the following migration actions, which have greater detail about some of the message changes:

- “Update automation that handles messages IXL141I and IXL150I” on page 96
- “Update automation to accommodate new responses to the DISPLAY CONSOLES command” on page 110
- “IP Services: Update automation that handles FTP job informational messages for MVS data set transfers” on page 151
- “IP Services: Make changes for Netstat enhancements” on page 154
- “DFSMSdftp, DFSMSdss, and DFSMShsm: Update automation for changed messages” on page 202
- “Update automation for changed DFSORT messages” on page 232
- “Migrate from IP PrintWay basic mode to extended mode” on page 257
- “Update automation that handles the $D LOADmod command response” on page 275
- “Update automated actions for message BPXO046I” on page 342
- “Update automation that handles message BPXF034I” on page 347

**Reference information:** [z/OS Summary of Message and Interface Changes](#)

---

Rework and install user modifications

**Description:** A user modification is a change constructed by a user to modify an existing function, add to an existing function, or add a user-defined function. Common types of user modifications are:
• User-written and vendor-written exit routines
• User-written and vendor-written SVCs
• User-written and vendor-written termination routines
• Modifications of IBM source code
• Unit information modules (UIMs) for non-IBM hardware
• User-written and vendor-written modules that are listed in a NUCLST:xx parmlib member
• Updates to defaults modules to set site defaults differently than the IBM-supplied defaults, such as for the following element and features:
  - C/C++ without Debug Tool.
  - DFSORT. Consider using ICEPRM:xx parmlib members, introduced in z/OS V1R10, to eliminate the assembler language installation option modules. For more information about ICEPRM:xx members, see "Use ICEPRM:xx members to specify changes to DFSORT installation options" on page 233.
  - HLASM.
  - ISPF (specifically, the ISPF configuration table)
  - Language Environment®. Consider using the CEEROPT module, which can be used to specify runtime options for CICS®, IMS™ LRR, and other LRR users. Also consider using the CEEPRM:xx parmlib member, introduced in z/OS V1R7, to eliminate the assembler language runtime option modules. See "Determine the impact of added and changed runtime options" on page 287 for more information about CEEPRM:xx.
  - SDSF (ISFPARMS customization). See "Use dynamic statements for ISFPARMS to avoid reassembly" on page 304 for further information.

If you made any user modifications, you have to determine which ones need to be reworked and which ones just need to be reinstalled.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you made any user modifications.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Use the z/OS SMP/E Planning and Migration Assistant to help determine which user modifications need to be reworked and which just have to be reinstalled. The Top or New Intermediate Product Migration Changes Report uses data found on your system, combined with IBM-supplied information from the Software Information Base, to show you the current levels of products available as well as product migration and functional changes using a comparison of FMIDs. You can use this report to determine the product migration impacts by reviewing the "changed" FMIDs. This can help you assess how many user modifications have
to be reworked if you issued the LIST SYSMOD USERMOD FORFMID (listing the “changed” FMIDs) command. All other user modifications can be reinstalled without having to be reworked.

**Note:** IBM recommends using exit routines for any user modifications where possible, and installing the exit routines with SMP/E. By using SMP/E, it is easier to bring forward modifications to the z/OS release you are installing.

**Reference information:**
- For information about XL C/C++ customization, see [z/OS XL C/C++ User's Guide](#).
- For information about DFSORT customization, see [z/OS DFSORT Installation and Customization](#).
- For information about HLASM customization, see [HLASM Installation and Customization Guide](#).
- For information about ISPF customization, see [z/OS ISPF Planning and Customizing](#).
- For information about Language Environment customization, see [z/OS Language Environment Customization](#).

**Reconnect non-IBM products**

**Description:** If you use any independent software vendor (ISV) products, you need to make them usable with the new system.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use any ISV products and need to reconnect them after performing a ServerPac or SystemPac installation.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements         | None.              |
| Target system software requirements         | None.              |
| Other system (coexistence or fallback)      | None.              |
| Requirements                                | None.              |

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** Check with your ISVs to make sure the product levels you are using support the new z/OS release, and then reconnect your ISV products to the new release of z/OS following the instructions provided by the ISVs. If any ISV products do not need to be installed in the same libraries and zones as z/OS, place them in their own sets of libraries and SMP/E zones. This means that, unless you have to change ISV product code, such as installing PTFs, or obtain a new level of the product, you will not need to reinstall it after you install a new ServerPac or SystemPac.

For those using SystemPac, if the ISV products are selectable in the SystemPac shopping list, configure them such that they are placed on a separate volume and in their own SMP/E zones. You can either (1) place all the selectable ISV products
in one SMP/E zone, separate from IBM products, or (2) separate ISV products even further by placing products from different vendors in their own unique zone. Use the Local Order Entry tool during order placement to perform the separation. For details about the tool, refer to http://www.ibm.com/services/custompac.

Reference information:

- For a list of independent software vendors (ISVs) that support z/OS, as well as announcements, testimonials, and other information, see http://www.ibm.com/systems/z/solutions/isv/.
- For a directory of ISV products that support z/OS, see the Global Solutions Directory at http://www.ibm.com/software/solutions/isv.

Reconnect subsystems

Description: If you use subsystems, you need to make them usable with the new system.

<table>
<thead>
<tr>
<th>Element or feature</th>
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</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required</td>
<td>Yes, if you will use CICS, DB2®, IMS, or NCP on your new system.</td>
</tr>
<tr>
<td>Target system hardware requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Ensure that any required coexistence PTFs are installed before using the subsystem with the new z/OS system, as well as any required SVCs, system modifications, parmlib setup, and proclib setup. Follow the instructions for the subsystem that you need to reconnect.

Reference information: Subsystem program directories.

Update operational and other procedures

Description: Depending on which method you used to install (ServerPac, CBPDO, or other deliverable), and which functions you plan to exploit, you might need to update the operation, automation, administration, security, backup, and recovery procedures for your site.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
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<tr>
<td>Applies to migration from</td>
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</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required</td>
<td>Yes.</td>
</tr>
</tbody>
</table>
Steps to take: Review your operation, automation, administration, security, backup, and recovery procedures, and make any necessary changes depending on how you installed and which functions you plan to exploit. Some possible changes are:

- Allowing applicable users access to new high-level qualifiers. The default new high-level qualifiers are shown in “Add references to new data sets and paths” on page 37.
- Updating and testing your backup and recovery procedures to accommodate the new target system.
- Updating and testing any disaster recovery procedures.
- Updating and testing any automation procedures to take advantage of new functions.
- Updating security system definitions, such as defining new users and resources, permitting users to use new resources, and defining new profiles in the RACF FACILITY class.

Reference information: For the RACF FACILITY class profiles that were added for z/OS UNIX, see z/OS UNIX System Services Planning.

Verify that virtual storage limits are set properly

Description: Virtual storage requirements usually grow from release to release. You should review the virtual storage limits you want to set. Generally, there are two areas of concern: common areas (above and below the 16 MB line) and individual address spaces. An increase in virtual storage for common areas reduces the virtual storage size of all address spaces. An increase in virtual storage for individual address spaces impacts only the individual address spaces.
Steps to take: Determine how much virtual storage use to allow above the 2 GB bar. While there is no practical limit to the number of virtual addresses an address space can request above the bar, the system can limit the amount of virtual storage above the bar that an address space is allowed to use. The amount of virtual storage above the bar is determined as follows. The MEMLIMIT parameter in parmlib member SMFPRMxx sets the default system-wide limit, which defaults to 2 GB as of z/OS V1R10 (and zero prior to z/OS V1R10). However, the system-wide default MEMLIMIT can be overridden by specifying REGION=0M or MEMLIMIT on JOB or EXEC statements in JCL. To set a limit on the use of virtual storage above the bar, use the SMF exit IEFUSI. For more information, see Limiting the use of memory objects in z/OS MVS Programming: Extended Addressability Guide.

If you want to control the use of virtual storage above the 2 GB bar, do one or more of the following:

- The MEMLIMIT default is 2 GB. If this 2 GB default value is acceptable to you, no change to SMFPRMxx is necessary. (Prior to z/OS V1R10, the default MEMLIMIT was zero, and you had to specify a nonzero MEMLIMIT in an active SMFPRMxx member of parmlib to establish a system default other than zero for available virtual storage above 2 GB.)
- You can specify MEMLIMIT explicitly in JCL to override the system default that was set (or allowed to default) in SMFPRMxx.
- You can specify REGION=0M on the job statement in JCL to implicitly set MEMLIMIT to NOLIMIT, which also overrides the system default (from SMFPRMxx).
- You can use IEFUSI both to establish a system default MEMLIMIT for different classes of work (for example, job, TSO, STC) and limit the amount of virtual storage that can be used above the bar, provided that an explicit or implicit nonzero MEMLIMIT is in effect from JCL or SMFPRMxx.

Note: By default, region and MEMLIMIT values specified through, or otherwise affected by, the IEFUSI exit are ignored in z/OS V1R10 and later for the following programs: HASJES20 (JES2), IATINTK (JES3), and IXGBLFO1 (system logger initialization). The reason is that the HONORIEFUSIREGION | NOHONORIEFUSIREGION keyword, new in z/OS V1R10, is set to NOHONORIEFUSIREGION for those programs in the IBM-defined default program properties table (PPT).

Tip: Use IBM Health Checker for z/OS to help determine whether your virtual storage limits are set properly. The check RSM_MEMLIMIT checks the current setting for the MEMLIMIT parameter in SMFPRMxx, which affects the amount of virtual storage above the 2 GB bar that is available to jobs. This check verifies that a nonzero MEMLIMIT value is in use.

Reference information:
- Information about how to evaluate the real storage configuration can be found in the Washington Systems Center white paper z/OS Performance: Managing Processor Storage in a 64-bit Environment - V1 at http://www.ibm.com/support/techdocs. (Search for “WP100269”.)
- For more information about controlling region size and region limits using the IEFUSI exit, see z/OS MVS Initialization and Tuning Guide.
- For more information about the HONORIEFUSIREGION keyword, see z/OS MVS Initialization and Tuning Reference.
Back virtual storage with sufficient real and auxiliary storage

Description: As you exploit additional virtual storage by defining additional address spaces or by exploiting memory objects, ensure that you have defined sufficient real and auxiliary storage.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
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</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Using an RMF report, determine whether additional real or auxiliary storage is needed by checking the following real storage concentration indicators:

- UIC and average available frames
- Demand page rates
- Percentage of auxiliary slots in use

Reference information: For more information about memory objects, see MVS Programming: Extended Addressability Guide and Washington Systems Center flash 10165 at http://www.ibm.com/support/techdocs. (Search for “flash10165”.)

Update your check customization for modified IBM Health Checker for z/OS checks

Description: Changes that IBM makes to the checks provided by IBM Health Checker for z/OS can affect any updates you might have made.

The checks that were changed by IBM in z/OS V1R11 are:

- CSV_LNKLST_SPACE
- HSM_CDSB.BACKUP_COPIES
- HSM_CDSB.DASD_BACKUPS
- HSM_CDSB.VALID_BACKUPS
- USS_PARMLIB
- USS_PARMLIB_MOUNTS
- XCF_FDI

The checks that were changed by IBM in z/OS V1R10 are:

- IBMRACF,RACF_SENSITIVE_RESOURCES
- IBMXCF,XCF_CDS_SEPARATION
- IBMXCF,XCF_CF_STR_PREFLIST
- IBMXCF,XCF_SFM_ACTIVE
- IBMXCF,XCF_SIG_PATH_SEPARATION
- IBMXCF,XCF_SIG_STR_SIZE
- IXGLOGR_STAGINGDSFULL
- IXGLOGR_ENTRYTHRESHOLD
- RSM_MEMLIMIT
- USS_PARMLIB
- VSM_SQA_THRESHOLD
- VSM_CSA_CHANGE

<table>
<thead>
<tr>
<th>Element or feature</th>
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<tbody>
<tr>
<td>When change was introduced</td>
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</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to ensure that your checks continue to work as intended.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None.                                                                     |
| Target system software requirements:| None.                                                                     |
| Other system (coexistence or fallback) requirements: | None.                                                                    |
| Restrictions:                      | None.                                                                     |
| System impacts:                    | None.                                                                     |

**Steps to take:**
1. Look at the updated checks in [IBM Health Checker for z/OS: User’s Guide](#).
2. Review changes you made for those checks, in HZSPRMxx parmlib members, for example.
3. Make any further updates for the checks to ensure that they continue to work as intended.
4. See [“DFSMShsm: Update the HZSPRMxx DATE parameter for HSM_CDSB_” checks” on page 208](#).

**Reference information:** For complete information about updating checks, see [“Customizing and managing checks” in IBM Health Checker for z/OS: User’s Guide](#).

**Remove deleted data sets, paths, and references**

**Description:** Data sets and paths are routinely removed from z/OS for reasons such as consolidation of data sets and removal of elements and features. You must determine whether these changes affect your environment.

<table>
<thead>
<tr>
<th>Element or feature</th>
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<tbody>
<tr>
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<td>Timing</td>
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</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Using Table 4 as a guide, remove data sets and paths that do not exist in the current release. Also, remove references to them. You might find references in the following places:

- Parmlib
- Proclib
- Logon procedures
- Catalogs
- Security definitions, including program control definitions
- DFSMS ACS routines
- /etc/profile
- SMP/E DDDEF entry
- Backup and recovery procedures, as well as any references to them

In the table, the data sets are identified as distribution library (DLIB) data sets or target library data sets.

Note: Do not remove any data sets, paths, or references that are needed by earlier-level systems until those systems no longer need them.

Table 4. Data sets and paths deleted from z/OS V1R11 and z/OS V1R10 (in alphabetic order by DDDEF name)

<table>
<thead>
<tr>
<th>DDDEF</th>
<th>Data set name or path (high-level qualifiers are defaults)</th>
<th>DLIB or target</th>
<th>From element or feature</th>
<th>When deleted</th>
<th>Why deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>AICECLIB</td>
<td>SYS1.AICECLIB</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICEMENU</td>
<td>SYS1.AICEMENU</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICEMJPN</td>
<td>SYS1.AICEMJPN</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICEPENU</td>
<td>SYS1.AICEPENU</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICEPJPN</td>
<td>SYS1.AICEPJPN</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICESLIB</td>
<td>SYS1.AICESLIB</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>AICETLIB</td>
<td>SYS1.AICETLIB</td>
<td>DLIB</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SCEEUTBL</td>
<td>CEE.SCEEUTBL</td>
<td>Target</td>
<td>Language Environment</td>
<td>z/OS V1R11</td>
<td>uconvTable binaries are no longer shipped in SCEEUTBL</td>
</tr>
<tr>
<td>SICELIB</td>
<td>SYS1.SICECLIB</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SICEMENU</td>
<td>SYS1.SICEMENU</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
</tbody>
</table>
Table 4. Data sets and paths deleted from z/OS V1R11 and z/OS V1R10 (in alphabetic order by DDDEF name) (continued)

<table>
<thead>
<tr>
<th>DDDEF</th>
<th>Data set name or path (high-level qualifiers are defaults)</th>
<th>DLIB or target</th>
<th>From element or feature</th>
<th>When deleted</th>
<th>Why deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>SICEMJPN</td>
<td>SYS1.SICEMJPN</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SICEPENU</td>
<td>SYS1.SICEPENU</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SICEPJPN</td>
<td>SYS1.SICEPJPN</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SICESLIB</td>
<td>SYS1.SICESLIB</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
<tr>
<td>SICETLIB</td>
<td>SYS1.SICETLIB</td>
<td>Target</td>
<td>DFSORT</td>
<td>z/OS V1R10</td>
<td>DFSORT ISPF panels removed from z/OS</td>
</tr>
</tbody>
</table>

Reference information: None.

Add references to new data sets and paths

Description: New data sets and paths are routinely added to z/OS for reasons such as consolidation of data sets and addition of new elements and features. You must determine whether these additions affect your environment.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Using Table 5 on page 38 as a guide, add references in the following places for data sets and paths that have been added to z/OS:
- Parmlib
- Proclib
- Logon procedures
- Catalogs
- Security definitions, including program control definitions
- DFSMS ACS routines
- Any backup and recovery procedures.

Rules: Some of the data sets shipped with z/OS are PDSEs and are most likely in your link list. If one or more are in your link list and on your system residence volume, adhere to the following PDSE sharing rules to avoid data set corruption:
• If you specified PDSESHARING(NORMAL), do not share PDSE data sets beyond the scope of the global resource serialization complex.
• If you specified PDSESHARING(EXTENDED), do not share PDSE data sets beyond the scope of the sysplex.

**Requirement:** One of the new data sets listed in Table 5 must be added to the link list and must be APF-authorized. It is SDSF data set ISF.SISFMOD1.

<table>
<thead>
<tr>
<th>DDDEF</th>
<th>Data set name or path (high-level qualifiers are defaults)</th>
<th>DLIB or target</th>
<th>To element or feature</th>
<th>When added</th>
<th>Why added</th>
</tr>
</thead>
<tbody>
<tr>
<td>AISFHFS</td>
<td>ISF.AISFHFS</td>
<td>DLIB</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>AISFJCL1</td>
<td>ISF.AISFJCL1</td>
<td>DLIB</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>AISFMOD1</td>
<td>ISF.AISFMOD1</td>
<td>DLIB</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>AISFSRC1</td>
<td>ISF.AISFSRC1</td>
<td>DLIB</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SCBDETC</td>
<td>/usr/lpp/hcd/etc/IBM/</td>
<td>Target</td>
<td>HCD</td>
<td>z/OS V1R10</td>
<td>New IBM TDS schema file</td>
</tr>
<tr>
<td>SCCR3BND</td>
<td>SYS1.SCCR3BND</td>
<td>Target</td>
<td>Metal C Runtime Library</td>
<td>z/OS V1R11</td>
<td>For building AMODE 31 Metal C application programs using the program management binder</td>
</tr>
<tr>
<td>SCCR6BND</td>
<td>SYS1.SCCR6BND</td>
<td>Target</td>
<td>Metal C Runtime Library</td>
<td>z/OS V1R11</td>
<td>For building AMODE 64 Metal C application programs using the program management binder</td>
</tr>
<tr>
<td>SEZAEXEC</td>
<td>TCPIP.SEZAEXEC</td>
<td>Target</td>
<td>Communications Server</td>
<td>z/OS V1R11</td>
<td>Contains REXX samples that customers can concatenate to the current REXX libraries</td>
</tr>
<tr>
<td>SFOBCPH</td>
<td>/usr/lpp/bcp/IBM/</td>
<td>Target</td>
<td>BCP</td>
<td>z/OS V1R10</td>
<td>For BCP parts that are installed into /usr/lpp</td>
</tr>
<tr>
<td>SFOCEA</td>
<td>/usr/share/cea/IBM/</td>
<td>Target</td>
<td>BCP</td>
<td>z/OS V1R10</td>
<td>Supports problem determination enhancements</td>
</tr>
<tr>
<td>SISFHFS</td>
<td>/usr/lpp/sdsf/IBM/</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFJCL1</td>
<td>ISF.SISFJCL1</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFMIG</td>
<td>ISF.SISFMIG</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFMOD1</td>
<td>ISF.SISFMOD1</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFSRC1</td>
<td>ISF.SISFSRC1</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISPZHFS</td>
<td>/usr/lpp/ispf/bin/IBM/</td>
<td>Target</td>
<td>ISPF</td>
<td>z/OS V1R10</td>
<td>For ISPF parts</td>
</tr>
</tbody>
</table>

**Reference information:** None.

**Accommodate new address spaces**

**Description:** The MAXUSER value in parmlib member IEASYSxx specifies a value that the system uses to limit the number of jobs and started tasks that can run.
concurrently during a given IPL. You might want to increase your MAXUSER value to take new address spaces into account.

There is one new address space in z/OS V1R11. Its name is HWIBCPII. The Base Control Program Internal Interface (BCPii) function allows authorized applications to query, change, and perform basic operational procedures against the installed System z hardware base. As a base BCP component, the new BCPii address space allows authorized z/OS applications to access the local support element and other support elements in the HMC network to perform HMC-like functions. Connectivity to the Hardware Management Console (HMC) network is done internally, without the requirement of connecting the HMC network to an intranet or the Internet.

The HWIBCPII address space is started automatically during z/OS initialization and can be manually restarted with a procedure. When z/OS is IPLed, HWIBCPII attempts to initialize and connect to the local CPC’s support element. If the proper configuration for BCPii has been completed (as documented in [2/OS MVS Programming: Callable Services for High-Level Languages]), the address space will become active and able to accept requests from BCPii applications. However, if basic configuration steps have not been done, the address space will not be able to initialize properly. A few BCPii error messages will appear on the console when these steps have not been taken. If the BCPii address space is not required by the installation, then these error messages can be ignored. These messages include:

- HWI016I THE BCPII COMMUNICATION RECOVERY ENVIRONMENT IS NOW ESTABLISHED.
- HWI007I BCPII IS ATTEMPTING COMMUNICATION WITH THE LOCAL CENTRAL PROCESSOR COMPLEX (CPC).
- HWI014I THE SNMP COMMUNITY NAME FOR BCPII IN THE SECURITY PRODUCT FOR THE LOCAL CPC IS EITHER NOT DEFINED OR IS INCORRECT.
- HWI006I BCPII ADDRESS SPACE HAS ENDED.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to ensure that your MAXUSER value in parmlib member IEASYSxx is adequate.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** If necessary, increase your MAXUSER value in parmlib member IEASYSxx to take the new address spaces into account. One way to find out how many address spaces you use is to issue the DISPLAY A,L command and total the address spaces in the IEE114I and IEE115I messages on the old and new systems.

**Notes:**
1. A modest overspecification of MAXUSER should not hurt system performance.
2. The number of total address spaces is the sum of M/S, TS USERS, SYSAS, and INITs.
3. If you change your MAXUSER value, you must re-IPL to make the change effective.

**Reference information:** For more information about the MAXUSER parameter, including its interaction with the RSVSTRT and RSVNONR parameters and factors that contribute to the number of active address spaces, see “statements and parameters for IEASYxx” in z/OS MVS Initialization and Tuning Reference.

---

**Accommodate new SCOPE=COMMON data spaces**

**Description:** The MAXCAD parameter of parmlib member IEASYxx specifies the maximum number of SCOPE=COMMON data spaces to be allowed during an IPL.

The new SCOPE=COMMON data spaces are:
- Added in z/OS V1R11: None.
- Added in z/OS V1R10: One data space used by cross-system extended services (XES). In support of virtual storage constraint relief, new storage management techniques were implemented for cross-system coupling facility (XCF) and XES to reduce the usage of 31-bit common storage below the 2 GB bar. Some XCF common storage control blocks were moved to XCF private storage, and some XES common storage control blocks were moved to a new SCOPE=COMMON data space owned by XES.

Your MAXCAD setting must be adequate to accommodate these data spaces.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the MAXCAD parameter of parmlib member IEASYxx and the value specified is inadequate for your z/OS V1R11 system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements:</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Increase the limit for the number of SCOPE=COMMON data spaces defined on the MAXCAD parameter if your specification is not adequate to cover the data spaces that have been added. Note that the MAXCAD default was increased from 25 to 50 as of z/OS V1R6. If this default is acceptable for your environment, you might want to remove your MAXCAD specification and allow it to default.

**Tip:** The IBM Health Checker for z/OS can help you determine what to specify for the MAXCAD value. Use the check IBMRSMP,RSM_MAXCADS. By running this check, you can find out:
- The MAXCAD value you specified during IPL
- The number of SCOPE=COMMON data spaces currently in use
• The high water mark, which is the highest usage of SCOPE=COMMON data spaces used during this IPL.

Use this information to help you set your MAXCAD specification in IEASYSxx.

Reference information: For details about coding parmlib parameters, including MAXCAD, see z/OS MVS Initialization and Tuning Reference.

Migration actions for everyone after the first IPL of z/OS V1R11

None.
Chapter 3. Hardware migration actions

Replace unsupported devices

Description: You should remove and replace devices that were supported by earlier releases but cannot be used with the current release of z/OS because they are no longer supported.

Element or feature: Multiple.
When change was introduced: General migration action not tied to a specific release.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Anytime.
Is the migration action required? Yes, if you use any of the devices that are no longer supported.

Target system hardware requirements: Replacement devices as necessary.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
1. Determine whether the devices you use are supported. A list of supported I/O devices is in the topic about identifying I/O device requirements in z/OS.
Planning for Installation. If you have a question about support for any devices not listed, contact your IBM representative.

2. Install replacement devices. Move data that is stored on unsupported devices to the supported devices. Detach unsupported devices from the system and delete their corresponding device definitions from the input/output definition file (IODF).

Reference information:
- For a list of I/O devices that are supported, see the topic about identifying I/O device requirements in z/OS Planning for Installation.
- For information about deleting device definitions from the IODF, see z/OS HCD Planning.

Provide for new device installations

Description: The hardware configuration of your processors and I/O devices determines how many devices you can attach to your system. z/OS supports attachment of up to 65,280 devices, each with up to eight access paths.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Anytime.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are going to use new devices with z/OS V1R11.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>Dependent upon the new devices used.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: The following are general considerations related to I/O device support.

- **Attaching devices through HCD.** You can define, or attach, new devices to your system through the interactive panels of the Hardware Configuration Definition (HCD) base element. HCD has dynamic I/O capabilities, changing hardware definitions without the need for an IPL or hard power-on reset.

  Any time you make changes to your I/O configuration, you need to use HCD to modify your system’s I/O definition file (IODF). You should also update the input/output configuration data set (IOCDS) when you run HCD to ensure that the configuration information is consistent across the software and microcode.

- **Operating modes.** Most devices attached to z/OS operate in full function mode, that is, all features on the device are compatible with, and usable on, the operating system. Some of these features include:
  - For DASD devices: dynamic path reconnection, extended count-key-data operation, and caching and cache-related facilities
  - For tape devices: cartridge stack loading and data compaction
Some devices also operate in compatibility mode, which allows you to simulate the function of another device or model. Compatibility mode causes the device to function like a different device of the same type, ignoring some or all of the additional features the device might have. This allows you to migrate between devices with minimal impact on programs that have device dependencies.

- **UCB virtual storage constraint relief.** Each device attached to the system has one or more UCBs associated with it. You have the option to define UCBs either above or below the 16 MB line by specifying the LOCANY parameter on the Hardware Configuration Definition (HCD) panel. The system programmer should review the contents of the link pack area (LPA) list to determine whether to remove or move libraries to gain virtual storage constraint relief.

- **Hardware maintenance.** Some devices require a specific level of hardware maintenance to operate properly on a z/OS system. DFSMS software support for new hardware devices might also require the installation of PTFs.

**Reference information:**
- For a summary of the most commonly-used I/O devices supported by z/OS that are also directly supported by DFSMS functions, see the topic about identifying I/O device requirements in z/OS Planning for Installation. If you have a question about support for a device that is not listed, contact your IBM representative.
- For more information about HCD, see z/OS HCD Planning.
- For information about working with IODFs, see z/OS HCD User’s Guide.

### Update your CFRM policy with coupling facility structure size changes

**Description:** If you are migrating to a new level of coupling facility control code (CFCC), you have to make appropriate coupling facility structure size updates in the z/OS coupling facility resource management (CFRM) policy.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Anytime.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are migrating to a new CFCC level.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** See [http://www.ibm.com/systems/z/pso/cftable.html](http://www.ibm.com/systems/z/pso/cftable.html).

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** If you are migrating to a new CFCC level, do the following:

1. Run the Coupling Facility Structure Sizer (CFSizer) tool. This tool sizes structures, taking into account the amount of space needed for the current CFCC levels. The tool sizes for the most currently available level; you might find that the results are oversized if you use an earlier CFCC level. You can find the tool at [http://www.ibm.com/systems/support/z/cfsizer/](http://www.ibm.com/systems/support/z/cfsizer/).
Alternatively, you can run an as-is batch utility program called SIZER after you have brought a new CFLEVEL coupling facility into use in your configuration. SIZER examines your currently allocated coupling facility structures and recalculates the size that should be used for them with the new later-CFLEVEL coupling facility. The as-is SIZER utility is available as a zipped package that you can download from [http://www.ibm.com/systems/z/cfsizer/altsize.html](http://www.ibm.com/systems/z/cfsizer/altsize.html).

2. Update the CFRM policy with the size modifications that are needed.
3. Activate the updated CFRM policy so that it becomes the active policy governing structure allocation in the sysplex.

Reference information: For a detailed description of coupling facility code levels and the processors that support those levels, see [http://www.ibm.com/systems/z/spec/cftable.html](http://www.ibm.com/systems/z/spec/cftable.html).

### Accommodate token ring, HMC, and ISC-3 changes introduced with the System z9 platform

**Description:** The following changes in hardware support could affect your environment:

- **Token ring:** The z990 and z890 are the last servers to offer token ring adapter features on the hardware management consoles (HMCs), Support Elements (SEs), and Trusted Key Entry (TKE) workstations. Thus:
  - Token ring is not available as a feature on the System z10 or System z9 HMC. Current HMCs with token ring may be carried forward to a System z10 or System z9 server during an upgrade from a z990 or z900.
  - Token ring is not available as a feature on the System z10 or System z9 SE or TKE workstation. Token ring is not offered as a feature on System z10 and System z9 servers and cannot be carried forward to a System z10 or System z9 server during an upgrade from a z990 or z900.
  - The OSA-Express Token Ring feature is not supported on System z10 and System z9 servers. Token ring is not offered as a feature on System z10 and System z9 servers and cannot be carried forward to a System z10 or System z9 server during an upgrade from a z990 or z900.

- **HMC:** The z990 and z890 are the last servers on which the HMC is open. Starting with System z9 servers, the HMC is for the exclusive use of the HMC application. Customer applications cannot reside on the HMC. The ESCON® Directory and Sysplex Timer® applications cannot reside on the HMC. TCP/IP is the only supported communication protocol. The HMC supports System z10 and System z9 servers. It can also be used to support z990, z890, z900, z800, G5, G6, and Multiprise 3000 servers. They must be upgraded to a new AROM level.

- **ICB-2s and ISC-3s in compatibility mode:** The z990 and z890 are the last servers to support Integrated Cluster Bus-2 (ICB-2) and InterSystem Channel-3 (ISC-3) compatibility mode links. System z10 and System z9 servers do not support them. If you have ICB-2 or ISC-3 compatibility mode links defined, convert them to a supported link technology.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>27 July 2005 in the z9 EC (formerly z9-109) announcement.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before migrating to a System z10 or System z9 server.</td>
</tr>
</tbody>
</table>
Is the migration action required? | Yes, if you plan to install a System z10 or System z9 server and are affected by any support changes mentioned in “Description” above.
---|---
Target system hardware requirements: | See “Description” above.
Target system software requirements: | None.
Other system (coexistence or fallback) requirements: | None.
Restrictions: | None.
System impacts: | None.

Steps to take: Take into account the statements in “Description” above as you make your plans for the future.

Reference information: None.

Migrate from a Sysplex Timer to STP

Description: The Server Time Protocol (STP) feature is the follow-on to the Sysplex Timer (9037-002). STP is designed to allow multiple servers and coupling facilities to maintain time synchronization with each other, without requiring a Sysplex Timer. STP is a hardware feature of the z10 EC, z10 BC, z9 EC, z9 BC, z990, and z890.

STP is a server-wide facility that presents a single view of time to Processor Resource/Systems Manager™ (PR/SM™). STP uses a message-based protocol in which timekeeping information is passed over externally defined Coupling Links – InterSystem Channel-3 (ISC-3) links configured in peer mode, Integrated Cluster Bus-3 (ICB-3) links, and Integrated Cluster Bus-4 (ICB-4) links. These can be the same links that already are being used in a Parallel Sysplex for coupling facility message communication.

By using the same links to exchange timekeeping information and coupling facility messages in a Parallel Sysplex, STP can scale with distance. Servers exchanging messages over short distance links such as ICB-3 and ICB-4 are designed to meet more stringent synchronization requirements than servers exchanging messages over long distance links such as ISC-3 (distances up to 100 km). This is an enhancement over the current Sysplex Timer implementation, which does not scale with distance.

Element or feature: Multiple.

When change was introduced: STP was announced on 27 July 2005 in the z9 EC announcement (US letter 105-241) and on 10 October 2006 in the STP announcement (US letter 106-715). STP became generally available in January 2007.

Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Anytime.

Is the migration action required? No, but recommended because the Sysplex Timer (9037-002) has been withdrawn from marketing and the System z10 server is planned to be the last server to support it.
Target system hardware requirements: The servers and coupling facilities that are capable of supporting STP are the z10 EC, z10 BC, z9 EC, z9 BC, z990, and z890. The STP feature number is 1021.

STP is a server-wide facility that is implemented in the Licensed Internal Code (LIC) of z10 ECs, z10 BCs, z9 ECs, z9 BCs, z990s, z890s, and coupling facilities, and presents a single view of time to PR/SM.

The Sysplex Timer’s LIC has been upgraded to support using STP in a Mixed Coordinated Timing Network (CTN). The required Sysplex Timer LIC is shipped along with the STP feature and must be installed by the IBM Service Support Representative prior to migrating from a Sysplex Timer based External Time Reference (ETR) network to any STP Coordinated Timing Network (CTN).

Target system software requirements: Even though z/OS has function to support STP, additional PTFs are required. To simplify the identification of the PTFs, a functional PSP bucket has been created. You can use the Enhanced Preventive Service Planning Tool (EPSPT) to reconcile the recommended service for the STP function and the hardware device against your system’s target zones.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: To implement STP, see the STP Web site and the publications and other resources that are listed there. The STP Web site is at http://www.ibm.com/systems/z/pso/stp.html.

Tip: Use IBM Health Checker for z/OS check ZOSMIGREC_SUP_TIMER_INUSE on z/OS V1R11 to determine whether the timing mode on the current system is ETR.

Reference information: See “Steps to take” above.

Migrate from ICB-4 to Infiniband coupling links

Description: IBM does not intend to offer Integrated Cluster Bus-4 (ICB-4) links on future servers. IBM intends for System z10 to be the last server to support ICB-4 links.

Element or feature: Multiple.

When change was introduced: The intention to not offer ICB-4 links on future servers was originally stated in the IBM System z10 EC announcement on 26 February 2008.
Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Anytime.

Is the migration action required? No, but recommended now because it will become a requirement in the future when ICB-4 links are not offered on future servers.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Use InfiniBand coupling links instead of ICB-4 links. Updates to System z10 Parallel Sysplex coupling connectivity allow attachment between System z10 servers and System z9 general purpose servers (no longer just standalone coupling facilities) using 12X InfiniBand attachment at 3 gigaBytes per second (GBps). InfiniBand coupling can provide significantly improved service times compared to ISC-3s for distances up to 150 meters.

Reference information: You can read about InfiniBand coupling links in IBM System z Connectivity Handbook, SG24-5444.

Migrate to a System z10 server

Description: The IBM System z10 servers (z10 EC and z10 BC) are follow-ons to the IBM System z9 servers (z9 EC [formerly z9-109] and z9 BC) and IBM eServer zSeries servers (z990, z890, z900, and z800). The System z10 servers build on the inherent strengths of the System z platform, deliver new technologies that offer dramatic improvements in price and performance for key new workloads, and enable a new range of hybrid solutions.

The specific System z10 functions exploited by z/OS depend on the z/OS release. See Table 6.

Table 6. System z10 functions supported by z/OS V1R9, z/OS V1R10, and z/OS V1R11

<table>
<thead>
<tr>
<th>System z10 function</th>
<th>R9</th>
<th>R10</th>
<th>R11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included in base z/OS support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic addition of logical CPs without preplanning</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>RMF FICON® enhancement</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Greater than 54 CPs (64) for a single LPAR</td>
<td>B (z10 EC only)</td>
<td>B (z10 EC only)</td>
<td>B (z10 EC only)</td>
</tr>
<tr>
<td>XL C/C++ ARCH(8) and TUNE(8)</td>
<td>B, P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Large memory (up to 1 TB on z10 EC now, up to 248 GB on z10 BC planned for 30Jun2009)</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>HiperDispatch</td>
<td>B, P</td>
<td>B, P</td>
<td>B</td>
</tr>
<tr>
<td>CPACF and Configurable Crypto Express2</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
</tbody>
</table>
Table 6. System z10 functions supported by z/OS V1R9, z/OS V1R10, and z/OS V1R11 (continued)

<table>
<thead>
<tr>
<th>System z10 function</th>
<th>R9</th>
<th>R10</th>
<th>R11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key management for remote loading of ATM and point-of-sale (POS) keys and support for ISO 16609 CBC Mode T-DES MAC requirements</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>New z/Architecture® instructions</td>
<td>P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>65535 MP factors</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>OSA-Express3 10 Gigabit Ethernet</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Support for z10 EC “GA1” functions (that is, functions in 26Feb2008 z10 EC announcement)</td>
<td>P</td>
<td>B</td>
<td>P</td>
</tr>
<tr>
<td>Explicit z/OS support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HiperSockets™ Multiple Write Facility</td>
<td>P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Capacity Provisioning</td>
<td>B, P</td>
<td>B, P</td>
<td>B</td>
</tr>
<tr>
<td>Large page support</td>
<td>B, P</td>
<td>B, P</td>
<td>B</td>
</tr>
<tr>
<td>OSA-Express3 double port density</td>
<td>P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>CPU Measurement Facility architecture</td>
<td>P</td>
<td>P</td>
<td>B</td>
</tr>
<tr>
<td>Service aids support for large dumps</td>
<td>P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Layer 3 VMAC support (VMAC Support for OSA Express2 and OSA Express3 when configured as CHPID type OSD [QDIO])</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>CPACF enhanced to support SHA-384 and SHA-512 bit for message digest, ISO Format 3 PIN blocks, secure key AES, support for RSA keys up to 4096 bits in length, dynamically add crypto to a logical partition, Random Number Generator Long, and enhanced TKE auditing</td>
<td>P, W (Web deliverable can be either of the following: Cryptographic Support for z/OS V1R7-R9 [ICSF FMID HCR7750] or Cryptographic Support for z/OS V1R8-V1R10 and z/OS.e V1R8 [ICSF FMID HCR7751])</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Support for 13-digit through 19-digit PAN data, ICSF Query service, and enhanced SAF checking</td>
<td>P, W (Web deliverable is Cryptographic Support for z/OS V1R8-V1R10 and z/OS.e V1R8 [ICSF FMID HCR7751])</td>
<td>P, W (Web deliverable is Cryptographic Support for z/OS V1R8-V1R10 and z/OS.e V1R8 [ICSF FMID HCR7751])</td>
<td>B</td>
</tr>
<tr>
<td>Coupling facility level 16</td>
<td>P</td>
<td>P</td>
<td>B</td>
</tr>
<tr>
<td>High Performance FICON for System z (zHPF)</td>
<td>P</td>
<td>P</td>
<td>B</td>
</tr>
<tr>
<td>Decimal floating point</td>
<td>B, P</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Usage Report Program (IFAURP) support</td>
<td>P</td>
<td>P</td>
<td>B</td>
</tr>
<tr>
<td>Parallel Sysplex InfiniBand (PSIFB) coupling links</td>
<td>B, P</td>
<td>B, P</td>
<td>B</td>
</tr>
</tbody>
</table>
Table 6. System z10 functions supported by z/OS V1R9, z/OS V1R10, and z/OS V1R11 (continued)

<table>
<thead>
<tr>
<th>System z10 function</th>
<th>R9</th>
<th>R10</th>
<th>R11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element or feature:</td>
<td>Multiple.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When change was introduced:</td>
<td>The System z10 EC server, which first shipped in February 2008.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R11, z/OS V1R10, and z/OS V1R9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timing:</td>
<td>Anytime.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to run z/OS on a System z10 server.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>A System z10 server.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>See the appropriate PSP buckets for required Web deliverables and PTFs for specific functions, as described in “Recommended migration steps” on page 56.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>See the appropriate PSP buckets for required PTFs for specific functions, as described in “Recommended migration steps” on page 56.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steps to take: Follow the recommendations and considerations, adhere to the restrictions, and perform the tasks described in the topics below.

**General recommendations and considerations**

As you plan your migration to a System z10 server, consider the following:

1. **Relatively few migration actions are new when coming from a System z9 server.** Migration to a System z10 server has, as its basis, a migration to a z9 EC or z9 BC. This means that if you are migrating to a System z10 server from a z9 EC or z9 BC (and have performed the migration actions associated with the z9 EC or z9 BC), you have fewer migration actions than if you were migrating from a server prior to the z9 EC or z9 BC and have not yet performed the migration actions associated with the z9 EC or z9 BC. There are, in fact, very few new migration actions to perform on z/OS for a System z10 server if you have already migrated to a z9 EC or z9 BC. It is important to note that you can migrate directly to a System z10 server without installing the intermediate (prior to z9 EC and z9 BC) servers, but you still need to ensure that any migration considerations are satisfied for the servers that you “skipped”. To read about z9 EC and z9 BC migration actions, see “Migrate to a System z9 server” on page 61.

2. **Support is delivered by service (and FMID Web deliverables for ICSF).** The delta (from a z9 EC or z9 BC) support for a System z10 server, excluding cryptographic support, is delivered by service (PTFs). Some cryptographic support for the System z10 (and earlier) servers is provided by a Web
deliverable (FMID). Depending on the cryptographic support provided and the
z/OS release that you are running, you might need to download and install a
different ICSF Web deliverable.

3. Larger coupling facility structure sizes might be necessary. When you change
coupling facility control code (CFCC) levels, your coupling facility structure
sizes might change. System z10 servers now ship with CFCC level 16. If, as
part of your migration to a System z10 server, you change CFCC levels (either
by placing a coupling facility on the System z10 server or by moving the
coupling facility to a z9 EC or z9 BC at a later CFCC level), you might have
larger structure sizes than you did previously. If your CFCC levels are identical,
structure sizes are not expected to change when you migrate from a previous
server to a System z10 server.

4. Update CFRM policies. Coupling facilities are identified in the CFRM policy
by their physical node descriptor information (for example, machine type,
model, serial number, LPAR number). When a coupling facility undergoes a
hardware upgrade, one or more of these pieces of information is likely to
change, therefore, the definition of the coupling facility in the CFRM policy
must change accordingly.

5. Use the same software level throughout a sysplex. Having members of a
sysplex at the same software level (other than during brief migration periods) is
good software management policy.

6. Migrate hardware and software at different times. To minimize the amount of
change (and therefore risk) that you experience at one time, do not migrate
your software release level at the same time that you migrate your hardware.

Restrictions
Restrictions associated with the System z10 server are:

1. Functional limitations: Not all System z10 functions are available in every
z/OS release. See Table 6 on page 49 for a list of the System z10 functions
available in each z/OS release. Some functions have exploitation or migration
considerations (see below). Many functions are enabled or disabled, based on
the presence or absence of the required hardware and software. If you wish to
position to exploit any new System z10 functions, the software and hardware
may be installed in either order. That is, there is no requirement to install either
software or hardware first to exploit a specific function.

2. System z10 in a sysplex:
   • The z9 EC and z9 BC are the last servers to support active participation in
the same Parallel Sysplex with z900, z800, and earlier servers. If you are
running z/OS on a z900 or z800, you cannot add a System z10 server to that
sysplex. That is, you will not be able to perform rolling IPLs to introduce a
System z10 server if you have any z900 or z800 images (either as z/OS
images or coupling facilities) in the sysplex. Any z900 or z800 servers in the
sysplex have to be upgraded to a z990, z890, or later server to have a System
z10 server supported in the sysplex. If you have any z/OS images or
coupling facilities on a z900 or z800, and you intend to introduce a System
z10 server into that sysplex, you must migrate those images to z990 or z890
(or later) prior to introducing the System z10 server.
   • The Integrated Cluster Bus (ICB) connector on the System z10 server is
different than on previous servers, requiring new links and connectors to be
installed on previous servers in order to connect them to a System z10 server
by ICB. This is a hardware-only migration action.
• The z10 EC model E64 servers cannot use ICB-4 coupling links. On this model, all required coupling link connectivity must be provided using PSIFB and/or ISC-3 coupling links.

**Actions you can take before you order a System z10 server**

You can perform the following migration actions before you order or install your System z10 server:

1. **Review the sysplex configuration in which the System z10 server will participate.** In particular, if you have any existing z900 or z800 z/OS images or coupling facilities in the sysplex, move these z/OS images or coupling facilities to later servers (such as z990 or z890 or later). This action is necessitated by the restriction that a System z10 server cannot participate with a z900 or z800 in a sysplex.

2. **Install new links and connectors on earlier servers.** This action is necessitated because the ICB connector on the System z10 server is different than on previous servers.

3. **Review restrictions and coexistence requirements for earlier servers.** Because the z9 EC and z9 BC support is the basis for the System z10 server support, the restrictions and coexistence requirements for the z9 EC and z9 BC also apply to the System z10 server. For instance, large page support is not supported by z/OS when z/OS runs as a guest under z/VM® on a System z10 server. Review the restrictions and coexistence requirements that were introduced for the z9 EC, if you have not already done so, and take any necessary actions. You can find the z9 EC restrictions and coexistence requirements in "Migrate to a System z9 server" on page 61.

4. **Install the necessary z/OS service, as indicated in PSP buckets.** The appropriate PSP buckets are listed in "Recommended migration steps" on page 56 and are dependent on the z/OS release you will run on the System z10 server and on the hardware support you already have installed. If you reviewed the PSP buckets a long time ago, there might have been additions since then, so ensure that any newly identified z/OS service has been installed. To assist you in determining whether you have the recommended service installed on your system, which is identified in these PSP buckets, you can use the SMP/E REPORT MISSINGFIX command with a FIXCAT value of "IBM.Device.Server.z10-EC-2097" or "IBM.Device.Server.z10-BC-2098", the Enhanced PSP Tool (http://www14.software.ibm.com/webapp/set2/psp/srchBroker), or ServiceLink’s PSP Service Extraction tool.

If you use REPORT MISSINGFIX, some FIXCAT values you can use for specific System z10 functions are:

- IBM.Device.Server.z10-EC-2097.CapacityProvisioning
- IBM.Device.Server.z10-EC-2097.DecimalFloatingPoint
- IBM.Device.Server.z10-EC-2097.MIDAW
- IBM.Device.Server.z10-EC-2097.ParallelSysplexInfiniBandCoup
- IBM.Device.Server.z10-EC-2097.zAAP
- IBM.Device.Server.z10-EC-2097.zIIP
- IBM.Device.Server.z10-BC-2098.DecimalFloatingPoint
- IBM.Device.Server.z10-BC-2098.zAAP
5. **Run CFSizer.** If you are moving your coupling facilities and the coupling facility structures will be on later CFCC levels than they were previously, run the Coupling Facility Structure Sizer (CFSizer) tool to find out if you have to increase coupling facility structure sizes. Prepare to make the necessary changes as indicated by the tool. You can find the CFSizer tool at [http://www.ibm.com/systems/support/z/cfsizer/](http://www.ibm.com/systems/support/z/cfsizer/).

6. **Plan for the System z10 fixed HSA enhancement.** With System z10 servers, planning requirements are minimized by the availability of a fixed HSA and introduction of the ability to seamlessly include events such as creation of LPARs, inclusion of logical subsystems, changing logical processor definitions in an LPAR, and introduction of cryptography into an LPAR. For more information about this enhancement, see the System z10 Redbooks®.

7. **Decide on the steps you will take for your migration to a System z10 server.** As a guide, see “Recommended migration steps” on page 56. Be aware of the following:

   - You should review the cryptographic support you currently have installed versus the support required for the functions you plan to use on the System z10 server. Several cryptographic support Web deliverables have been made available for various z/OS releases. The Web deliverables listed in “Recommended migration steps” on page 56 are the minimum Web deliverable level for the function specified. When a subsequent cryptographic Web deliverable is available for a particular z/OS level, the previous one is withdrawn. The newer cryptographic Web deliverable, however, includes the previous function (when applicable) for that particular z/OS level. Note that you can use the newer cryptographic Web deliverables on servers prior to the System z10 server (that is, on System z9 and zSeries servers). ICSF FMID HCR7770 was recently made available as a Web deliverable for cryptographic support for z/OS V1R9, z/OS V1R10, and z/OS V1R11.

   The level of cryptographic support integrated in z/OS is: ICSF FMID HCR7740 in z/OS V1R9, ICSF FMID HCR7750 in z/OS V1R10, and ICSF FMID HCR7751 in z/OS V1R11.

   Where ICSF FMID HCR7750 is installed, the following coexistence support is needed on other systems to allow sharing of the ICSF PKDS:
   - PTF UA37971 (APAR OA21807) for FMID HCR7740
   - PTF UA37970 (APAR OA21807) for FMID HCR7731

   Where ICSF FMID HCR7751 is installed, the following coexistence support is needed on other systems to allow sharing of the ICSF PKDS:
   - PTF UA44731 (APAR OA26579) for FMID HCR7750
   - PTF UA37971 (APAR OA21807) and PTF UA44730 (APAR OA26579) for FMID HCR7740
   - PTF UA37970 (APAR OA21807) and PTF UA44729 (APAR OA26579) for FMID HCR7731

   You can migrate to z/OS V1R11 before or after you migrate to a System z10 server.

8. **Upgrade your SCRT level if you want to process System z10 SMF data.** SCRT V14.2.9 (Version 14 Release 2 Modification Level 9) provides support for the System z10 server. If you collect SMF data on a System z10 server and the data will be processed by the SCRT, you must minimally use SCRT V14.2.9 to generate your SCRT reports. If you do not need to process SMF data from a System z10 server, you are not required to download or use SCRT V14.2.9; you may continue to use SCRT V14.1.0 or V14.2.0 until the next version upgrade of...
9. **Review the new mnemonics introduced for the System z10.** In support of the System z10 server, HLASM introduced new mnemonics for the new machine instructions. The new mnemonics might collide with (be identical to) the names of assembler macro instructions you use or provide. In the event of such collisions, the HLASM default opcode table (UNI) will treat specification of these names as instructions when the PTF for APAR PK58463 is installed. This will probably cause assembler error messages and possibly cause generation of incorrect object code.

If you write programs in assembler language, you should compare the list provided in *z/Architecture Principles of Operation* to the names of assembler macro instructions you use or provide, to identify any such conflicts or collisions that would occur following installation of the PTF for HLASM APAR PK58463.

To see the differences of supported mnemonics before and after applying the PTF for APAR PK58463, assemble an END statement with the PARM='OPTABLE(UNILIST)' option, and compare the SYSPRINT files for the two assemblies.

If a conflict is identified, take one of the following actions:

- Change the name of your macro instruction.
- Specify PARM='OPTABLE(YOP)' or some other, earlier opcode table.
- Specify a separate ASMAOPT file containing assembler options as in the previous method. This method requires no changes to source code or JCL.
- Add *PROCESS OPTABLE(YOP) as the first statement of your source program.
- Specify the PROFILE option in either JCL or the ASMAOPT file, and the specified or default member of the SYSLIB data set is copied into the beginning of the source program.
- If you must use both a new instruction and a macro with the same name in an assembly, you can use the following technique, where XXX is a sample mnemonic. (Assume that the default OPTABLE(UNI) is in effect.)

```
XXX a.b new instruction
PUSH ACONTROL save current optable definition
ACONTROL OPTABLE(YOP) switch optable dynamically
XXX r.s.t macro invocation
POP ACONTROL restore previous definition
XXX c.d new instruction
```

For more information about the HLASM opcode table, see [HLASM Programmer’s Guide](http://www.ibm.com/servers/resourcelink).

**Actions you can take after you order a System z10 server**

After you order but before you install your System z10 server, do the following:

1. **Use the CHPID Mapping Tool.** As you might have done with your z9 EC or z9 BC, use the CHPID Mapping Tool to map logical CHPIDs to physical channels (PCHIDs) and create input to HCD/IOCP for your System z10 server. The tool is a workstation-based Java application available from the Resource Link™ Web site ([http://www.ibm.com/servers/resourcelink](http://www.ibm.com/servers/resourcelink)). For more information about this tool, refer to the Web site.

2. **Plan for the changes in hardware memory granularity on a System z10 server.** The minimum hardware memory granularity for LPAR assignment to central storage elements (initial and reserved) and for z/OS memory reconfiguration is changed on System z10 servers. On a z9 EC, z9 BC, z990, and z890 it is 64 MB,
on a z10 EC it is 256 MB, and on a z10 BC it is 128 MB. Addressability is also increased to 8 TB on a z10 EC. For more information, see PR/SM Planning Guide.

If your installation is set up to do central memory reconfiguration with z/OS, you might have to change your RSU setting in parmlib member IEASYSxx. You can specify RSU as a number, a percentage of all storage, or in MB (or GB or TB). [z/OS MVS Initialization and Tuning Reference](http://www.ibm.com) states that while number values from 1-9999 are supported, it is recommended that you use the megabyte, gigabyte, or terabyte format. If you currently specify RSU as a number, such as RSU=10 on a System z9 server, this would result in 640 MB assuming a partition with the largest element of 32 GB or less of central storage. However, on a z10 EC with the same amount of central storage, the result would be 2560 MB. If you specify an RSU in MB or GB, there will probably be less of an impact but you need to understand that the values are rounded to a multiple of 256 MB instead of 64 MB or 128 MB.

**Note:** Message IAR026I was introduced in z/OS V1R11 (and rolled back to prior releases) by RSM APAR OA27801. It is now integrated into the base code of z/OS R12.

**Recommended migration steps**

This topic suggests the steps for migrating your same z/OS release level from your current server to a System z10 server. The steps are based on the assumption that you want to minimize the amount of change (and therefore risk) and the amount of work required to perform the migration.

**If your current z/OS release is V1R9, follow these steps:**

1. **Install the service in the following PSP buckets:**
   - The z10 PSP bucket:
     - For the z10 EC: upgrade 2097DEVICE, subset 2097/ZOS
     - For the z10 BC: upgrade 2098DEVICE, subset 2098/ZOS
   - The z9 EC PSP bucket: upgrade 2094DEVICE, subset 2094/ZOS (if not already on a z9 EC or z9 BC)
   - The z990 PSP bucket: upgrade 2084DEVICE, subset 2084/ZOS (if not already on a z990 or z890)

2. If you require Crypto Advanced Encryption Standard (AES) for 256-bit keys SHA-384 and 512 bit for message digest support, ISO Format 3 PIN blocks, support for RSA keys up to 4096 bits, Random Number Generator Long, or enhanced TKE Auditing, you must install one of the following Web deliverables: [Cryptographic Support for z/OS V1R7-V1R9 and z/OS.e V1R7-V1R8](http://www.ibm.com) (contains ICSF FMID HCR7750), [Cryptographic Support for z/OS V1R8-R10 and z/OS.e V1R8](http://www.ibm.com) (contains ICSF FMID HCR7751), or [z/OS Cryptographic Support for z/OS V1R9-V1R11](http://www.ibm.com) (contains ICSF FMID HCR7770). You must also install the PTFs identified in the program directory that comes with the Web deliverable and the PTFs that are recommended in the appropriate ICSF PSP bucket.

3. If you require Support for 13-digit through 19-digit Personal Account Numbers, ICSF Query Algorithms, or Key Token Policy support, you must install the Web deliverable [Cryptographic Support for z/OS V1R8-R10 and z/OS.e V1R8](http://www.ibm.com) (contains ICSF FMID HCR7751) as well as the PTFs identified in the program directory that comes with the Web deliverable and the PTFs that are recommended in the appropriate ICSF PSP bucket.
4. Upgrade your hardware to a System z10 server. If you are migrating from a z990 or z890 server, see “Migrate to a System z9 server” on page 61 for z9 EC and z9 BC migration considerations that you must also satisfy.

If your current z/OS release is V1R10, follow these steps:
1. Install the service in the following PSP buckets:
   - The z10 PSP bucket:
     - For the z10 EC: upgrade 2097DEVICE, subset 2097/ZOS
     - For the z10 BC: upgrade 2098DEVICE, subset 2098/ZOS
   - The z9 EC PSP bucket: upgrade 2094DEVICE, subset 2094/ZOS (if not already on a z9 EC or z9 BC)
   - The z990 PSP bucket: upgrade 2084DEVICE, subset 2084/ZOS (if not already on a z990 or z890)
2. If you require Support for 13-digit through 19-digit Personal Account Numbers, ICSF Query Algorithms, or Key Token Policy support, you must install the Web deliverable Cryptographic Support for z/OS V1R8-R10 and z/OS.e V1R8 (contains ICSF FMID HCR7751) as well as the PTFs identified in the program directory that comes with the Web deliverable and the PTFs that are recommended in the appropriate ICSF PSP bucket.
3. Upgrade your hardware to a System z10 server. If you are migrating from a z990 or z890 server, see “Migrate to a System z9 server” on page 61 for z9 EC and z9 BC migration considerations that you must also satisfy.

If your current z/OS release is V1R11, follow these steps:
1. Install the service in the following PSP buckets:
   - The z10 PSP bucket:
     - For the z10 EC: upgrade 2097DEVICE, subset 2097/ZOS
     - For the z10 BC: upgrade 2098DEVICE, subset 2098/ZOS
   - The z9 EC PSP bucket: upgrade 2094DEVICE, subset 2094/ZOS (if not already on a z9 EC or z9 BC)
   - The z990 PSP bucket: upgrade 2084DEVICE, subset 2084/ZOS (if not already on a z990 or z890)
2. Upgrade your hardware to a System z10 server. If you are migrating from a z990 or z890 server, see “Migrate to a System z9 server” on page 61 for z9 EC and z9 BC migration considerations that you must also satisfy.

Tip for locating the correct service: To simplify finding the appropriate PSP bucket and identifying which PTFs listed in the PSP bucket need to be installed on your system, you can use one of the following methods:

- **Preferred automated method:** Use the SMP/E V3R5 REPORT MISSINGFIX command in conjunction with the FIXCAT type of HOLDDATA, as follows:
  1. Order and install SMP/E V3R5 (which is the SMP/E level that is integrated in z/OS V1R11 and V1R10).
  2. Acquire and RECEIVE the latest HOLDDATA onto your pre-z/OS V1R11 systems. Use your normal service acquisition portals or download the HOLDDATA directly from [http://service.software.ibm.com/holdata/390holddata.html](http://service.software.ibm.com/holdata/390holddata.html).
  3. Run the SMP/E REPORT MISSINGFIX command on your pre-z/OS V1R11 systems and specify a Fix Category (FIXCAT) value of “IBM.Device.Server.z10-BC-2098” or “IBM.Device.Server.z10-EC-2097”. The
Periodically, you might want to acquire the latest HOLDDATA and rerun the REPORT MISSINGFIX command to find out if there are any new PTFs.

**Alternative automated method:** Use the Enhanced PSP Tool (EPSPT) as follows:

2. Download the extract file from the PSP bucket. Use upgrade 2097DEVICE and subset 2097/ZOS, or upgrade 2098DEVICE and subset 2098/ZOS.
3. Run the EPSPT using the extract file as input.
4. Resolve any outstanding discrepancies that the EPSPT identifies.

Periodically, you might want to download the extract file from your current release’s ZOSGEN PSP bucket subset and rerun the EPSPT to find out if there are any new PTFs.

### Migration and exploitation considerations for System z10 functions

1. **C/C++ ARCH(8) and TUNE(8) options:** The ARCHITECTURE option of the XL C/C++ compiler selects the minimum level of machine architecture on which your programs will run. Certain features provided by the compiler require a minimum architecture level. ARCH(8) exploits instructions available on System z10 servers. For more information, refer to the ARCHITECTURE compiler option in [z/OS XL C/C++ User’s Guide](http://www14.software.ibm.com/webapp/set2/sas/f/psp/download.html). The TUNE compiler option allows you to optimize your application for a specific machine architecture within the constraints imposed by the ARCHITECTURE option. The TUNE level must not be lower than the setting in the ARCHITECTURE option. For more information, refer to the TUNE compiler option in [z/OS XL C/C++ User’s Guide](http://www14.software.ibm.com/webapp/set2/sas/f/psp/download.html). You must have at least the z/OS V1R9 XL C/C++ compiler to use this function.

   **Exploitation restriction:** Once programs exploit the ARCH(8) or TUNE(8) option, the programs can only run on System z10 servers; otherwise, an operation exception will occur. This is a consideration for programs that will run on different server levels (System z9 and zSeries) during development, test, and production, as well as during fallback or disaster recovery.

   **Note:** ARCH(7) is the minimum level required to exploit decimal floating point support. The resulting program objects can run on System z9 servers (depending on the MLC installed) as well as on System z10 servers.

2. **HiperDispatch:** A new HIPERDISPATCH=YES|NO parameter in parmlib member IEAOPTxx, and on the SET OPT=xx command, controls whether HiperDispatch is enabled or disabled for the system. The value can be changed dynamically. HiperDispatch defaults to disabled. Thus, by default, your environment is not changed from a HiperDispatch perspective when migrating from a pre-System z10 server to a System z10 server. Once migration has completed, you can exploit the HiperDispatch function of the System z10 server.

   Because HiperDispatch improves the performance of a System z10 system, a new health check (SUP_HIPERDISPATCH) was added to verify that HiperDispatch is enabled. The new health check is only added on System z10 systems. WLM goal adjustment might be required when using this function. Review and update your WLM policies as necessary. You might need to turn off and on HiperDispatch while adjusting your WLM goals.
3. **Capacity Provisioning:** An installed On/Off CoD record is a necessary prerequisite for automated control of temporary capacity through z/OS Capacity Provisioning. Capacity Provisioning allows you to set up rules defining the circumstances under which additional capacity should be provisioned in order to fulfill a specific business need. The rules are based on criteria, such as the maximum additional capacity that may be activated for one or more workloads, and time and workload conditions. The workload condition can identify a specific application by use of WLM service classes. Capacity changes can be suggested or implemented automatically, when authorized by policy. This support provides a fast response to capacity changes and ensures sufficient processing power will be available with the least possible delay even if workloads fluctuate. For more information, see [z/OS MVS Capacity Provisioning User’s Guide](#).

4. **Large page support:** A change to the z/Architecture on System z10 servers is designed to allow memory to be extended to support large (1 MB) pages. Large pages are used in addition to the existing 4 KB pages. The use of large pages is expected to reduce memory management overhead for exploiting applications. Large page support is primarily of benefit for long-running applications that are memory-access intensive. Large page support is not recommended for general use. Short-lived processes with small working sets are normally not good candidates for large pages.

   To use large pages, you need to run z/OS V1R9 (or later) with the appropriate PTFs in a native System z10 LPAR. The support is not enabled if you are running without the software support, are running on a prior generation of server, or are running as a z/OS guest under z/VM. Without the large page support, page frames are allocated at the (current) 4 KB size.

   Furthermore, to exploit large page frames, a new LFAREA=xx %1xxxxxM1xxxxxG parameter in parmlib member IEASYSxx must be specified. This parameter cannot be changed dynamically.

   **Note:** If you do not want large frame support, do not use LFAREA= to exploit large page frames. If LFAREA=0M is explicitly specified on a system where large page support is not desired, message IAR021I THE LFAREA WAS SPECIFIED BUT SUFFICIENT STORAGE IS NOT AVAILABLE is issued. The system correctly does not provide any large frames in this case.

5. **Coupling facility level 16:** Service time for CF duplexing is improved, shared IMS and MQ list notification is improved, and the structure increment size is increased from 512 KB to 1 MB.

6. **Parallel Sysplex InfiniBand (PSIFB) coupling links:** InfiniBand coupling links provide an additional option for your Parallel Sysplex cluster on System z10 and System z9. When used in the data center, InfiniBand coupling links can replace Integrated Cluster Bus-4 (ICB-4) and InterSystem Channel-3 (ISC-3) links.

   **Note:** Be sure to conduct performance analyses when replacing one type of coupling link with another.

Coupling facilities can now be separated by up to 150 meters (492 feet). InfiniBand coupling links use fiber optic cabling containing 12 pairs (12x) of fiber compared to one pair (1x) of fiber used with ISC-3 fiber optic cabling. InfiniBand coupling links support double data rate (DDR) when a z10 EC is communicating with another z10 EC. InfiniBand coupling links support single data rate (SDR) when a z10 EC is communicating with a z9 EC dedicated CF or z9 BC Model S07 dedicated CF. When the InfiniBand coupling link is z10
EC-to-z10 EC, the link auto-negotiates to 6 GBps. A z10 EC system auto-negotiates to 3 GBps when connected to a z9 EC or z9 BC dedicated coupling facility.

**Note:** The InfiniBand link data rate of 6 GBps or 3 GBps does not represent the performance of the link. The actual performance is dependent upon many factors including latency through the adapters, cable lengths, and the type of workload. With InfiniBand coupling links, while the link data rate may be higher than that of ICB, the service times of coupling operations are greater, and the actual throughput may be less than with ICB links.

Refer to the Coupling Facility Configuration Options white paper for a more specific explanation of when to continue using the current ICB technology versus migrating to InfiniBand coupling links. The white paper is available at [http://www.ibm.com/systems/z/advantages/pso/whitepaper.html](http://www.ibm.com/systems/z/advantages/pso/whitepaper.html).

A new infrastructure was created to support an InfiniBand coupling link environment. Host channel adapter optical (HCA-O) fanouts have been introduced for System z10 and System z9 dedicated coupling facilities. The HCA-O fanouts, with two ports per fanout, reside on the front of each processor book. The fiber optic cables are plugged directly into the front of the HCA-O fanouts:

- HCA2-O fanout for System z10 servers
- HCA1-O fanout for z9 EC and z9 BC Model S07 dedicated coupling facilities

There is a new physical definition to associate with a channel path identifier with an adapter identification. Unlike channels installed in an I/O cage, which are identified by a physical channel path identifier (PCHID) number related to their physical location, HCA-O fanouts and ports are identified by an adapter identification (AID) value that is determined by its physical location. The AID must be used to assign a CHPID to the fanout in the hardware configuration definition. The CHPID assignment is done by associating the CHPID to an AID and port. The AID assigned to a fanout can be found in the PCHID report provided for each new server or for upgrades on System z10 and System z9 servers.

There is also a new CHPID type CIB (coupling using InfiniBand). CHPID type CIB is common for System z10 and System z9 servers.

On System z10 and System z9 servers, the design allows up to 16 CHPIDs to be defined across the two ports on each HCA-O fanout. This can reduce the number of coupling links; physical coupling links can be shared by multiple sysplexes. For example, this capability allows for one CHPID to be directed to one coupling facility and a second CHPID to be directed to a separate coupling facility on the same target server, using the same port. An increased number of CHPIDs per physical link can help to facilitate consolidation of ISC-3 links onto InfiniBand coupling links.

InfiniBand coupling links can also be used to exchange timekeeping messages for Server Time Protocol (STP).

You can choose the coupling links that best suit your business needs: IC, ICB, IFB, or ISC-3.

7. **New PKDS required:** With the Web deliverable Cryptographic Support for z/OS V1R7-V1R9 and z/OS.e V1R7-V1R8 (ICSF FMID HCR7750), the record size of the PKA key data set (PKDS) has increased. See [“ICSF: Increase the size of your PKDS” on page 175](#).
Migrate to a System z9 server

Description: The IBM System z9 servers (z9 EC [formerly z9-109] and z9 BC) are follow-ons to the IBM eServer zSeries servers (z990, z890, z900, and z800). They continue the evolution of the mainframe, building on the structure introduced with the z990 in support of z/Architecture, reliability, availability, scalability, and clustering. System z9 servers expand upon a key attribute of the platform, availability, to help ensure that you have a resilient infrastructure designed to satisfy the requirements of on demand business. With the increased performance and total system capacity possible for System z9 servers, you have an opportunity to continue to consolidate diverse applications on a single platform.

The specific System z9 functions exploited by z/OS V1R11, V1R10, and V1R9 are:
1. Separate LPAR management of processor units (PUs)
2. 63.75K subchannel support
3. OSA-Express2 Gigabit Ethernet (LX and SX)
4. OSA-Express2 1000BASE-T Ethernet
5. OSA-Express2 10 Gigabit Ethernet (LR)
6. OSA/SF IP and MAC addressing
7. FICON Express4 (4KM LX, 10KM LX, and SX)
8. CP Assist for Cryptographic Functions (CPACF) clear key
9. Crypto Express2 as a coprocessor (secure key)
10. Request node identification data (RNID) for native FICON
11. Channel Data Link Control (CDLC) support
12. Up to 60 LPARs on z9 EC and 30 LPARs on z9 BC
13. Crypto Express2 as an accelerator
14. CPACF enhancements (AES, SHA-256, and PRNG)
15. Remote Keyload for ATMs and POSs, and ISO 16609 CBC Mode TDES for MAC
16. Modified Indirect Data Address Word (MIDAW) support
17. zIIP support
18. Multiple subchannel sets
19. HiperSockets support of IPv6
20. Virtual local area network (VLAN) management enhancements
21. FICON link incident reporting
22. XLC C/C++ (enable ARCH(7) and TUNE(7) compiler options)
23. Up to 512 GB real storage on z9 EC (GB equals 1 073 741 824 bytes)

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>The first System z9 server, the z9 EC, shipped in September 2005.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Anytime.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to run z/OS on a System z9 server.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>A System z9 server.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take: Follow the recommendations and considerations, adhere to the restrictions, and perform the tasks described in the topics below.

General recommendations and considerations

As you plan your migration to a System z9 server, consider the following:

1. **Relatively few migration actions are new when coming from a z990 or z890.**
   Migration to a System z9 server has, as its basis, a migration to a z990 or z890. This means that if you are migrating to a System z9 server from a z990 or z890 (and have performed the migration actions associated with the z990 or z890), you have fewer migration actions than if you were migrating from a server prior to the z990 or z890 and have not yet performed the migration actions associated with the z990 and z890. There are, in fact, very few new migration actions to perform on z/OS for a System z9 server if you have already migrated to a z990 or z890. It is important to note that you can migrate directly to a System z9 server without installing the intermediate (prior to z990 and z890) servers, but you still need to ensure that any migration considerations are satisfied for the servers that you “skipped”. To read about z990 and z890 migration actions, see “Migrate to a z990 or z890 server” on page 66.

2. **Support is delivered by service and FMIDs.** The delta (from a z990 or z890) support for a System z9 server, excluding cryptographic support, is delivered by service (PTFs), unlike the support that was required for the z990 and z890. The z990 and z890 support was delivered with service and FMIDs (Web deliverables and features). The cryptographic support for the System z9 servers continues to be FMIDs, many of which are still available in Web deliverables. Different Web deliverables, providing different levels of support, are available for different releases of z/OS.

3. **Larger coupling facility structure sizes might be necessary.** When you change coupling facility control code (CFCC) levels, your coupling facility structure sizes might change. System z9 servers initially ship with CFCC Level 14. If, as part of your migration to a System z9 server, you change CFCC levels (either by placing a coupling facility on the System z9 server or by moving the coupling facility to a z990 or z890 at a later CFCC level), you might have larger structure sizes than you did previously. If your CFCC levels are identical, structure sizes are not expected to change when you migrate from a previous server to a System z9 server.

4. **Update CFRM policies.** Coupling facilities are identified in the CFRM policy by their physical node descriptor information (for example, machine type, model, serial number, LPAR number). When a coupling facility undergoes a hardware upgrade, one or more of these pieces of information is likely to change, therefore, the definition of the coupling facility in the CFRM policy must change accordingly.

5. **Use the same software level throughout a sysplex.** Having members of a sysplex at the same software level (other than during brief migration periods) is good software management policy.

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Other system (coexistence or fallback) requirements:
See the appropriate PSP buckets for required PTFs for specific functions, as described in “Steps to take”.

Restrictions:
None.

System impacts:
None.
6. **Migrate hardware and software at different times.** To minimize the amount of change (and therefore risk) that you experience at one time, do not migrate your software release level at the same time that you migrate your hardware.

**Restrictions**

Restrictions associated with the System z9 server are:

1. **z/OS as a guest of z/VM:** Modified indirect data address words (MIDAWs) and subchannel sets are not supported by z/OS when z/OS runs as a guest under z/VM on a System z9 server.

2. **System z9 server in a sysplex:**
   - Integrated Cluster Bus-2 (ICB-2) and InterSystem Channel-3 (ISC-3) compatibility mode links are not supported on System z9 servers. If you have ICB-2 or ISC-3 compatibility mode links defined, convert them to a supported link technology.
   - If you have a G5 or G6 coupling facility image, you cannot connect that coupling facility to any System z9 z/OS senders (or, for duplexing, to a System z9 coupling facility). Having a G5 or G6 coupling facility, therefore, introduces coexistence issues if any System z9 z/OS images, or System z9 coupling facilities, participating in that sysplex.

3. **HMC:** The hardware management console (HMC) is for the exclusive use of the HMC application. Customer applications cannot reside on the HMC. The ESCON Directory and Sysplex Timer applications cannot reside on the HMC. TCP/IP is the only supported communication protocol. The HMC supports System z9 servers. It can also be used to support z990, z890, z900, z800, G5, G6, and Multiprise 3000 servers. They must be upgraded to a new AROM level.

4. **Token Ring:**
   - Token Ring is not available as a feature on the System z9 HMC. Current HMCs with Token Ring may be carried forward to a System z9 server during an upgrade from a z990 or z900.
   - Token Ring is not available as a feature on the System z9 Support Element (SE) or Trusted Key Entry (TKE) workstation. Token Ring is not offered as a feature on System z9 servers and cannot be carried forward to a System z9 server during an upgrade from a z990 or z900.
   - The OSA-Express Token Ring feature is not supported on System z9 servers. Token Ring is not offered as a feature on System z9 servers and cannot be carried forward to a System z9 server during an upgrade from a z990 or z900.

5. **C/C++ ARCH(7) and TUNE(7) options:** The ARCHITECTURE C/C++ compiler option selects the minimum level of machine architecture on which your program will run. Certain features provided by the compiler require a minimum architecture level. ARCH(7) exploits instructions available on System z9 servers. For more information, refer to the ARCHITECTURE compiler option in [z/OS XL C/C++ User's Guide](#). The TUNE compiler option allows you to optimize your application for a specific machine architecture within the constraints imposed by the ARCHITECTURE option. The TUNE level must not be lower than the setting in the ARCHITECTURE option. For more information, refer to the TUNE compiler option in [z/OS XL C/C++ User's Guide](#).

**Exploitation restriction:** Once programs exploit the ARCH(7) or TUNE(7) option, those programs can only run on System z9 servers, or an operation exception will occur. This is a consideration for programs that will run on
different server levels (System z9 and zSeries) during development, test, and production, as well as during fallback or disaster recovery.

Actions you can take before you order a System z9 server

You can perform the following migration actions before you order or install your System z9 server:

1. **Review the sysplex configuration in which the System z9 server will participate.** In particular, if you have any existing G5 or G6 coupling facilities in the sysplex, move those coupling facilities to later servers (such as z990 or z890). This action is necessitated by the restriction that System z9 z/OS images in a sysplex cannot use G5 or G6 coupling facilities, nor can G5 or G6 coupling facilities duplex with a System z9 coupling facility.

2. **Review your current link technology.** If you have any ICB-2 or ISC-3 compatibility mode links, convert them to a supported link technology.

3. **Review coexistence requirements.** Because the z990 and z890 support is the basis for the System z9 server support, the coexistence requirements for the z990 and z890 also apply to the System z9 server. For instance, ICKDSF R17 must be installed on all z/OS and z/VM images that will share DASD with the z990 or z890 (and therefore, with System z9 servers). Review the coexistence requirements that were introduced for the z990, if you have not already done so, and take any necessary actions. You can find the z990 coexistence requirements in "Migrate to a z990 or z890 server” on page 66.

4. **Install the necessary z/OS service, as indicated in PSP buckets.** The appropriate PSP buckets are listed in "Recommended migration steps” on page 65 and are dependent on the z/OS release you will run on the System z9 server and on the hardware support you already have installed. If you reviewed the PSP buckets a long time ago, there might have been additions since then, so ensure that any newly identified z/OS service has been installed. To assist you in determining whether you have the recommended service installed on your system, which is identified in these PSP buckets, you can use the SMP/E REPORT MISSINGFIX command with a FIXCAT value of "IBM.Device.Server.z9-EC-2094” or “IBM.Device.Server.z9-BC-2096”, the Enhanced PSP Tool [http://www14.software.ibm.com/webapp/set2/spse/pspi/srchBroker], or ServiceLink’s PSP Service Extraction tool. If you use REPORT MISSINGFIX, some FIXCAT values you can use for specific System z9 functions are:
   - IBM.Device.Server.z9-EC-2094.DecimalFloatingPoint
   - IBM.Device.Server.z9-EC-2094.MIDAW
   - IBM.Device.Server.z9-EC-2094.zAAP
   - IBM.Device.Server.z9-EC-2094.zIIP
   - IBM.Device.Server.z9-BC-2096.DecimalFloatingPoint
   - IBM.Device.Server.z9-BC-2096.MIDAW
   - IBM.Device.Server.z9-BC-2096.zAAP

5. **Run CFSizer.** If you are moving your coupling facilities and the coupling facility structures will be on later CFCC levels than they were previously, run the Coupling Facility Structure Sizer (CFSizer) tool to find out if you have to increase coupling facility structure sizes. System z9 servers initially ship with

6. **Estimate the amount of HSA needed.** If you intend to add more devices, exploit subchannels, or use more LPARs on the System z9 server than you did on your previous server, you should estimate the amount of hardware system area (HSA) that will be necessary on the System z9 server. Use the HSA Estimator tool, which is available on Resource Link [http://www.ibm.com/servers/resourcelink](http://www.ibm.com/servers/resourcelink).

7. **Decide on the steps you will take for your migration to a System z9 server.**
   As a guide, see [“Recommended migration steps.”](#)
   Be aware of the following:
   - You should review the cryptographic support you currently have installed versus the support required on the System z9 server. Several cryptographic support Web deliverables have been made available for various z/OS releases. The Web deliverables listed in [“Recommended migration steps.”](#) are the minimum Web deliverable level for the function specified. When a subsequent cryptographic Web deliverable is available for a particular z/OS level, the previous one is withdrawn. The newer cryptographic Web deliverable, however, includes the previous function (when applicable) for that particular z/OS level. Note that you can use the newer cryptographic Web deliverables on servers prior to the System z9 server (that is, on zSeries servers).
   - The level of cryptographic support integrated in z/OS is: ICSF FMID HCR7740 in z/OS V1R9, ICSF FMID HCR7750 in z/OS V1R10, and ICSF FMID HCR7770 in z/OS V1R11. ICSF FMID HCR7770 was recently made available as a Web deliverable for cryptographic support for z/OS V1R9, z/OS V1R10, and z/OS V1R11.
   - You can migrate to z/OS V1R11 before or after you migrate to a System z9 server.

**Actions you can take after you order a System z9 server**

After you order but before you install your System z9 server, do the following:

1. **Use the CHPID Mapping Tool.** As you might have done with your z990 or z890, use the CHPID Mapping Tool to map logical CHPIIDs to physical channels (PCHIDs) and create input to HCD/IOCP for your System z9 server. The tool is a workstation-based Java application available from the Resource Link Web site [http://www.ibm.com/servers/resourcelink](http://www.ibm.com/servers/resourcelink). For more information about this tool, refer to the Web site.

**Recommended migration steps**

This topic suggests the steps for migrating your same z/OS release level from your current server to a System z9 server. The steps are based on the assumption that you want to minimize the amount of change (and therefore risk) and the amount of work required to perform the migration.

Your migration steps are:

1. Install the service in the following PSP buckets:
   - The z9 EC PSP bucket: upgrade 2094DEVICE, subset 2094/ZOS
   - The z9 BC PSP bucket: upgrade 2096DEVICE, subset 2096/ZOS
   - The z990 PSP bucket: upgrade 2084DEVICE, subset 2084/ZOS
2. Upgrade your hardware to a System z9 server. If you are migrating from a z900 or z800 server, see "Migrate to a z990 or z890 server" for z990 and z890 migration considerations that you must also satisfy.

**Tip for locating the correct service:** To simplify finding the appropriate PSP bucket and identifying which PTFs listed in the PSP bucket need to be installed on your system, you can use one of the following methods:

- **Preferred automated method:** Use the SMP/E V3R5 REPORT MISSINGFIX command in conjunction with the FIXCAT type of HOLDDATA, as follows:
  1. Order and install SMP/E V3R5 (which is the SMP/E level that is integrated in z/OS V1R11 and V1R10).
  2. Acquire and RECEIVE the latest HOLDDATA onto your pre-z/OS V1R11 systems. Use your normal service acquisition portals or download the HOLDDATA directly from [http://service.software.ibm.com/holdata/390holddata.html](http://service.software.ibm.com/holdata/390holddata.html).
  3. Run the SMP/E REPORT MISSINGFIX command on your pre-z/OS V1R11 systems and specify a Fix Category (FIXCAT) value of "IBM.Device.Server.z9-BC-2096" or "IBM.Device.Server.z9-EC-2094". The report will identify any missing PTFs for that system. For complete information about the REPORT MISSINGFIX command, see [SMP/E Commands](SMP/E Commands).

Periodically, you might want to acquire the latest HOLDDATA and rerun the REPORT MISSINGFIX command to find out if there are any new PTFs.

- **Alternative automated method:** Use the Enhanced PSP Tool (EPSPT) as follows:
  2. Download the extract file from the PSP bucket upgrade 20xxDEVICE, 20xx/ZOS subset, where xx is 94 (for z9 EC), 96 (for z9 BC), or 84 (for z990).
  3. Run the EPSPT using the extract file as input.
  4. Resolve any outstanding discrepancies that the EPSPT identifies.

Periodically, you might want to download the extract file from your current release's ZOSGEN PSP bucket subset and rerun the EPSPT to find out if there are any new PTFs.

---

**Migrate to a z990 or z890 server**

**Description:** The IBM eServer zSeries 990 (z990) and zSeries 890 (z890) represent the second generation of zSeries servers. The z990 and z890 servers provide more processing power, memory, and I/O capacity than the first generation of zSeries servers (z900 and z800). By migrating to z/OS V1R9 on a z990 or z890 server, you can take advantage of these improvements.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>The first z990 server shipped in June 2003. The first z890 server shipped in May 2004.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Anytime.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to run z/OS V1R11, V1R10, or V1R9 on a z990 or z890 server. Be aware that if any non-z990, non-z890 systems coexist with z990 or z890 systems, coexistence requirements affect the non-z990, non-z890 systems.</td>
</tr>
</tbody>
</table>
### Target system hardware requirements:
The following hardware features are required for cryptography:
- PCI X Cryptographic Coprocessor (PCIXCC)
- CP Assist for Cryptographic Functions (CPACF) DES/TDES
- PCI Cryptographic Accelerator (PCICA)

### Target system software requirements:
None.

### Other system (coexistence or fallback) requirements:
- For shared DASD requirements, see item 4 on page 70.
- For CFCC coexistence requirements, see item 6 on page 71.

### Restrictions:
- Only LPAR mode (not basic mode) is supported on a z990 or z890 server.
- Also, see the note on page 70.

### System impacts:
A power-on reset is required when adding or removing a Logical Channel Subsystem (LCSS), changing the maximum number of devices for an LCSS, adding or deleting LPARs, and adding or changing a resource in an LCSS other than LCSS 0.

---

**Steps to take:** Follow the requirements and recommendations below. Included is information about required HMC levels, configuring a z990 or z890 server, installing software and microcode for coexistence with a z990 or z890 server, cryptographic considerations, and operational considerations.

First, some general considerations and reminders:
- z/OS V1R5 and later contains z990 exploitation support.
- Minimizing the number of changes you make concurrently makes it easier to pinpoint problems. Therefore, avoid upgrading your software release level at the same time that you upgrade your hardware.
- Having members of the sysplex at the same software level, except for brief migration periods, is good software management policy.

**Actions you can take before you install a z990 or z890 server**

1. **Upgrade HMC microcode.** Upgrade the hardware management console (HMC) driver level to 1.8.0 or later. IBM recommends migrating z900 and z800 HMCs to HMC driver level 1.8.0 or later before z990 or z890 installation.

2. **Review PSP buckets.** You should review and install all the applicable service in the 2084DEVICE (for z990) or 2086DEVICE (for z890) PSP bucket. To assist you in determining whether you have the recommended service installed on your system, which is identified in these PSP buckets, you can use the SMP/E REPORT MISSINGFIX command with a FIXCAT value of “IBM.Device.Server.z990-2084” or “IBM.Device.Server.z890-2086”, the Enhanced PSP Tool [http://www14.software.ibm.com/webapp/set2/spv3c/pseg assoc], or ServiceLink’s PSP Service Extraction tool.

   If you use REPORT MISSINGFIX, some FIXCAT values you can use for specific server functions are:
   - IBM.Device.Server.z990-2084.zAAP
   - IBM.Device.Server.z890-2086.zAAP

3. **Define the z990 or z890 server.** Use HCD to define the z990 or z890 server.
When installing a new ("net add") z990 or z890 server, you must define the operating system and processor. You can use the copy or migrate functions of HCD to model these definitions after an existing processor.

When using a miscellaneous equipment specification (MES) package to upgrade a z900 server to a z990 server, or to upgrade a z800 server to a z890 server, or when replacing one or more z900 servers (or z800 servers) with a z990 or z890 server (a "box swap" or "push/pull"), you must copy or migrate the existing definitions to a z990 or z890 Logical Channel Subsystem (LCSS). IBM recommends the following:

- Ensure that the production input/output definition file (IODF) that will be used to migrate existing definitions contains all the definitions for all the items to be migrated (operating system configurations, ESCON and FICON switches, logical partitions, channels, control units, devices, and coupling facility processors). Using one source IODF means that there will be no conflict to be resolved during the migration process with any control unit or device for address or number definition conflict, address or number range conflict, or type definition conflict.
- If you are consolidating two processors into a z990 or z890 server, copy or migrate one processor into LCSS 0 and the other into LCSS 1.

When making the z990 or z890 hardware definitions, you must:

- Define the z990 or z890 processor. Only LPAR mode is allowed. You also need to define the number of LCSSs that you intend to use. Note that increasing or decreasing the number of LCSSs will require a power-on reset of a new input/output configuration data set (IOCDS). IBM recommends that when you define a z990 or z890 server, you should initially define the number of LCSSs you expect to use — up to two LCSSs on a z890 or up to four LCSSs on a z990.

- Define the channel subsystems. For each channel subsystem, specify an LCSS ID, a description, and the maximum number of devices:

Notes:

a. There is no hardware system area (HSA) expansion support on the z990 or z890 support element (SE). The maximum number of devices, defined for each LCSS, replaces the HSA expansion percentages in the central processor complex (CPC) activation profile on the support element.

b. If you change the maximum number of devices in an LCSS, you cannot do an ACTIVATE; you must do a power-on reset. IBM recommends that when you define a z990 or z890 server, you initially define the maximum number of devices that you expect to use in the future.

c. Because of the increase in the number of LPARs and LCSSs, be sure that the value specified on the MAXDEV keyword is large enough. (Increasing MAXDEV requires a power-on reset). The HCD default for maximum number of devices is 63K. This could result in a large amount of HSA storage being wasted.

- Define logical partitions. The partition names may not be duplicated across LCSSs. On servers other than z990 and z890 servers, partition numbers are the same as Multiple Image Facility (MIF) IDs. On z990 and z890 servers, partition numbers are assigned at power-on reset based on the IOCDS. MIF IDs are still specified using HCD/IOCP. On z990 and z890 servers, the partition number can be in the range 1–30 (X’1–1E’) and the MIF ID must be in the range 1–15 (X’1–F’). The partition number will be unique across all LCSSs. The MIF ID must be unique within each LCSS, but can be duplicated across LCSSs. Note that partition numbers are not related to LPAR IDs, which are specified in the HMC image profile.
Notes:

a. IBM recommends when you define a z990 or z890 server, you should initially define the number of logical partitions that you expect to use. If you plan to exploit more than 15 LPARs, then define the number of LCSSs (two or more) that you expect to use. For exploiting more than 15 LPARs and more than one LCSS, ensure that you have the correct hardware driver level. You only need to define the LCSS and LPARs (and specify the maximum devices for the LCSS). The LPAR can be defined with no I/O resources. I/O configuration definitions can be dynamically added later to a logical partition (nondisruptively). The newly defined I/O configuration definition change can be dynamically activated. Note that any z800 or z900 server used as a coupling facility image in this environment needs to have the CFCC z990 Compatibility MCL installed (see item 6 on page 71 for details).

b. There is no correlation between LPAR ID and the LCSS under which an LPAR runs. There can be LPARs in LCSS 0 with LPAR IDs greater than 15, and there can be LPARs in LCSS 1 (and LCSS 2 and LCSS 3) with LPAR IDs less than or equal to 15.

• Define channel paths. The processor name is qualified by the LCSS ID. Channel path IDs (CHPIDs) only need to be unique within an LCSS.

Notes:

a. There are no default CHPIDs on the machine when configured or shipped. Physical channel IDs (PCHIDs) must be defined.

b. Cryptography functions do not require CHPIDs.

c. Spanned channels access and candidate lists are by LCSS and partition.

d. The internal queued direct (IQD) CHPID on the VTAM® start option IQDCHPID=xx must be defined as a spanned CHPID if communication with systems in other LCSSs is desired.

• Recommended: Use the CHPID Mapping Tool to map logical CHPIDs to physical channels (PCHIDs) and create input to HCD/IOCP. The tool is a workstation-based Java application available from the IBM Resource Link Web site: http://www.ibm.com/servers/resourcelink. It updates the z990 or z890 IOCP input file with the “PCHID” keyword and can generate reports to help with cabling. To obtain and use the tool, do the following:
  – If this is an initial z990 or z890 order, download a machine order file (CFReport or manufacturing order file) from Resource Link to a workstation.
  – Create a validated work IODF (an IODF that is valid except that it is missing PCHIDs) using HCD option 2.12 (Build Validated Work I/O Definition File).
  – Create an IOCP deck without PCHIDs or with some PCHIDs missing using HCD option 2.3 (Build IOCP Input Deck).
  – Download the IOCP file (which can include PCHID keywords) to the workstation.
  – Download the tool.
  – Run the tool selecting the 2084 hardware configuration file (.hwc or .cfr) and import the IOCP statements.
  – Upload the updated IOCP deck with the PCHIDs assigned using HCD option 5.1 (Migrate IOCP/OS Data). Choose migrate option 3 (PCHIDS).
  – Build a production IODF.
– Write the IOCDS to the z990 or z890 support element using HCD or stand-alone IOCP.

• Define control units. A control unit is defined once in the IODF but the CHPID.link combinations for a z990 or z890 processor are defined for each LCSS because each LCSS has its own set of CHPIDs.

• Define devices. The channel subsystem data (for example, the preferred path and candidate lists) must be specified for each LCSS (and may be different for each LCSS).

Note: The following features and functions are not supported by the z990 and z890 servers:

• Parallel channels. Use the IBM ESCON Converter or the Optica Technologies 34600.

• OSA-2 adapters. Use the equivalent OSA-Express adapter. (For FDDI, use a multiprotocol switch or router with the appropriate network interface.)

• OSA-Express ATM adapters. Use a multiprotocol switch or router with the appropriate network interface, for example, 1000BASE-T or Gigabit Ethernet.

• 4-Port ESCON cards. Replace these with new 16-Port ESCON cards during upgrade. The 16-Port ESCON card has a MTRJ-45 connector.

• FICON cards (pre-FICON Express). Replace these with FICON Express during upgrade. FICON Express has a different connector.

• PCICC. This feature is replaced with PCIXCC for most of the commonly used cryptography functions.

• Activation of an over-defined channel configuration.

• Systems Network Architecture (SNA) Operations Management commands and SNA based APIs are not supported on z990 and z890 servers. These commands were previously used by the System Automation for OS/390® product as well as NetView®. It is recommend that you now use the Simple Network Management Protocol (SNMP) application programming interfaces (APIs) for your automation needs.

4. Install coexistence software. All images that share DASD with any z/OS, z/VM, or z/VSE™ operating system images running on a z990 or z890 server need to have ICKDSF R17 installed. IBM recommends that ICKDSF R17 be deployed to all other systems that share DASD, before any z990 or z890 server is brought into use in the sysplex.

5. Plan for coupling facility images. Coupling facility images on G2, G3, G4, or equivalent processors cannot be connected to operating system images on a z990 or z890 server and therefore any structures in these coupling facility images also need to be moved to a coupling facility that can connect to this environment (G5, G6, z800, z900, z990, or z890 server).

Only coupling facility images on G5, G6, z800, and z900 servers are supported. While z990 and z890 servers do not offer a stand-alone coupling facility option, you could have a coupling facility image as the only image in the z990 or z890 server, making it look effectively like a stand-alone coupling facility, or you could have an ICF image along with other partitions running z/OS, or other workloads, on your z990 or z890 server (possibly using coupling facility duplexing). Alternatively, you can continue to use your existing z900 or z800 coupling facilities (2064-100) and G5/G6 coupling facilities. However, workloads such as data sharing, global resource serialization, and DB2 (users of locking structures) are likely to require newer technology for performance.
reasons. If you have such workloads, you should plan to upgrade G5 coupling facilities (9672-R06) to z900 coupling facilities, or move your coupling facilities to z990s or z890s. IBM does not recommend using G5 coupling facilities in a Parallel Sysplex cluster with z990 or z890 servers for these workloads. You should only use them as a temporary migration step.

6. **Install z990 CFCC coexistence microcode.** If you intend to have an operating system image or a coupling facility image on a z990 or z890 server and have more than 15 LPARs defined (even if 15 or fewer are activated), you need to have CFCC compatibility code installed on:
   - Any coupling facility image (stand-alone or ICF) on a G5, G6, z800, or z900 server that will connect to an operating system image on the z990 or z890 server.
   - Any coupling facility image (stand-alone or ICF) that will be duplexed with a z990 or z890 coupling facility image.

IBM recommends that the CFCC z990 compatibility MCL be rolled out on all coupling facility images that will reside on a G5, G6, z800, or z900 server that will connect to an operating system image on a z990 or z890 server or be duplexed with a coupling facility image on a z990 or z890 server, before any z990 or z890 server is brought into use in the sysplex.

**Notes:**

a. The CFCC z990 compatibility code is provided with the GA level of CFCC Level 11 (for G5 and G6 servers) and as an MCL on CFCC Level 12 (for z900 and z800 servers). The CFLEVEL 12 MCL is disruptive, so IBM recommends that you coordinate the installation of this MCL with other disruptive MCLs, if possible.

b. If you are MES-upgrading to a z990 or z890 server, or replacing (“box swap”) an existing server, then the “old” server does not require the CFCC compatibility MCL. However, any remaining G5, G6, z800, or z900 servers that will be connecting to the z990 or z890 server will require the MCL upgrade (if more than 15 LPARs will be defined).

c. If 15 or fewer LPARs will be defined on the z990 or z890 server, then the CFCC compatibility code is not required on z900 and z800 servers. If at any time in the future you define more than 15 LPARs, then the CFCC compatibility code will be required at that time.

d. If you have a coupling facility image (stand-alone or ICF) on a G5 or G6 server that will either connect to an operating system image on a z990 or z890 server or be duplexed with a z990 or z890 coupling facility image, then the CFCC level of the G5 or G6 coupling facility image **must** be CFCC Level 11 (or later).

e. If you have a coupling facility image (stand-alone or ICF) on a z900 or z800 server that will either connect to an operating system image on a z990 or z890 server or be duplexed with a z990 or z890 coupling facility image, then the CFCC level of the z900 or z800 coupling facility image **must** be CFCC Level 12.

<table>
<thead>
<tr>
<th>Table 7. Summary of z990 CFCC coexistence support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server</strong></td>
</tr>
<tr>
<td>Pre-G5, G5, or G6</td>
</tr>
<tr>
<td>G5 or G6</td>
</tr>
</tbody>
</table>
Table 7. Summary of z990 CFCC coexistence support (continued)

<table>
<thead>
<tr>
<th>Server</th>
<th>CFCC level</th>
<th>15 or fewer LPARs defined on a z990 or z890 server</th>
<th>More than 15 LPARs defined on a z990 or z890 server</th>
</tr>
</thead>
<tbody>
<tr>
<td>z800 or z900</td>
<td>CFCC Level 9 or 10</td>
<td>Not supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>z800 or z900</td>
<td>CFCC Level 12</td>
<td>Supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>z800 or z900</td>
<td>CFCC Level 12 with CFCC compatibility code, or CFCC Level 13</td>
<td>Supported</td>
<td>Supported</td>
</tr>
</tbody>
</table>

7. **Install cryptographic software, if necessary.** If you use cryptographic services, ensure that you have the level of cryptographic support that you require on your z/OS system. For a cross reference of ICSF FMIDs, Web deliverables, and z/OS releases, see [http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/TD103782](http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/TD103782).

**Note:** The following infrequently used cryptographic functions that are in z900 and z800 servers are not in z990 and z890 servers:
- Digital Signature Algorithm support
- ANSI x9.17 services and key types
- Cipher_Text Translate (CSNBCCTT)
- German Bank Pool - PIN Offset
- CSFUDK (replaced with CSNBDKG)
- Commercial Data Masking Facility (CDMF) – 40-bit Encryption

**Actions you can take when you order a z990 or z890 server**

Determine future target I/O requirements before placing your order.

If required, use “Plan Ahead” for I/O cages and associated base infrastructure (adding I/O cages later is disruptive).

PCIXCC installation will be nondisruptive. Use “Plan Ahead” for the PCIXCC to ensure that slots are reserved in advance. This also balances the configuration when PCIXCC is available and installed.

Once I/O infrastructure is planned ahead, model upgrades or adding I/O cards can be nondisruptive, and Self-Timed Interconnect buses (STIs) are hot-pluggable.

Ensure that proper hardware features are ordered. For example, hardware features for cryptography are:
- PCIXCC (feature code 0868), if required
- CP Assist for Cryptographic Functions (CPACF) DES/TDES (feature code 3863)
- PCICA (feature code 0862), if required

Ensure that Driver 55 or later is ordered if you want support for the following features and functions on the z990 server:
- Four Logical Channel Subsystems
- Spanned external channels
- PCIX Crypto Adapter Integrated Console Controller
- OSA Integrated Console Control (OSA-ICC)
- Extended Translation Facility
- System z Application Assist Processor (zAAP) (requires Driver 55K or later)
Actions you can take after you install z/OS

1. **Update CFRM policies.**
   
   If a coupling facility image resides on a G5, G6, z800, or z900 server, then the partition number currently specified in the CFRM policy is the same as the partition number defined in HCD. No change is required for the partition number.

   If a coupling facility image resides on a z990 or z890 server, then the partition number specified in the CFRM policy is the logical partition identifier specified in the HMC Image Profile (Partition ID). The CFRM policy utility was changed to accept a two-digit hexadecimal PARTITION value for an LPAR ID greater than 15.

   **Update CFRM policies.** Coupling facilities are identified in the CFRM policy by their physical node descriptor information (for example, machine type, model, serial number, LPAR number). When a coupling facility undergoes a hardware upgrade, one or more of these pieces of information is likely to change, therefore, the definition of the coupling facility in the CFRM policy must change accordingly.

2. **Update automation for new and changed messages.**
   
   The following messages are changed to display two-digit LPAR IDs: IOS431l, IXC101I, IXC105I, IXC357I, IXC360I, IXC362I, IXC500I, IXC505I, IXC506I, IXC507I, IXC515I, IXC517I, IXC519E, IXC551I, IXC579I, IXL008I, IXL010E, IXL141I, IXL150I, IXL157I, IXL158I, IXL160E, and IOX50xl.

   PCHID information is now displayed, when appropriate.

   The following messages are associated with changed command output:
   - IEE174I – display output for D M=CPU command
   - IOS506I display output for D IOS,CONFIG(HSA) and D IOS,CONFIG(ALL) command output

3. **Notify those affected by changed command output.** Command syntax is not changed for z990 and z890 support but rather the display output for the following commands is changed:
   - The D M=CPU command can now display a two-hexadecimal-digit LPAR ID from partitions running on a z990 or z890 server, which supports two-digit LPAR IDs. (The message number is IEE174I.) The logical CPU address no longer appears in the CPU ID. CSS ID, MIF ID, and the like are now formatted.
   - The D IOS,CONFIG(HSA) command will display zeros for the unshared subchannel and logical CUs lines in the message. (The message number is IOS506I.) On z/OS V1R5 and later, subchannel and logical CUs will be displayed by LCSS.
   - The D M=CHP command is changed to add PCHID to the display.
   - The D CF command is changed to support two-hexadecimal-digit LPAR IDs and PCHIDs.
   - The D XCF command is changed to support two-hexadecimal-digit LPAR IDs.

4. **Modify programs affected by changed SMF records.** If you currently process SMF records 70, 74, 79, and 89, you will need to review changes and modify any user-written programs if they are affected. The changes are:
   - SMF Record 70 Subtype 1 (CPU and PR/SM Activity) is now split into multiple records if the number of LPARs and CPs requires more than 32K. Each piece is self-containing, that is, records can be processed without reassembling the broken pieces.
- SMF Record 74 Subtype 1 (Device Activity) is changed because of I/O architecture.
- SMF Record 79 Subtype 9 (Device Activity) is changed because of I/O architecture.
- SMF Record 89 (product usage data) is changed to support 4-bit and 8-bit LPAR identifiers and more than 15 LPARs.
- SMF Record 99 Subtype 8 (WLM LPAR Management – CPU Period Table Entry) is changed to add the CSS ID.
- SMF Record 99 Subtype 9 (I/O Subsystem Info – Channel Path Data Entry) is changed to add the CSS ID.

5. **Update parmlib members.** Review parmlib changes and update members as appropriate:
   - If you use cryptography, then you should be aware that ICSF provides IPCS support. A parmlib member, CSFIPCSP, will be installed into the library specified on the SMP/E PARMLIB DDDEF statement (and delivered in SYS1.IBM.PARMLIB in ServerPac). Ensure that this library is included in your IPCS concatenation. If you copy members from that library to another library, you have to copy CSFIPCSP.
   - There is no change to member SMFPRMxx. However, there is a change in the description of the serial number in the SID parameter when a z990 or z890 is involved; the first two digits are the LPAR ID instead of the logical CPU address and LPAR ID.

6. **Modify programs affected by macro changes.** As with any software upgrade, you need to review any macro changes and update any user programs if they are affected.

**Actions you might need to take once you are using a z990 or z890 server**

**ACTIVATE actions:**
- You can perform a software ACTIVATE (the number of defined LCSSs is irrelevant).
- You can only perform a hardware ACTIVATE if the changed or new resources are restricted to LCSS 0.
- A power-on reset is required when adding or removing an LCSS, changing the maximum number of devices for an LCSS, adding or deleting LPARs, and adding or changing a resource in an LCSS other than LCSS 0.
- You can perform full hardware or software ACTIVATE (regardless of the LCSS where the new or changed resources are defined).

Be aware that removing (restoring) the CFCC compatibility code from a G5, G6, z800, or z900 server will reintroduce sysplex coexistence considerations. That is, removing the CFCC compatibility support from a coupling facility image elsewhere in the sysplex will prohibit that coupling facility from participating in a sysplex with operating system or coupling facility images on a z990 or z890 with more than 15 LPARs defined on it (regardless of the number of LPARs that are activated).
Chapter 4. Sysplex migration actions

This topic summarizes actions for you to take if you are migrating systems that are members of a base sysplex or Parallel Sysplex configuration.

Sysplex actions related to hardware upgrades

<table>
<thead>
<tr>
<th>Title of migration action</th>
<th>Page or topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update your CFRM policy with coupling facility structure size changes</td>
<td>45</td>
</tr>
<tr>
<td>Migrate from a Sysplex Timer to STP</td>
<td>47</td>
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<th>Page or topic</th>
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Sysplex actions to perform before the first IPL of z/OS V1R11

None.

Sysplex actions to perform after the first IPL of z/OS V1R11

None.
Chapter 5. BCP migration actions

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This topic describes migration actions for the base element BCP (Base Control Program).

BCP actions to perform before installing z/OS V1R11

This topic describes BCP migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.
Evaluate your stand-alone dump data set allocations and your IPCS processing of them

**Description:** As your applications grow in size and use ever greater amounts of storage, you should evaluate whether the DASD allocated for your stand-alone dump data continues to be adequate.

In z/OS V1R6, support was introduced for extended-format sequential data sets, a form of data set that is SMS-managed and can occupy more than 64 K tracks per volume. In z/OS V1R7, this support was supplemented with support for large format sequential data sets (DSNTYPE=LARGE), a form of data set that is essentially the same as conventional sequential data sets except that more than 64 K tracks may be spanned per volume. If your stand-alone dump data sets are spread over more volumes than you want, both types of support can help you gain better control over the number of volumes used for each stand-alone dump data set.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because of changes that have been made to stand-alone dump processing (that reorder dump records with the intent of recording more important data early), and especially recommended if you deploy any LPARs with significantly more main storage than previously used.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- Use multivolume stand-alone dump data sets. Adjust the number of volumes and their separation to achieve tolerable stand-alone dump capture times.
- Use extended-format sequential data sets or large format sequential data sets. Copy their contents to an extended-format, compressed, striped data set using the IPCS COPYDUMP subcommand prior to analysis. Use the same or a larger striping factor than you used for your stand-alone dump data sets. Dump data sets to which stand-alone dump can write may be neither compressed nor striped, but both attributes are advantageous for the target of the copy operation. Stand-alone dump data sets must remain in the track-managed space for z/OS V1R11.
- Use a large CISIZE and striping for IPCS dump directories, and use blocking, striping, and compression for the stand-alone dump data set. Very large stand-alone dumps might require that you define your directory with the extended addressing attribute, allowing it to hold more than 4 GB.
Prepare for zAAP-eligible work to run on zIIPs

Description: In z/OS V1R11, System z Application Assist Processor (zAAP)-eligible work running in z/OS LPARs can run on System z Integrated Information Processors (zIIP) if no zAAPs are installed on the server, and zIIPs are installed on the server and defined for the LPAR.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if using zIIPs with no zAAPs.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>System z9 or System z10 server.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>Running zAAP workload on zIIPs is supported for z/OS LPARs when no zAAPs are installed on the same server.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- For z/OS LPARs on servers that have zIIPs installed with no zAAPs installed, determine:
  - If you have zAAP-eligible work that will now be eligible to run on zIIPs.
  - If there is sufficient zIIP capacity to contain this work without impacting workload goals.
  - If the general-purpose (CP) capacity should be adjusted for any affected LPARs as a result of any additional projected offload.
- For z/VM LPARs where z/OS is running as a guest, determine:
  - If you have zAAP-eligible work that will now be eligible to run on real or virtual zIIPs defined to the guest.
  - If there is sufficient real zIIP capacity to contain this work without impacting workload goals.
  - If the general-purpose (CP) capacity should be adjusted for any affected LPARs as a result of any additional projected offload.

You can use PROJECTCPU on your current release to determine how much zAAP-eligible work is running in each LPAR, and RMF (or equivalent) reports, to determine how busy your zIIPs are. If you want to disable zAAP-eligible work from running on your zIIPs, you can set the new zAAPZIIP parameter in IEASYSxx to NO. See new information about the ZAAPZIIP= parameter in “Overview of IEASYSxx parameters” in z/OS MVS Initialization and Tuning Reference.
Note: This support is available on z/OS V1R9 and z/OS V1R10 with APAR OA27495. The behavior on z/OS V1R9 and z/OS V1R10, however, is not enabled by default. It is enabled by default on z/OS V1R11. If you wish to enable this support on z/OS V1R9 or z/OS V1R10, use the ZZ parameter in IEASYSxx. The ZZ parameter is also accepted on z/OS V1R11 where ZZ is a synonym for the ZAAPZIIP parameter.

Reference information:
- For more information about PROJECTCPU, see z/OS MVS Initialization and Tuning Reference.
- For more information about the zIIPzAAP parameter in IEASYSxx, see z/OS MVS Initialization and Tuning Reference.

Track CSVRTLS services

Description: z/OS V1R5 was the last release of z/OS to support Run-Time Library Services (RTLS) for Language Environment. In a future release, the underlying CSVRTLS services will be removed from z/OS. A way to track CSVRTLS usage, and to let you find any programs that might be using these services, is available in z/OS V1R11, and rolled back to z/OS V1R10 and z/OS V1R9 with APAR OA29019.

Element or feature: BCP.
When change was introduced: z/OS V1R11, and rolled back to z/OS V1R10 and z/OS V1R9 with APAR OA29019.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you use CSVRTLS services.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.
Related IBM Health Checker for z/OS check: None.

Steps to take:
- Exploit the z/OS tracking facility to help you determine if you are using any of the CSVRTLS services (SET RTLS command, DISPLAY RTLS command, and CSVRTLS macro):
  - For z/OS V1R11, see APAR OA29019.
  - For z/OS V1R10 and z/OS V1R9, install PTF UA50068 for APAR OA29019.

Reference information:
- See APAR OA29019.
- To learn more about the tracking facility see Appendix A in z/OS MVS Planning: Operations.
- To activate or deactivate the tracking facility, use the SETCON TRACKING command. For information about this command, see z/OS MVS System Commands.
To display the recorded events, use the DISPLAY OPDATA,TRACKING command. For information about this command, see z/OS MVS System Commands. This command displays message CNZ1001I. For information about this message, see z/OS MVS System Messages, Vol 4 (CBD-DMO).

Remove SYS1.SVCLIB, SYS1.NUCLEUS, and PASSWORD from global resource serialization RNLs

**Description:** Before z/OS V1R11, the global resource serialization default resource name lists (RNLs) contained exclusion entries for ENQs issued for data sets SYS1.SVCLIB, SYS1.NUCLEUS, and PASSWORD. With z/OS V1R11, these exclusion entries have been removed. If you have RNLs that contain exclusion entries for any of the three data sets, you should consider removing the exclusion entries.

The requirement for SYS1.SVCLIB and SYS1.NUCLEUS to be in the exclusion RNL became obsolete long before z/OS V1R9. The change can be made on any supported z/OS release at any time.

The PASSWORD data set contains the password for each data set that is password protected. It is strongly recommended to use SAF to invoke a security product such as RACF to protect data sets, rather than using password protection. If you are not password protecting data sets, PASSWORD can also be removed from the exclusion RNL on any supported z/OS release at any time.

**Element or feature:** BCP.

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** Before installing z/OS V1R11.

**Is the migration action required?** No, but recommended, because by using the z/OS V1R11 default your system will have global ENQs on data sets SYS1.SVCLIB, SYS1.NUCLEUS, or PASSWORD. The change can be made on your current z/OS V1R10 or z/OS V1R9 release before installing z/OS V1R11, or it can be made on z/OS V1R11 after installing that release.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:**
- If you have a modified version of the RNLs that still contains SYSDSN PASSWORD, SYSDSN SYS1.NUCLEUS, or SYSDSN SYS1.SVCLIB, consider removing these entries from the exclusion list to ensure that the data sets are properly serialized. But note that if your system is running in ring mode and it has a unique SYSRES volume per system, consider keeping the entries to reduce ENQs going around the ring.
- If you are using password protection (PASSWORD), use system authorization facility (SAF) instead.
Update procedures for varying systems out of the sysplex

Description: You can use the VARY XCF,sysname,OFFLINE command to vary a system out of the sysplex. Before a system can be removed from the sysplex, it must be reset or isolated from the channel subsystem to ensure that it is no longer performing I/O against shared sysplex resources such as data sets or coupling facility structures.

Before z/OS V1R11, the VARY XCF process would only initiate automatic isolation if a Sysplex Failure Management (SFM) policy were in effect. If no SFM policy were active, a system reset would be required. The system would prompt the operator with message IXC102A to determine when the reset had been performed.

Beginning with z/OS V1R11, VARY XCF always initiates automatic isolation when physically feasible and when z/OS is not running as a VM guest, regardless of whether there is an active (SFM) policy. The system issues message IXC102A only if automatic isolation is not feasible or if no surviving system is able to complete isolation successfully. This change does not depend on the availability of the BCPii or system status detection functions.

Element or feature: BCP.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if your local procedures depend on explicit reaction to message IXC102A and the installation is not running z/OS as a VM guest.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:
- Update local procedures for removing systems from the sysplex to reflect the fact that message IXC102A may no longer be issued.

Reference information:
- For information on removing a system from the sysplex, see z/OS MVS Setting Up a Sysplex.
- For a description of the VARY XCF command, see z/OS MVS System Commands.
### Use the new default for the system response to a status update missing condition

**Description:** You can use the sysplex failure management (SFM) policy to specify how a system is to respond to a status update missing condition. The system default is used when no action is specified for the system or when no SFM policy is active.

Before z/OS V1R11, the system default action was PROMPT, which prompted the operator when a system entered a status update missing condition. As of z/OS V1R11, the system default action has changed to ISOLATETIME(0), which allows other systems to take immediate action to isolate the failed system.

If a system enters a status update missing condition and there is no active SFM policy, the monitoring system will take the system default action:

- If both systems are at or above z/OS V1R11, and the failing system was able to identify itself to the sysplex for automatic isolation (either to a CF for fencing or through XCF System Status Detection), ISOLATETIME(0) is used as the default action against the failing system.
- If either system is prior to z/OS V1R11, and the failing system was able to identify itself to the sysplex for automatic isolation (either to a CF for fencing or through XCF System Status Detection), PROMPT is used as the default action against the failing system.

The DISPLAY XCF,C command shows the SFM action the system expects, though the monitoring system might use a different default action if no SFM policy is defined.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because specifying or defaulting to ISOLATETIME(0) allows SFM to fence and partition a failed system without operator intervention and without undue delay.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- To obtain the new behavior, which is recommended, specify or default to ISOLATETIME(0) to allow SFM to fence and partition a failed system without operator intervention and without undue delay.
- To obtain the pre-z/OS V1R11 behavior, set up an SFM policy that specifies PROMPT for systems that should not be isolated automatically upon status update missing.
Tip: Use IBM Health Checker for z/OS check XCF_SFM_ACTIVE. This check reports whether SFM is active (and if it is active, whether the recommended settings are in use for the SFM policy). If the check indicates that SFM is not active, this migration action is applicable to the system on which the check ran, meaning that when this system enters a status update missing condition, the changed default from PROMPT to ISOLATETIME(0) might be in effect.

Reference information: For a description of setting up an SFM policy, see z/OS MVS Setting Up a Sysplex.

Enable ENF 51 listeners to listen to conditional ENQ contention

Description: Before z/OS V1R11, ENF 51 only allowed listeners to be notified of unconditional contention. With z/OS V1R11, previously unused byte 3 of the ENF 51 qualifier is used. Now, ENF 51 listeners that default to no qualifier at registration can be driven for conditional contention events.

Listeners that specify the QUAL parameter with the QMASK parameter including the BYTE3 value on an ENFREQ ACTION=LISTEN macro should not be affected by the change. However, if listeners do not specify QUAL, or specify a QMASK without BYTE3, they will receive conditional contention events and might misinterpret them as traditional unconditional contention events.

Element or feature: BCP.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if listeners default to no qualifier at registration.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Do one of the following:
• If the QUAL parameter is specified on an ENFREQ ACTION=LISTEN macro with a QMASK parameter that includes the BYTE3 value, there is no incompatibility and no action is required.
• If QUAL is not specified or QMASK is specified without BYTE3, include BYTE3. (The QUAL specification should not need to be changed, assuming its value for the third byte is 0.)
• Listeners who are interested in getting control for the new “waitless” conditional contention events could consider excluding BYTE3 on the QMASK or using one of the newer QUAL constants defined in data area ISGE51CN.

Reference information: For detailed information about ENF code 51, see z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG.
Discontinue use of IPCS problem management subcommands

**Description:** Interactive problem control system (IPCS) problem management subcommands were functionally stabilized in 1981 but left in IPCS. Since then, customers have been advised to migrate to other problem management tools. z/OS V1R10 was the last release that included the subcommands. As of z/OS V1R11, the subcommands have been removed from z/OS.

The subcommands are:
- ADDDSN — add a data set name to a problem
- ADDPROB — add a problem to IPCS
- DELDSN — delete a data set from a problem
- DELPROB — delete a problem from IPCS
- LISTDSN — list data set attributes
- LISTPROB — list problems
- MODDSN — modify data set attributes
- MODPROB — modify problem attributes

Note that IBM plans to continue to enhance the dump and trace analysis and display facilities of IPCS.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>BCP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>Removal of the subcommands following z/OS V1R10 was announced on 5 August 2008 in the z/OS V1R10 availability announcement. Removal of the subcommands did occur in z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Applies to migration from:</strong></td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>Yes, if you currently use the IPCS problem management subcommands to report and track problems.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** Do not use the IPCS problem management subcommands anymore. Use other problem management tools to report and track problems. For example, consider migrating to IBM Tivoli Information Management for z/OS V7 (5698-A08).

**Reference information:** For information about IBM Tivoli Information Management for z/OS V7, see *Tivoli Information Management for z/OS Problem, Change, and Configuration Management*, SC31-8752.

Use unique console names and console logon IDs within a global resource serialization ring complex

**Description:**
Consoles, whether MCS, SMCS, subsystem, or EMCS, have never been allowed to be active on more than one system in a sysplex at one time. Beginning with z/OS V1R10, a new enqueue, SYSZCNZ CONNAME#*consolename*, is held while a console is active. If the enqueue cannot be obtained, the console does not activate. If serialization is managed within a global resource serialization ring complex, the console can only be active on one system, even if the systems are not part of the same sysplex. Attempting to activate the console could result in an abend. A similar enqueue, SYSZCNZ USERID#*userid*, is obtained when a user logs on to an MCS or SMCS console. The same naming restrictions would apply to the logon ID. Note that multiple global resource serialization complex sharing through third-party alternate serialization products will not cause this problem because all the related ENQs are issued with RNL=NO to prevent third-party management.

**Note:** OPERLOG activation fails on a MONOPLEX system during, or after joining, an existing GRS Ring configuration because of the ENQ contention of MAJOR NAME: SYSZCNZ and MINOR NAME: CONNAME#*OPLOG01.

With the PTF for APAR OA30757 installed, OPERLOG processing is modified to enable its activation on a MONOPLEX system during, or after joining, an existing GRS Ring configuration. The OPERLOG EMCS console name will be generated using the two (2) character System Clone value obtained from the System Name (for example, System Name = SYSTEM1 / System Clone = M1).

Old: *OPLOG01
New: *OPLOGxx (where ‘xx’ is the System Clone value)

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if console names and console logon IDs are not unique within a global resource serialization ring complex where the systems in the ring are not all part of the same sysplex.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Issue D GRS,LINK to determine whether global resource serialization is managing any CTCs. If it is, do the following:

1. Issue D C,L,S and D EMCS,S from the sysplex and each standalone system in the ring to compare the defined consoles.
2. Uniquely name the consoles on the systems within the global resource serialization ring complex.

**Note:** Failure to use unique console names and console logon IDs to queue messages to the SYSLOG within the GRS ring could result in failure message CNZ3001A ACTIVATE UNSUCCESSFUL FOR SYSLOG CONSOLE console-name MCSOPER RETURN CODE: retcod, MCSOPER
REASON CODE: \textit{rsncode} SYSLOG IS NOT SUPPORTED. If your console names are generated from the SYSCLONE value, ensure that those SYSCLONE values are unique.

- The message IEA303W ABEND 077 REASON 060107F0 DURING INITIALIZATION UNDER RIM IEAVNPA1 is issued for this problem during the system initialization.
- This problem happens only when all the systems within the GRS Ring complex are running in z/OS V1R10 or later.
- The default value for the \&SYSCLONE is resolved from the last two values in the SYSNAME parameter. So, for example, \&SYSCLONE=YS is the default value for both systems SYSNAME=ASYS and SYSNAME=BSYS.

\textbf{Reference information:} For more information about defining and operating a global resource serialization ring complex, see \textit{z/OS MVS Planning: Global Resource Serialization}.

\section*{Stop using CPU affinity}

\textbf{Description:} IBM has removed support for CPU affinity. CPU affinity originally provided support for assigning work to the same CP. However, this predates Processor Resource/Systems Manager (PR/SM), which introduced logical processors. CPU affinity has long been obsolete for z/OS partitions operating under PR/SM, which makes the CP on which a piece of work executes unpredictable. z/OS V1R9 is the last release to provide support for the assignment of CPU affinity to a logical processor. Beginning with z/OS V1R10, any attempt to assign CPU affinity is ignored. For example, specifications for assigning a program to a specific logical processor or processors using the program properties table (PPT) or a SCHEDxx member of parmlib are ignored.

\begin{table}[h]
\begin{tabular}{|l|l|}
\hline
Element or feature: & BCP. \\
\hline
When change was introduced: & Future removal of support for CPU affinity was announced on 7 August 2007 in the z/OS V1R9 availability announcement. Removal of support did occur in z/OS V1R10. \\
\hline
Applies to migration from: & z/OS V1R9. \\
\hline
Timing: & Before installing z/OS V1R11. \\
\hline
Is the migration action required? & Yes, if you use CPU affinity and depend on it working the way it did. \\
\hline
Target system hardware requirements: & None. \\
\hline
Target system software requirements: & None. \\
\hline
Other system (coexistence or fallback) requirements: & None. \\
\hline
Restrictions: & None. \\
\hline
System impacts: & None. \\
\hline
\end{tabular}
\end{table}

\textbf{Steps to take:} Do the following to stop using CPU affinity. If you do not make the changes indicated, the affinity specification is ignored and the result is what it would have been if affinity were not specified.
1. In parmlib member SCHEDxx, look for AFF(XXX) in the PPT section and either remove it or update it to AFF(NONE). Also, update the specified executable program so that it does not have any dependencies on affinity.

2. In programs, look for use of the SCHEDULE macro where the SRBCPAFF field is set to a value other than 0 or X'FFFF', and use of the IEAMSCHD macro with the CPUMASK keyword with an operand other than 0 or X'FFFF'. Change your programs so that they do not require a specific processor on which to run.

3. In programs, look for use of the IWMCPAFN service. Change your programs so that they do not require a specific processor on which to run, which has the effect of removing the programs’ use of IWMCPAFN.

Reference information:
- For more information about parmlib member SCHEDxx, see z/OS MVS Initialization and Tuning Reference.
- For more information about the SCHEDULE macro, see z/OS MVS Programming: Authorized Assembler Services Reference LLA-SDU.
- For more information about the IEAMSCHD macro, see z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG.
- For more information about the IWMCPAFN service, see z/OS MVS Programming: Workload Management Services.

Migrate from the prelinker to the program management binder

Description: IBM intends to stabilize the prelinker. The prelinker was designed to process long names and support constructed reentrancy in earlier versions of the C, C++, COBOL, and PL/I compilers, and the Language Environment-conforming assembler, on the MVS and OS/390 operating systems. The prelinker, shipped with the base element Language Environment, provides output that is compatible with the linkage editor, shipped with the program management binder.

The program management binder is designed to include the function of the prelinker, the linkage editor, the loader, and a number of APIs to manipulate the program object. Its functionality delivers a high level of compatibility with the prelinker and linkage editor, but provides additional functionality in some areas.

Further enhancements will not be made to the prelinker utility. Enhancements will be made only to the program management binder, to position the program management binder as the strategic tool for program object manipulation.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Stabilization of the prelinker was announced on 28 February 2006 in the z/OS V1R8 preview announcement.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because the prelinker in not planned to be enhanced. Enhancements will be made only to the program management binder.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Restrictions: None.
System impacts: None.

**Steps to take:** Follow the instructions for migrating from the prelinker to binder in z/OS MVS Program Management: User’s Guide and Reference.

**Reference information:** z/OS MVS Program Management: User’s Guide and Reference

---

**BCP actions to perform before the first IPL of z/OS V1R11**

This topic describes BCP migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

### Create IPL text

**Description:** IPL text is bootstrap information required for IPL (such as the location of the nucleus library). You must create IPL text by running ICKDSF against the system residence volume.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Update and run the IPLTEXT job to write a new copy of the IPL text. If you install z/OS with a ServerPac, an installation dialog job is provided to perform this action. If you install z/OS with a CBPDO, instructions to perform this action are provided in z/OS Program Directory.

**Note:** When the IPLTXTEXIST parameter (which was introduced by ICKDSF R17 APAR PK16403) is specified with the REFORMAT command using the IPLDD parameter, WTOR message ICK21836D is suppressed if IPL text already exists.

**Reference information:** For a sample IPLTEXT job, see z/OS Program Directory. ServerPac provides a similar job for accomplishing this task; see ServerPac: Installing Your Order.

---

**Reassemble the stand-alone dump program**

**Description:** The stand-alone dump program produces a dump of storage that is occupied by a system that failed or a stand-alone dump program that failed. You must reassemble the stand-alone dump program each release. Once the stand-alone
dump program is properly created on a DASD residence volume, it resides in the SYS1.PAGEDUMP.Vvolser data set.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take**: Reassemble the stand-alone dump program. If you install z/OS with a ServerPac, an installation dialog job is provided to perform this action. If you install z/OS with a CBPDO, instructions to perform this action are provided in [z/OS MVS Diagnosis: Tools and Service Aids](#).

**Reference information**:
- ServerPac: Installing Your Order
- z/OS MVS Diagnosis: Tools and Service Aids

### Ensure correct use of CIRB

**Description**: When the CIRB function (Create Interruption Request Block) is used with SVC-entry and the IRB is to be run on a task different than the task that issued CIRB (identified within field IQETCB), and the STAB=DYN option was requested, the system is told to free storage. Before z/OS V1R11, the freemain was conditional and would always fail (with a bad return code) in the case mentioned above because the storage was not owned by the freeing task. Since you would not see this, as it was only a return code, you were not aware of the failure. Starting with z/OS V1R11, the freemain is changed to unconditional so that you will be aware of your error and can fix or change your code.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
**Steps to take:** The best practice is to change to use SCHEDIRB instead of CIRB. SCHEDIRB has been recommended for many years. Otherwise, take one of the following actions according to your need:

- If you do not need the system to free the storage, do not specify STAB=DYN.
- If you do need the system to free the storage, make sure that you are in PSW key 0 and place the TCB address under which the IRB will run in register 4 when you invoke CIRB and specify the BRANCH=YES option of CIRB.

**Reference information:** For details about the usage of CIRB, see:
- *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN*
- *z/OS MVS Programming: Authorized Assembler Services Guide*

---

**Use the new default of COUPLExx parmlib member INTERVAL (failure detection interval)**

**Description:** The default handling of the COUPLExx parmlib member INTERVAL (failure detection interval) value is changed to ensure consistency with the existing excessive spin parameters that are specified via EXSPATxx.

Before z/OS V1R11, XCF used twice the default spin loop timeout value, plus 5, for the default failure detection interval. Note that XCF used the default spin loop timeout value and not what you specified in the EXSPATxx parmlib member. With z/OS V1R11, XCF derives the default INTERVAL value from the excessive spin processing parameters in EXSPATxx. The value is computed as follows:

\[(N+1) \times \text{SpinTime} + 5\]

where N is the number of excessive spin recovery actions, +1 indicates the implicit spin action, and SpinTime is the excessive spin loop timeout interval. The result might be higher effective failure detection intervals being used than the value that was explicitly coded in the COUPLExx parmlib member INTERVAL keyword.

If the excessive spin parameters are not explicitly set via an EXSPATxx parmlib member, the IBM-supplied default spin parameters are used. The value is computed as follows:

\[(1+4) \times \text{SpinTime} + 5\]

**Element or feature:** BCP

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** Before the first IPL of z/OS V1R11.

**Is the migration action required?** No, but recommended because the new default value can ensure consistency with the existing excessive spin parameters that are specified through EXSPATxx.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.
Steps to take:

If the COUPLExx parmlib member codes INTERVAL, perform the following actions as needed:
- If the specified INTERVAL is greater than the default INTERVAL that will be derived from the EXSPATxx specifications, no action is needed.
- If the specified INTERVAL is less than the default INTERVAL and you want to use the specified INTERVAL, enable the USERINTERVAL switch.

If the COUPLExx parmlib member does not specify INTERVAL and the default INTERVAL value is taken, perform the following actions as needed:
- If the new default INTERVAL is acceptable, no action is needed.
- If you want to use the old default, you must code INTERVAL to set the desired value and proceed as above.
- If COUPLE does not specify INTERVAL but specifies OPNOTIFY, you should consider specifying a relative OPNOTIFY value so that OPNOTIFY can be adjusted to maintain the same relative delta between the old default INTERVAL and the new default INTERVAL.

Note: If a COUPLExx parmlib member is used by more than one system, the migration actions for the new system might conflict or cause different behaviors on pre-z/OS V1R11 systems.

Reference information: For more information, see the following topics under COUPLExx (cross-system coupling facility (XCF) parameters) in z/OS MVS Initialization and Tuning Reference:
- INTERVAL(seconds) parameter
- FUNCTIONS statement where the new FUNCTIONS option for USERINTERVAL is described

Accommodate quoted argument changes in System REXX MODIFY AXR command

Description: Before z/OS V1R11 (and APAR OA26802 on prior releases), arguments bounded by quotation marks were passed through to the REXX exec unaltered (including the quotation marks). With changes introduced in z/OS V1R11 (and by APAR OA26802 on prior releases), the final argument string that is passed through to the REXX exec will have bounding quotation marks removed and single quotation marks will be substituted and passed as part of the argument, when two single consecutive quotation marks are encountered within a quoted string. Arguments not within quotation marks continue to be upper-cased by system command processing.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>BCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 and rolled back to z/OS V1R10 and z/OS V1R9 by APAR OA26802.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA26802 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if quotation marks are used in the MODIFY AXR,rexexecname args command and the REXX exec expects and processes the quotation marks.</td>
</tr>
</tbody>
</table>
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Determine if you have the new behavior (step 1), then proceed to steps 2 and 3 if quotation marks are currently being used within the argument string of the MODIFY AXR command.

1. The presence or absence of this enhancement can be detected within a program as follows:
   - REXX – Issue the MODIFY AXR,SYSEXX REXXLIB command from the exec by including the statement AxrCmdRc = AXRCMD('F AXR,SR R',Msg.,4).
     When this support is not present ASA100I SYNTAX ERROR: STATUS is returned in the Msg.1 stem variable.
   - ASSEMBLER – include an AXREXX macro call specifying REQUEST=GETREXXLIB. Return code 8 reason code AxrBadRequest is returned when the AXREXX GETREXXLIB support is not present.
     AxrBadRequest is defined as x'00000846' in SYS1.MACLIB(AXRZARG).

2. Preserve the lower case of the argument.

   To preserve the lower case of arguments, it is necessary to bound them by quotation marks. As bounding quotation marks are removed with z/OS V1R11, this new behavior might affect argument processing within the REXX exec. Within the REXX exec, it is unnecessary to check for bounding quotation marks when parsing the argument string.

<table>
<thead>
<tr>
<th>Input argument string</th>
<th>Resolved argument string</th>
</tr>
</thead>
<tbody>
<tr>
<td>'www.lakeminnewaska.org'</td>
<td><a href="http://www.lakeminnewaska.org">www.lakeminnewaska.org</a></td>
</tr>
<tr>
<td>'Fire declared ' out</td>
<td>Fire declared OUT</td>
</tr>
</tbody>
</table>

3. Pass quotation marks as part of the argument.

   If quotation marks are currently used, it will be necessary to use the new syntax when entering the argument string portion of the MODIFY AXR command when running a REXX exec from the console. Bounding quotation marks are removed with z/OS V1R11. To preserve a single quotation mark in an argument string, two consecutive quotation marks must be imbedded within the argument string.

   For example,
   'The cat''s tail.'

   would be resolved to
   The cat's tail.

   Additional examples follow:

<table>
<thead>
<tr>
<th>Input argument string</th>
<th>Resolved argument string</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Minnewaska''s Scenic Beauty'</td>
<td>Minnewaska's Scenic Beauty</td>
</tr>
<tr>
<td>'''Shawangunk' Mountain 'Trails'</td>
<td>'Shawangunk MOUNTAIN Trails</td>
</tr>
<tr>
<td>''''Lake Awosting'''</td>
<td>'Lake Awosting'</td>
</tr>
</tbody>
</table>
Ensure that IXGWRITE in authorized programs correctly handles reason code X'0867'

Description: The IXGWRITE macro allows a program to write a log block to a log stream. IXGWRITE returns a unique identifier for each log block written to the log stream.

Before z/OS V1R11 (without APAR OA28487), IXGWRITE reason code X'0867' indicated that available local buffer space for the system logger address space was full, or it indicated that the IXGWRITE request is rejected when an unauthorized caller attempts to write log data while the outstanding asynchronous write activity for this log stream connection is considered too high. With z/OS V1R11 (or z/OS V1R10, z/OS V1R9, or z/OS V1R8 and APAR OA28487), the X'0867' reason code is updated to indicate also that the IXGWRITE request is rejected when an authorized caller attempts to write log data while the outstanding asynchronous write activity for this log stream connection is considered too high. Therefore, ensure that the X'0867' reason code is handled appropriately.

Element or feature: BCP.

When change was introduced: z/OS V1R11 and rolled back to z/OS V1R10, z/OS V1R9, and z/OS V1R8 by APAR OA28487.

Applies to migration from: z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA28487 installed.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you issue the IXGWRITE macro in authorized programs.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:
1. Review the use of IXGWRITE in authorized programs.
2. Ensure that the existing X'0867' reason code is managed appropriately. In the IXGANSAA answer area, both Ansaa_Diag1 and Ansaa_Diag2 contain 0 for the condition of system logger local buffer space (data space storage) being full. For the condition of the IXGWRITE request being rejected when a caller attempts to write log data while the outstanding asynchronous write activity for this log steam connection is considered too high, the limits are 2 000 for unauthorized callers and 10 000 for authorized callers. An unauthorized caller is a caller whose PSW key is greater than or equal to 8 and that is not in supervisor state. The IXGANSAA answer area field Ansaa_Diag1 contains a value of 1 for
unauthorized callers and 2 for authorized callers. Field Ansaa_Diag2 contains the total number of outstanding write requests for this log stream connection. The authorized writer can either wait for a logger ENF signal 48 indicating that the condition has cleared and that the log stream resource is available again, or wait for a short interval and then reissue the IXGWRITE request. If subsequent write attempts continue to fail for an unacceptable period, the log stream writer program should consider notifying operations or disconnecting from the log stream.

Reference information:
- For details about the IXGWRITE macro, see z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG.
- See also Limiting asynchronous IXGWRITE requests in z/OS MVS Programming: Assembler Services Guide.

Modify applications that use the IXLMG service

Description: In z/OS V1R11, the number of subchannels that can be defined in a coupling facility configuration has been increased. As a result, the IXLMG service can return a larger amount of coupling facility subchannel information than before, and you might have to modify applications to handle the change.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your hardware is configured to exploit a larger number of subchannels than previously supported, yet your application is not written to handle RC4, RSN:xxxx0404 from IXLMG (which indicates that all requested data could not be returned in the storage output area provided because the storage output area was not large enough).</td>
</tr>
</tbody>
</table>

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Your application should check for the possibility of receiving RC4, RSN:xxxx0404 from IXLMG. To accommodate additional output records, either increase the size of the output area or modify the application to dynamically obtain a storage area large enough to contain all the data to be returned. The required size is provided in the IXLYAMDA header in the IXLYAMDAREA_TLEN field.

Reference information: For a description of the IXLMG macro, see z/OS MVS Programming: Sysplex Services Reference.
Update automation that handles messages IXL141I and IXL150I

**Description:** The format of the coupling facility subchannel status portion of messages IXL141I and IXL150I has changed. The two messages are in response to the DISPLAY CF or DISPLAY M [=CHP] console command.

As of z/OS V1R11 (and APAR OA26033 on prior releases), the subchannel status portion of messages IXL141I and IXL150I contains four pairs of device/subchannel information, which are grouped by subchannel operational status. The change was made to display larger numbers of subchannel status more concisely.

**Element or feature:** BCP.

**When change was introduced:** z/OS V1R11 and rolled back to z/OS V1R10, z/OS V1R9, and z/OS V1R8 by APAR OA26033.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA26033 installed.

**Timing:** Before the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you use automation programs or other procedures to handle messages IXL141I or IXL150I.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** If you use automation programs or other procedures that deal with messages, you should update the programs or procedures appropriately to interpret the changed format of the subchannel status information being supplied on the DISPLAY CF and DISPLAY M [=CHP] console commands.


Remove message flood automation exits

**Description:** Before z/OS V1R11 (and APAR OA25602 on prior releases), if you wanted to implement message flood automation, you had to do so with a command exit specified in parmlib member MPFLSTxx and with message processing installation exit IEAVMXIT. Beginning with z/OS V1R11 (and APAR OA25602 on prior releases), message flood automation is integrated in z/OS, eliminating the use for the exit routines. If you want to continue using message flood automation, you must remove what you have implemented with the exit routines.

**Element or feature:** BCP.

**When change was introduced:** z/OS V1R11 and rolled back to z/OS V1R10 and z/OS V1R9 by APAR OA25602.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA25602 installed.
Timing:
Before the first IPL of z/OS V1R11.

Is the migration action required?
Yes, if message flood automation is used.

Target system hardware requirements:
None.

Target system software requirements:
None.

Other system (coexistence or fallback) requirements:
None.

Restrictions:
None.

System impacts:
If the message flood automation exits are not removed, message flood automation might not be operable. If it is operable, it will be the old message flood automation, not the new, integrated message flood automation.

Steps to take:
- Update your MPFLSTxx parmlib member to remove all .CMD USEREXIT(CNZZCMXT) statements.
- If you use exit IEAVMXIT only for message flood automation, update your CONSOLxx parmlib member to change the INIT statement option of UEXIT(Y) to UEXIT(N). Do not do this if you want to continue to use IEAVMXIT for other purposes.
- If you modified your IEAVMXIT exit routine to incorporate message flood automation processing, you must remove the message flood automation code, reassemble, and use the linkage editor or program management binder to install.

Tip: Use IBM Health Checker for z/OS check CNZ_OBSOLETE_MSGFLD_AUTOMATION introduced in APAR OA25602, available in z/OS V1R11, to validate that the obsolete version of message flood automation is not in use.

Reference information: For more information about message flood automation, see z/OS MVS Planning: Operations

Accept the new lower storage limit for stopping SVC dump data capture

Description: Before z/OS V1R11, SVC dump data capture would not be prevented or stopped until auxiliary storage usage reached 85%. At this level of utilization the system might be unresponsive. For sure, no new jobs could be started.

As of z/OS V1R11, the new AUXMGMT=ON default lowers the thresholds at which SVC dump capture activity is affected. New SVC dumps are not allowed when auxiliary storage usage reaches 50%, and an SVC dump that is in the process of capturing data is truncated, resulting in a partial dump, when auxiliary storage usage reaches 68%. Once either limit is reached, data capture for new dump requests is not allowed again until auxiliary storage usage drops below 35%.

This new behavior makes system availability a higher priority than capturing failure data (a complete dump) when resources are restricted. It also makes tuning the MAXSPACE parameter less daunting. A very large MAXSPACE value can be specified because the amount of available auxiliary storage is a key factor in automatically limiting what SVC dump data capture uses. The lower 68% point leaves the system in a more responsive state.
<table>
<thead>
<tr>
<th>Element or feature:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because it limits DUMPSRV’s use of virtual (and therefore also auxiliary) storage while reducing the tuning efforts required to support a given MAXSPACE value.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Do one of the following:

- To use the new limits, there is nothing to do. The system always IPLs with AUXMGMT=ON by default. Note that you can display the current status of AUXMGMT by using the DISPLAY DUMP,OPTIONS (D D,O) command.

  **Note:** Once SVC dump processing has detected a shortage, the auxiliary storage utilization must drop below 35% before new SVC dump requests will be honored. The condition cannot be removed by simply changing the setting of AUXMGMT from ON to OFF.

- If you have spent considerable effort tuning the real, auxiliary, and MAXSPACE resources for a particular behavior, you might want to keep the pre-z/OS V1R11 behavior. To suppress the new behavior and use the prior limits, ensure that the CHNGDUMP SET,SDUMP,AUXMGMT=OFF command is issued out of a SYS1.PARMLIB(COMMNDxx) member that receives control during IPL. Remember that with AUXMGMT=OFF, the MAXSPACE value must be accompanied by the appropriate increase in auxiliary storage (paging) resources (at least three times the MAXSPACE value), above the system’s worst case usage of auxiliary storage.

**Reference information:** For more information about the AUXMGMT setting and its behavior, see [z/OS MVS System Commands](http://www.ibm.com) and [z/OS MVS Diagnosis: Tools and Service Aids](http://www.ibm.com).

**Ensure your ESQA specification in IEASYSxx is adequate**

**Description:** In z/OS V1R11, each address space requires 1608 bytes of additional 31-bit Extended System Queue Area (ESQA) storage.

<table>
<thead>
<tr>
<th>Element or feature:</th>
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<tbody>
<tr>
<td>When change was introduced:</td>
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<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your ESQA specification in IEASYSxx is inadequate.</td>
</tr>
</tbody>
</table>
Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts:
If ESQA storage is unavailable to the system at any time, the system will try to obtain the storage needed from Extended Common Storage Area (ECSA). When ESQA expands into ECSA, message IRA103I will be issued. If ESQA and ECSA are unavailable, the system allocates space from SQA followed by CSA below 16 megabytes. As SQA storage becomes scarce, the system issues message IRA100E, rejects LOGON, MOUNT, and START commands, and stops new jobs from being created and address spaces from being swapped in. ESQA/SQA storage shortages can eventually result in a system failure.

Steps to take:
1. Determine the number of address spaces that you have on the system. One way to do this is to issue the DISPLAY A,L command and total the address spaces in the IEE114I and IEE115I messages. Note that the additional ESQA storage is allocated at address space create time and freed at address space termination time. Therefore, you might only need to have additional ESQA for the typical peak number of active address spaces.
2. Multiply the number of address spaces by 1608 (x'648') bytes to get the total additional ESQA storage required.
3. Ensure that your SQA= statement in IEASYSxx specifies an adequate amount of ESQA. One way to do this is to use the VSM_SQA_THRESHOLD check, provided by the IBM Health Checker for z/OS, from the prior release to examine the ESQA in use percent and high water mark (HWM) percent. Then add the additional ESQA storage needed from the prior step to calculate the projected ESQA in use and HWM percent. Adjust the amount of ESQA needed by your installation.

Reference information: For more information, see z/OS MVS Initialization and Tuning Reference, z/OS MVS Initialization and Tuning Guide, and IBM Health Checker for z/OS: User's Guide.

Adjust interval time of recovery allocation message reminders
Description: Currently, when the recovery allocation message IEF238D, IEF433D or IEF434D is issued, system resources such as the SYSIEFSD.Q4 ENQ resource are held while the WTOR message is outstanding.

IEF238D jobname - REPLY [DEVICE NAME] [,]["WAIT"] OR ‘CANCEL’
IEF433D jobname - WAIT REQUESTED -- REPLY ‘HOLD’ OR ‘NOHOLD’
IEF434D jobname - INVALID REPLY. REPLY ‘HOLD’ OR ‘NOHOLD’

If the operator does not respond to the message prompt in a timely manner, it might affect other system processes, such as VARY OFFLINE command. Beginning
in z/OS V1R10, message IEF882E is issued every 90 seconds to remind the operator to respond to the outstanding recovery allocation messages.

IEF882E jobname [procstep] stepname IS WAITING FOR A REPLY TO pmsgid

When the operator responds with WAIT or HOLD to messages IEF238D and IEF433D, system resources are held while waiting for another job to free a device for use by this job. Beginning with z/OS V1R10, message IEF883E is issued every 90 seconds to remind the operator to respond to the situation.

IEF883E jobname [procstep] stepname IS WAITING FOR DEVICE(S) WHILE HOLDING SYSTEM RESOURCES

Beginning with z/OS V1R11, a new option is available that permits you to adjust the 90-second default interval time for reminder messages IEF882E and IEF883E. You can now specify, in seconds (10-999), the amount of time between display of the reminder messages, or you can specify 0 to disable them.

Note: The descriptor code of IEF882E and IEF883E is 11, therefore, the default attribute is highlighted in bold, red text.

---

**Element or feature:** BCP.  
**When change was introduced:** z/OS V1R11.  
**Applies to migration from:** z/OS V1R10 and z/OS V1R9.  
**Timing:** Before the first IPL of z/OS V1R11.  
**Is the migration action required?** No, but recommended if you do not want to receive frequent reminder messages indicating the pending of recovery allocation.

**Target system hardware requirements:** None.  
**Target system software requirements:** None.  
**Other system (coexistence or fallback) requirements:** None.  
**Restrictions:** None.  
**System impacts:** None.

---

**Steps to take:**  
- To specify the intervals for messages IEF882E or IEF883E, use the SYSTEM REMIND_INTV(XXX) parameter in the ALLOCxx parmlib member or the SETALLOC command. The number of seconds (10-999) you set indicates how many seconds between reminder messages.
- To disable display of the messages, you can set the interval to 0.  
  SYSTEM REMIND_INTV(0)

**Tip:** Consider using the POLICY statements in the ALLOCxx parmlib member to automate responses to IEF238D and IEF433D and eliminate delays caused by these messages or eliminate slowdowns caused by the WAIT/HOLD function.

**Reference information:**  
- For information about ALLOCxx parmlib member, see z/OS MVS Initialization and Tuning Reference  
- For information about SETALLOC command, see z/OS MVS System Commands.
For information about recovery allocation-related IEF messages, see

[**z/OS MVS System Messages, Vol 8 (IEF-IGD)**](#)

## Do not specify volume information on allocations intended to uncatalog a data set

**Description:** Before z/OS V1R10, a DD statement for a data set that specified DISP=UNCATLG for either the normal or abnormal termination disposition was allowed to be uncataloged by the job step, even if the system did not retrieve the volume information from the catalog. This allowed a job to uncatalog a different data set with the same name. Starting with z/OS V1R10, the default behavior for a DD statement for a data set that specifies DISP=UNCATLG is to not allow the data set to be uncataloged if the job does not retrieve the data set information from the catalog. Instead, message IEF2871 dsn NOT UNCTLGD 13 is issued. This change prevents a user from accidentally uncataloging the wrong data set.

With APAR OA27917 on z/OS V1R10, a migration option is provided in the ALLOCxx parmlib member that allows the pre-z/OS V1R10 behavior, with tracking to the Tracking Facility and optionally a message, when a data set is uncataloged without retrieving the volume information from the catalog. For details on using this option, see the SYSTEM VERIFY_UNCAT option in the ALLOCxx parmlib member described in [**z/OS MVS Initialization and Tuning Reference**](#).

Common cases where the system will not retrieve volume information from the catalog are when VOLUME is specified on the DD statement, or for a NEW dataset.

Note that this change applies to disposition processing in dynamic allocation, as well as batch allocation.

<table>
<thead>
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</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have allocation requests that uncatalog data sets.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- Review, and correct if necessary, allocation requests that specify DISP=UNCATLG.
- Any request that specifies VOLUME= or DISP=NEW with DISP=UNCATLG will likely be affected by this migration action. Depending on what the request is attempting to accomplish, you might need to remove the VOLUME= option.
information and change DISP=UNCATLG to a different disposition such as DISP=DELETE. Alternatively, you can use a utility program (such as IDCAMS) to uncatalog the data set.

- With APAR OA27917:
  - If your installation specifies SYSTEM VERIFY_UNCAT(FAIL) behavior in the ALLOCxx parmlib member, or takes the default, affected jobs can be identified because message IEF287I dsn NOT UNCTLGD 13 is issued on behalf of the DD statement that must be changed. The unallocation request will not be allowed.
  - If your installation specifies SYSTEM VERIFY_UNCAT(TRACK), then affected jobs are identified in the Tracking Facility, but the unallocation request will be allowed.
  - If your installation specifies SYSTEM VERIFY_UNCAT(MSGTRACK), then affected jobs are identified in the Tracking Facility and message IEF384 WARNING: VOLUME NOT RETRIEVED FROM CATALOGI is issued on behalf of the DD statement that must be changed, but the unallocation request will be allowed.

  **Note:** The Tracking information contains the string ‘IEFALC 01’ followed by the step name and DD name. For batch allocated DDs, the program name will contain IEFIIC. For dynamically allocated DDs, the program name will be the offending program if it can be determined, or ‘SVC-099’ if it cannot be determined. The VALUE always shows 00. Instances of the ‘IEFALC 01’ violation should not be reported to IBM. These should be corrected by the installation.

**Reference information:**
- For more information about UNCATLG, see the DISP parameter in [z/OS MVS JCL Reference](https://www.ibm.com/docs/en/zos?topic=mvs-jcl-reference).
- For more information about the SYSTEM VERIFY_UNCAT option in ALLOCxx, see [z/OS MVS Initialization and Tuning Reference](https://www.ibm.com/docs/en/zos?topic=mvs-initialization-tuning).

**Remove all unnamed console definitions**

**Description:** Prior to z/OS V1R10, residual sysplex data for unnamed consoles was ignored during IPL. However, beginning with z/OS V1R10, unnamed consoles will cause an ABEND077 RSN00B03 during IPL unless they are removed. These unnamed consoles would have been created in a sysplex prior to the console naming requirements introduced in z/OS V1R4.2 and can be identified with D C,L and D C,SS commands. If present, the unnamed consoles will appear in the console name (consname) field of message IEE889I as two numeric characters (for example, 01,02,...99).

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<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: There are two methods available for removing the unnamed console definitions:
• Follow the instructions for "Removing Console Definitions from a Configuration" located in [OS MVS Planning: Operations]
• Perform a sysplex-wide IPL.

Modify your GDPS start procedure
Description: Beginning with z/OS V1R10, if you use a currently supported release of the GDPS/PPRC or GDPS/PPRC HyperSwap Manager (GDPS/HM) products, you must update your GEOXHSWP started task JCL. Before z/OS V1R10, the GEOXHSWP started task was started using the GDPS-supplied GEOXHSWP module, which is no longer supported on z/OS V1R10 and later systems.

Element or feature: BCP.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you use GDPS/PPRC or GDPS/HM.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Replace PGM=GEOXHSWP with PGM=IOSHSAPI in the GEOXHSWP started task JCL on z/OS V1R10 or later systems.

Reference information: For more information, see GDPS/PPRC V3.6 Installation and Customization Guide (order number ZG24-6703) or GDPS/PPRC HyperSwap Manager V3.6 Installation and Customization Guide (order number ZG24-6746).

Update the ST parameter of the TRACE command
Description: You can use the ST parameter of the TRACE command to specify the amount of preferred, central storage that is to be set aside for system trace table entries for each processor.

In z/OS V1R9, you could specify the amount in K bytes or M bytes. The minimum was 1K and the default 256K. If you specified the amount in K bytes, you had to specify a multiple of 4K.

In z/OS V1R10, system trace table space was moved above the 2 GB bar. This allows z/OS to maintain larger system traces, which makes traces more useful for
diagnosing problems in large configurations. In z/OS V1R10 (and later), you can specify the amount of storage in K, M, or G bytes. The minimum, as well as the default, is 1M. If you specify the amount in K bytes, you can specify any decimal number from 1 to 999.

If you specified the amount in K bytes prior to z/OS V1R10, you need to be aware of how this specification has changed because, in z/OS V1R10 and later, a request between 1K and 999K is interpreted as a request for 1M. Moreover, the TRACE ST command generates no error or warning message, but message IEE839I is issued to inform you that the default size (1M) is in effect.

**Note:** The default trace table size per processor was increased from 64 KB to 256 KB in z/OS V1R7 and, by APAR OA07896, in prior releases.

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</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you specify storage in K bytes on the TRACE ST command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you use the TRACE ST command with a storage specification in K bytes (1-999K), such as in the COMMND:xx member of parmlib, accept the new default of 1M for system trace table entries. Also, remove such commands to avoid future confusion.

**Reference information:** For details about the TRACE ST command, see z/OS MVS System Commands.

**Update automation and exits for the modified MCS logon command format**

**Description:** CNZMYLGN is a new macro in z/OS V1R10. Automation and command exits that modify MCS LOGON commands must use the format mapped by the CNZMYLGN macro. Before z/OS V1R10, there was no mapping of the LOGON command format, so programs scanning the command and making modifications could reorder the command's operands. With z/OS V1R10, the operands must appear in a defined order and location. CNZMYLGN maps these locations.

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<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>
Is the migration action required? Yes, if the MCS LOGON command is changed by automation or exit routines.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Change automation or command exits that modify the MCS LOGON command to ensure that the format mapped by CNZMYLGN is used.

Reference information:
- For more information about the MCS LOGON command, see z/OS MVS System Commands.

Discontinue the use of console names LOGON and LOGOFF

Description: Before z/OS V1R10, LOGON and LOGOFF were accepted as valid console names for an MCS, SMCS, EMCS, or subsystem console. As of z/OS V1R10, LOGON and LOGOFF are not acceptable as console names. Queries of a console name of LOGON or LOGOFF by using the CONVCON or CnzConv service will indicate that the console name is reserved.

Element or feature: BCP.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if a console name of LOGON or LOGOFF is used.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- Change your CONSOLxx parmlib members to remove use of console names LOGON and LOGOFF.
- Change any SEND commands that have a target console name of LOGON or LOGOFF.
- Change your code that invokes MCSOPER with consoles names of LOGON or LOGOFF.
- Change your code that invokes CnzConv or CONVCON with console names of LOGON or LOGOFF.

Reference information:
Accommodate VARY command changes

Description:

• VARY command attribute processing was changed in z/OS V1R10 to no longer allow attributes to be altered for inactive MCS, SMCS, and subsystem consoles. There are two exceptions: the LU and LOGON attributes can be changed for inactive SMCS consoles.

Before z/OS V1R10, VARY processing allowed all attributes to be changed for inactive MCS, SMCS, and subsystem consoles. Only the attributes for inactive EMCS consoles could not be changed. Beginning with z/OS V1R10, VARY command attribute processing no longer allows attributes to be altered for inactive MCS, SMCS, and subsystem consoles (as it does for inactive EMCS consoles). The only exceptions are the LU and LOGON attributes for inactive SMCS consoles. If a VARY command requests a change to an SMCS console attribute that is not LU or LOGON, message IEE871I CN=consname NOT ACTIVE. CAN NOT CHANGE CONSOLE ATTRIBUTES is issued.

• The VARY CN(),OFFLINE command was changed in z/OS V1R10 to no longer allow attributes to be altered when specified with the OFFLINE keyword. OFFLINE processing will still deactivate the console (except if the LU or LOGON keywords are specified) but the attributes will not be changed.

Before z/OS V1R10, the VARY CN(),OFFLINE command allowed all attributes to be specified and their attributes changed along with the console being deactivated. Only the attributes for inactive EMCS consoles could not be changed. In z/OS V1R10 and later, a VARY CN(),OFFLINE command with attributes specified is rejected, as follows:

– If the command specifies either the LU or LOGON attribute, the console is not deactivated and message ASA103I is issued indicating that the LU or LOGON keyword cannot be specified with the OFFLINE keyword.

– If the command specifies other attributes, the console is deactivated and the following message is issued: IEE871I CN=consname NOT ACTIVE. CAN NOT CHANGE CONSOLE ATTRIBUTES.

The reason there are two different messages (ASA103I and IEE871I) is that the LU and LOGON attributes are the only attributes that can be changed for inactive SMCS consoles, and it is necessary to differentiate these attributes from the rest of the console attributes (ROUT, INTIDS, MSCOPE, and so forth). Message IEE871I does not apply to LU and LOGON because those attributes can be changed when the console is not active.

• VARY command attribute processing was changed in z/OS V1R10 to allow an SMCS console to change its LU attribute to *NONE* independent of the SMCS console’s LOGON attribute.

Before z/OS V1R10, VARY processing required that the LOGON keyword be specified when the LU=*NONE* attribute was specified. The exception was when the SMCS console already had the LOGON=REQUIRED attribute, changing the LU to *NONE* would not require the LOGON attribute to be
specified. In z/OS V1R10 and later, it does not matter what the LOGON attribute is for an SMCS console. The LU attribute can be changed to *NONE* anytime. Note that having the LOGON attribute specified with the LU=*NONE* attribute still works; the LOGON attribute is just no longer required.

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<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if COMMDxx or IEACMDxx parmlib members contain the VARY attribute, VARY CN(),OFFLINE with attribute, or VARY CN(),LU=<em>NONE</em> commands, or if automation programs or exit routines issue MGCRE macros that execute a VARY attribute or VARY CN(),OFFLINE with attribute command.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:**
- Check if the consoles’ attributes really have to change. If they do, ensure that the consoles are active before changing their attributes. Do not issue attribute changes on a VARY CN(),OFFLINE command. If that command is required, first issue the VARY attribute command while the console is active, and then deactivate the console with a VARY CN(),OFFLINE command.
- Check the CONSOLxx parmlib member and verify that the console attributes are set correctly so that the consoles do not need to be changed by using the VARY command.
- Check if automation programs and exit routines issue MGCRE macros that execute a VARY attribute or VARY CN(),OFFLINE with attribute command.
- Notify system operators about the VARY command changes.
- If LU=*NONE* is specified, remove the LOGON attribute because it no longer needs to be specified. The LOGON attribute is still processed but it is no longer necessary.

**Reference information:** For more information about the VARY operator command, see [z/OS MVS System Commands](https://www.ibm.com/support/knowledgecenter/SSEPGG_2.11.0/com.ibm.zos.bks.doc/cbks2000a.html).

**Modify applications that use unsupported subsystem console functions**

**Description:** Before z/OS V1R10, the following subsystem console requests were supported:
- A demand select request for an MCS console as well as a subsystem console
- A request to change the routing codes for a subsystem console
• A request to release, set master authority, or reset master authority for a subsystem console that is active on another system

As of z/OS V1R10, the functions are no longer supported, as follows:
• A demand select request can no longer be made for an MCS console. Also, the SCSUNIT and SCSUNIT4 fields in the IEZVG100 parameter list must not be specified, meaning they must be zero.
• A request to change the routing codes for a subsystem console is ignored and returned with return code zero (assuming no other errors are detected).
• A request to release, set master authority, or reset master authority can be made only for a subsystem console that is active on the system that makes the request.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if subsystem consoles are being used.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>z/OS V1R9 PTF UA39760 (for APAR OA18204) is needed for z/OS V1R9 systems to join a z/OS V1R11 sysplex.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>Applications that use subsystem consoles might receive abends or nonzero return codes.</td>
</tr>
</tbody>
</table>

Steps to take:
• Request for demand select:
  – What to look for: Invocations of IEAVG700 in programs that run on z/OS V1R6 and later where the subsystem console service routine parameter list (SCSR as mapped by IEZVG100) flag SCSDEMSL is being set and the console being requested is not a subsystem console, or where fields SCSUNIT or SCSUNIT4 are being used.
  – What to do: Change the request to be for a subsystem console and do not set fields SCSUNIT or SCSUNIT4. Note that while it is necessary to make this change for programs that run on z/OS V1R9 (with PTF UA39760 for APAR OA18204 installed) and later, it is acceptable and advisable to change all such programs regardless of release level and regardless of whether the PTF is installed.

• Request to change routing codes:
  – What to look for: Invocations of IEAVG700 in programs that will run on z/OS V1R10 and later where the subsystem console service routine parameter list (SCSR as mapped by IEZVG100) flag SCSRTCDF or field SCSRTCDP is being set.
  – What to do: It is not necessary to make any changes because requests to change routing codes are accepted but not processed beginning with z/OS V1R10. It is, however, advisable to examine those programs to ensure that they will continue to function correctly when their requests to change routing
codes are accepted but not processed. It is advisable that such an examination be done for all such programs regardless of release level.

- Request to release, set master authority, or reset master authority on nonowning system:
  - **What to look for:** Invocations of IEAVG700 in programs that run on z/OS V1R8 and later where the subsystem console service routine parameter list (SCSR as mapped by IEZVG100) flags SCSRELSE, SCSPMSTR, or SCSNMSTR are being set and the request is for a subsystem console that is owned on some other system.
  - **What to do:** Change the invocation so that it is executed on the system where the console is owned. Note that while it is necessary to make this change for programs that run on z/OS V1R9 (with PTF UA39760 for APAR OA18204 installed) and later, it is acceptable and advisable to change all such programs regardless of release level and regardless of whether the PTF is installed.

You can use the Tracking Facility to help with this migration action. In Tracking Facility output, look for violations that start with “IEAVG700”. Instructions for obtaining and using the Tracking Facility are in the “Steps to take” topic of “Update callers of CNZMXURF that do not hold appropriate serialization” on page 116.

**Reference information:** None.

### Discontinue use of the DISPLAY CONSOLES,HCONLY command

**Description:** Before z/OS V1R10, specifying the DISPLAY CONSOLES,HCONLY command resulted in the reporting of message and SYNCH loss. As of z/OS V1R10, specifying the DISPLAY CONSOLES,HCONLY command results in message IEE535I being issued to indicate that an invalid DISPLAY parameter was specified.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have code that either issues DISPLAY CONSOLES,HCONLY or looks for the command response from DISPLAY CONSOLES,HCONLY.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** Any programs automating on the command response to DISPLAY CONSOLES,HCONLY will not run as expected.

**Steps to take:** Do not issue the DISPLAY CONSOLES,HCONLY command anymore. Update any programs that automate on the command response to the DISPLAY CONSOLES,HCONLY command to no longer automate on it.
Update automation to accommodate new responses to the DISPLAY CONSOLES command

**Description:** Before z/OS V1R10, specifying the DISPLAY CONSOLES command resulted in the issuance of message IEE889I, IEE890I, or IEE047I. In addition, all subsystem consoles were displayed when the NACTIVE parameter was specified. No subsystem consoles were displayed when the ACTIVE parameter was specified (or defaulted).

As of z/OS V1R10, specifying the DISPLAY CONSOLES command results in the issuance of new message CNZ4100I, CNZ4102I, or CNZ4103I. In addition, the DISPLAY CONSOLES system command displays active subsystem consoles when the ACTIVE parameter is specified (or defaulted) and inactive subsystem consoles when the NACTIVE parameter is specified.

- **Element or feature:** BCP.
- **When change was introduced:** z/OS V1R10.
- **Applies to migration from:** z/OS V1R9.
- **Timing:** Before the first IPL of z/OS V1R11.
- **Is the migration action required?** Yes, if you have code that looks for message IEE889I, IEE890I, or IEE047I.
- **Target system hardware requirements:** None.
- **Target system software requirements:** None.
- **Other system (coexistence or fallback) requirements:** None.
- **Restrictions:** None.
- **System impacts:** Any programs that automate on message IEE889I, IEE890I, or IEE047I will not run as expected.

**Steps to take:** Update any programs that automate on message IEE889I, IEE890I, or IEE047I to automate on CNZ4100I, CNZ4102I, and CNZ4103I instead. Also take into account the change in behavior for subsystem consoles.

Reference information:

- For more information about the DISPLAY CONSOLES operator command, see [z/OS MVS System Commands](https://www.ibm.com/docs/en/zos?topic=display-console).

Remove PPT entries for the global resource serialization ENQ/RESERVE/DEQ monitor

**Description:** Before z/OS V1R10, users of the global resource serialization ENQ/RESERVE/DEQ monitor were required to ensure that its address space ran at the highest possible dispatching priority. Beginning with z/OS V1R10, the monitor address space is run at the appropriate dispatching priority. Therefore, any program properties table (PPT) entries (defined in parmlib member SCHEDxx) that are related to the monitor's dispatching priority (specifically, the PRIV keyword)
are no longer required and can be removed, as they could be misleading. There is no longer any need to have a PPT entry for the monitor. The suggested program name (PGMNAME in the PPT) for the monitor was ISGAUDIT but you could change this name.

Note that, because this change makes the monitor address space an extension of the global resource serialization address space, the monitor address space’s CPU time is added to SMF type 30 records for the global resource serialization address space.

Element or feature: BCP.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? No, but recommended if you have any PPT entries for the global resource serialization ENQ/RESERVE/DEQ monitor to avoid possible confusion in the future.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- In parmlib member SCHEDxx, remove any PRIV\NOPRIV keyword that is specified for the global resource serialization ENQ/RESERVE/DEQ monitor. If you do not remove the keyword, it will be ignored, but not removing it could confuse someone who sees it in the future and does not realize that it is no longer functional.
- If a SYST keyword was also specified to ensure that the monitor would not time out, specify TIME=NOLIMIT on the JOB or EXEC statement instead because TIME=NOLIMIT pertains to all tasks in the address space.

Reference information: For more information about the global resource serialization ENQ/RESERVE/DEQ monitor, see z/OS MVS Planning: Global Resource Serialization.

Modify global resource serialization ISV-oriented exit ISGNQXITQUEUED1

Description: In z/OS V1R10, the parameter list for installation exit ISGNQXITQUEUED1 was changed. The NqppRsc_ReturnCode in the NQQP now contains the ISGENQ return code for ISGENQ requests, and the ENQ return code for ENQ/RESERVE requests. Before z/OS V1R10, the field contained an ENQ/RESERVE style return code for both ISGENQ and ENQ/RESERVE requests.

Element or feature: BCP.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
<table>
<thead>
<tr>
<th>Timing:</th>
<th>Before the first IPL of z/OS V1R11.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your software or any of your ISV software uses the ISGNQXITQUEUED1 installation exit.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>Failure to modify ISGNQXITQUEUED1 could cause a data integrity problem or system failure.</td>
</tr>
</tbody>
</table>

**Steps to take:**
1. Determine whether the ISGNQXITQUEUED1 installation exit is being used on your system by using the DISPLAY PROG,EXIT command. The target module names can help identify who the exploiters are.
2. If you are using the exit, do the following:
   - If any of the exit routines are owned by ISVs that you did not contact for new z/OS V1R10 support, contact those ISVs to ensure that you have the latest updates.
   - If any of the exit routines are owned by your installation, ensure that these exit routines have been modified to enable handling of the parameter list change.

**Reference information:**
- For information about the DISPLAY PROG,EXIT operator command, see [z/OS MVS System Commands](https://www.ibm.com/docs/en/zos).  
- For information about global resource serialization installation exits, see [z/OS MVS Installation Exits](https://www.ibm.com/docs/en/zos).  
- For changes to the ISGYNQQP parameter list, see .

**Update automation that handles message IEE174I**

**Description:** The content of message IEE174I has changed.

Before z/OS V1R10, the message might contain the following information:

    ID   CPU  VF  CR  SERIAL
    cpuid  s  s  s  ser_no
    cpuid  s  s  s  ser_no

    CPC ND = tttttt.nnn.mm.pp.ssssssssss
    CPC SI = tttt.nnnnnnnnnnnn.mmmmmmmmm.mppp.sssssssssssssssss

Starting in z/OS V1R10, the message might contain an additional line as follows:

    ID   CPU  VF  CR  SERIAL
    cpuid  s  s  s  ser_no
    cpuid  s  s  s  ser_no

    CPC ND = tttttt.nnn.mm.pp.ssssssssss
    CPC SI = tttt.nnnnnnnnnnnn.mmmmmmmmm.mppp.sssssssssssssssss
    Model: 000000000000000
If you are automating on the message, your automation might be affected.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have automation routines that examine the message.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** Change your automation to expect the additional message line.

**Notes:**
1. If the processor is concurrently upgraded to a new model, the model number in field oooooooooooooooo will reflect the new model without a processor IML/POR.
2. The line that begins “Model:” will only be displayed if model number oooooooooooooooo differs from model number/model-capacity identifier nnnnnnnnnnnnnnn.

**Reference information:** For a description of message IEE174I, see [z/OS MVS System Messages, Vol 7 (IEB-IEE)](z/OS MVS System Messages, Vol 7 (IEB-IEE)).

**Use the default for MEMLIMIT**

**Description:** Your MEMLIMIT value affects the virtual storage limit for a single address space above the 2 GB bar. Before z/OS V1R10, the MEMLIMIT default value was zero (meaning that the MEMLIMIT default was no virtual storage available above the 2 GB bar). As of z/OS V1R10, the MEMLIMIT default value has changed to 2 GB. This changed default provides a more usable value.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended so that there is some nonzero MEMLIMIT, by default, on the amount of virtual storage above the 2 GB bar for an address space.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.
Steps to take:

- To accept this new behavior, do nothing.
- If you wish to revert back to the prior MEMLIMIT default of zero, override the MEMLIMIT default to specify 0. But realize that a nonzero MEMLIMIT value is recommended, which is why the default value was changed in z/OS V1R10.

Tip: Use IBM Health Checker for z/OS to help determine whether your virtual storage limits are set properly. The check RSM_MEMLIMIT checks the current setting for the MEMLIMIT parameter in SMFPRMxx, which affects the amount of virtual storage above the 2 GB bar that is available to jobs. This check verifies that a nonzero MEMLIMIT value is in use.

Reference information: For more information about specifying MEMLIMIT in SMFPRMxx, see z/OS MVS Initialization and Tuning Reference.

Provide an appropriate HZSPDATA data set on fallback

Description: In z/OS V1R10, the format of data written to the HZSPDATA data set used by IBM Health Checker for z/OS was changed. Data written to HZSPDATA in z/OS V1R10 and later cannot be read by z/OS V1R9. Thus, if you fall back from z/OS V1R11 to z/OS V1R9 after you have started IBM Health Checker for z/OS on z/OS V1R11, you have to provide an appropriate HZSPDATA data set before you can use it on z/OS V1R9 because z/OS V1R11 formats HZSPDATA from the older format to the newer (z/OS V1R10 and later) format.

Note that the z/OS V1R10 and later version of IBM Health Checker for z/OS has no problem reading HZSPDATA data that was written on a z/OS V1R9 system.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use IBM Health Checker for z/OS and you fall back from z/OS V1R11 to z/OS V1R9.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>Once you use the HZSPDATA data set on z/OS V1R11, you cannot use it on z/OS V1R9. You must either provide a different data set (presumably a copy of the original z/OS V1R9 HZSPDATA) or reallocate (and lose the data in) the original data set.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Make a copy of your current z/OS V1R9 HZSPDATA data set. Upon fallback to z/OS V1R9, specify that copy of HZSPDATA on your IBM Health Checker for z/OS started procedure.
If you do not provide an appropriate HZSPDATA data set, message HZS0015E or HZS0013A is issued to indicate that the format of the current HZSPDATA data set is invalid. You will be prompted for specification of an HZSPDATA data set so that a check can write its persistent data.

Reference information: For information about allocating the HZSPDATA data set, see [IBM Health Checker for z/OS: User’s Guide](#).

### BCP actions to perform after the first IPL of z/OS V1R11

This topic describes BCP migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**Modify SMF exit routine IEFACTRT because of lengthened fields**

**Description:** A sample IEFACTRT exit routine is provided in SYS1.SAMPLIB in member IEEACTRT. This sample exit routine puts a job summary in the log of a job using WTO with routing code 14. The summary includes both step and job information. To accurately reflect data for long-running job steps, the following fields in the output generated by the sample IEFACTRT exit routine have increased in size:

<table>
<thead>
<tr>
<th>Field name</th>
<th>Pre-z/OS V1R11 field length</th>
<th>z/OS V1R11 field length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCB</td>
<td>6 bytes</td>
<td>9 bytes</td>
</tr>
<tr>
<td>SRB</td>
<td>6 bytes</td>
<td>9 bytes</td>
</tr>
<tr>
<td>SERV</td>
<td>6 bytes</td>
<td>13 bytes</td>
</tr>
</tbody>
</table>

If you use IEFACTRT, whether the IBM sample or a routine that you wrote, make sure that it can handle the increased field lengths.

**Element or feature:** BCP.

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you use SMF exit routine IEFACTRT.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** Review your IEFACTRT exit routine to make sure that the changed fields are long enough, and modify it if necessary. If you are using the IBM sample, rebase on the sample because it accommodates the longer field lengths. If you are using your own exit routine, verify that the longer field lengths are accommodated. Also review and change, if necessary, any automation programs that are affected.
Keep the real frames included in GRS real storage consumption for use

Description: Before z/OS V1R11, Resource Management Facility (RMF) reports and other monitoring tools might indicate a significant growth in Global Resource Serialization (GRS) real frame usage compared with the previous release. Starting with z/OS V1R11, GRS’s QSCAN buffer processing is changed to no longer require that frames backing discarded virtual pages be immediately returned to the RSM available frame queue, but are now taken by the system if needed. This approach improves the storage management of the buffers as they usually do not need to be re-backed as QSCANs come and go. Thus, GRS is not really using any more frames, and the frames are still available but can be taken if needed by RSM due to the storage being needed elsewhere. The real frame usage count includes both frames that are in use by the address space and ones that are readily available for the system to reclaim when they are needed.

Element or feature: BCP.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R19.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? No, but recommended to avoid confusion caused by the expected change in the report GRS real storage usage.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- No action is necessary to accept the new behavior.
- To avoid any confusion, inform the system administrator of the expected, and benign, change in the reported GRS real storage usage.

Reference information: For more information, see
- z/OS MVS Programming: Assembler Services Reference IAR-XCT
- z/OS RMF Report Analysis

Update callers of CNZMXURF that do not hold appropriate serialization

Description: The CNZMXURF macro locates the console control block (UCME) that contains a specific console ID. Applications should hold serialization while using CNZMXURF and accessing the UCME that CNZMXURF returns.

Before z/OS V1R10, when console services shared mode was the only mode available, the UCME contents did not change, so applications that did not hold serialization ran without error.
Beginning with z/OS V1R10, console services distributed mode is added, and it is now more important that applications hold serialization. When the system is in distributed mode (the default is shared mode) and a UCME is accessed without serialization, the contents of UCME storage could become cleared while being examined by the application. In addition, if the application is examining a UCME for an active console (when the system is in distributed mode) and the console becomes inactive, the UCME is cleared. If serialization is not held, the application can fail.

With z/OS V1R10 (and APAR OA19948 on z/OS V1R9 and prior releases), the Tracking Facility was enhanced so that it reports applications that call the CNZMXURF service without holding appropriate serialization. You should run the Tracking Facility to find the applications that need to be updated. In Tracking Facility output, look for violations that start with “UCME-CMS”.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have applications that use the CNZMXURF macro and access the UCME that CNZMXURF returns, and you want to ensure that application errors do not occur because of a failure to hold serialization.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
2. Install the PTF for APAR OA19948 on z/OS V1R9 so that you can use the Tracking Facility to detect inappropriate serialization.
3. Activate the Tracking Facility. Use the exclusion list you obtained in the step above.
4. Periodically issue the DISPLAY OPDATA,TRACKING command to obtain the results of the tracking.
5. Forward the output to consoles@us.ibm.com so that the exclusion list can be updated for future users of the Tracking Facility.
6. Obtain necessary modifications for the affected programs from the program owners.

Reference information:
- For information about using the Tracking Facility, see informational APAR II13752.
- For more information about the CNZMXURF macro, see [z/OS MVS Programming: Assembler Services Reference ABE-HSP](http://www.ibm.com/).
Modify applications that receive IOS ENF signal 10, 31, 32, or 33 for PPRC devices

Description: As of z/OS V1R10, peer-to-peer remote copy (PPRC) primary and secondary devices can be defined in subchannel set 1. Listeners for IOS ENF signals that include either device numbers or UCB addresses for PPRC primary or secondary devices need to qualify the device numbers for these devices with a subchannel set ID. The ENF event codes may contain these devices in their parameter lists. Any code directly using a device number from these ENF signals or parameter lists or using UCBCHAN from the UCB addresses in the parameter lists to identify a device will also need to refer to the subchannel set ID supplied in the parameter list or UCBSSID from the UCB address to correctly identify the device.

Element or feature: BCP.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you receive ENF event code 10, 31, 32, or 33.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Look for a parameter list received by an ENF listen exit that is established by an ENFREQ ACTION=LISTEN for ENF event code 10, 31, 32, or 33. Based on the ENF event code, do the following:

10 If the UCBCHAN from the UCB addresses in the parameter list is used to identify a device, the UCBSSID is required to be used to correctly identify the device. The UCBSSID can be referenced using the IOSDUPI mapping macro based on the UCBIEXT pointer.

31 or 32 If the DCCD parameter list is being processed, and the DCCDETYP=DCCDDEV entries are used, use the DCCDETYP=DCCDSDEV as well. Use the DCCDEDEVN from the DCCDSDEV entry and DCCDSSID from the DCCDDEV entry in combination to correctly identify the device. The DCCDSDEV entries are the same as the DCCDDEV entries but they have a DCCDETYP=DCCDDEV entry immediately following them.

33 When processing the DACH parameter list, if the DACHQN=DACHPAV entries are being used, the DACHQN=DACHPAV_AS entries should also be used, and if the DACHQN = DACHIORA entries are being used, the DACHQN=DACHIORA_AS entries should also be used.

Use the DACH_PAV_DEVN from the DACHPAV AS entries and DACH_PAV_SSID in combination to correctly identify the device. The DACH_IORA_DEVN from the DACHIORA AS entries should be used in combination with DACH_IORA_SSID to correctly identify the device.
<table>
<thead>
<tr>
<th>DACHTYPE</th>
<th>DACHQN if device is in subchannel set 0</th>
<th>DACHQN if device is not in subchannel set 0</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPE</td>
<td>DACHIORA</td>
<td>DACHIORA_AS</td>
<td>I/O resource available</td>
</tr>
<tr>
<td>PAVS</td>
<td>DACHPAV</td>
<td>DACHPAV_AS</td>
<td>Change in PAV UCB</td>
</tr>
</tbody>
</table>

For any listeners of ENF signal 10, 31, 32, or 33, use the new SPECIAL(YES) keyword and the SCHSET keyword on UCBLOOK or UCBSCAN invocations.

Reference information:
- For information about the meanings of the ENF event codes, see [z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG](#).
- For information about specifying the PPRC primary and secondary special devices, see [z/OS HCD Planning](#).

Reallocate the WLM couple data set

**Description:** In z/OS V1R10 (and later), you might need a larger workload management (WLM) couple data set because the WLM service class and workload records in the WLM policy are longer, as shown in Table 8.

*Table 8. Growth in size of WLM policy structures*

<table>
<thead>
<tr>
<th>IWMSVPOL entry</th>
<th>Pre-z/OS V1R10 entry length</th>
<th>z/OS V1R10 and later entry length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy information</td>
<td>168</td>
<td>360</td>
</tr>
<tr>
<td>Service class information</td>
<td>64</td>
<td>144</td>
</tr>
<tr>
<td>Workload information</td>
<td>40</td>
<td>112</td>
</tr>
</tbody>
</table>

Element or feature: BCP.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if the current WLM couple data set is not significantly larger than required for the currently used WLM service definition so that the data set can accommodate the increased size of the WLM policy structures.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: The WLM couple data set requires more storage in z/OS V1R10 and later.

**Steps to take:** Before you activate a WLM policy on z/OS V1R11, do the following:
1. Allocate a new WLM couple data set using the IXCL1DSU utility, as described in “Allocate a WLM Couple Data Set” in [z/OS MVS Planning: Workload](#).
Use the current NUMBER specification for each section (POLICY, WORKLOAD, SRVCLASS, and so forth).

**Note:** By using z/OS V1R11 to allocate your WLM couple data set, the space allocated will be sufficient for policy activation on z/OS V1R11. Ensure that the values provided for number of policies, workloads, and service classes are the current values because these values will be used by WLM to calculate the space required. An overspecification to allow for growth is acceptable.

2. Switch to the new WLM couple data set or sets as described in “Make a Newly Formatted Couple Data Set Available to the Sysplex” in z/OS MVS Planning: Workload Management.

3. Update the COUPLExx parmlib member to specify the new WLM couple data set or sets.

During policy activation, if WLM determines that the WLM couple data set is too small, the following message is issued: IWM003I VARY WLM FAILED, WLM COUPLE DATA SET TOO SMALL. You would then have to allocate and active a new, larger WLM couple data set.

**Note:** When you invoke the WLM Administration Application on a z/OS V1R10 system, the service definition in the partitioned data set will automatically update the ISPF tables to the z/OS V1R10 level. (Note that the ISPF table level in the partitioned data set is not the same as the WLM service definition functionality level.) Once the ISPF table is updated, it is not possible to open or edit this service definition from lower level systems. See z/OS MVS Planning: Workload Management for more information about this restriction.

**Reference information:** For additional information about how to allocate or resize the WLM couple data set, see z/OS MVS Planning: Workload Management.

---

**Enable changed GETMAIN and STORAGE OBTAIN behavior**

**Description:** z/OS V1R10 provides a new statement in parmlib member DIAGxx that allows an installation to choose the allocation method used by the GETMAIN and STORAGE OBTAIN macros to obtain user-region private area subpools. The new DIAGxx statement (introduced by APAR OA27291) is “VSM USEZOSV1R9RULES(YES|NO)”. In z/OS V1R10 (and later), the default setting is YES, which keeps the GETMAIN and STORAGE OBTAIN behavior the same as in previous releases.

Some applications, such as DB2, have experienced performance problems because descriptor queue element (DQE) and free queue element (FQE) chains have become extremely long for certain user-region private area subpools. These applications can benefit from the new z/OS V1R10 (and later) GETMAIN and STORAGE OBTAIN behavior, which merges adjacent DQEs, when possible, and thus results in shorter DQE chains. You can enable the new behavior by specifying “VSM USEZOSV1R9RULES(NO)”. The new behavior could give the perception in some cases that storage is not being cleared to zero as it previously was. Storage is cleared by the system no differently in z/OS V1R10 and later than it was previously. The reason for the apparent difference is because storage requests can now be satisfied partly from an FQE on a page adjacent to a newly obtained DQE. If the storage represented by that FQE had previously been obtained and then freed, the residual data remains. Programs
that assume that storage will be cleared by the system even for cases where there is no guarantee of it could be affected. Depending on the contents of the uncleared storage and how it is used, this might result in ABEND0Cx, overlay of storage, or other problems. (See APAR OA27291 for examples and more information.)

Restoring to the old behavior might be necessary if programs in the installation are making unwarranted assumptions about internal VSM behavior. In this case, specify “VSM USEZOSV1R9RULES(YES)” until the applications causing problems can be corrected.

If you have existing programs that use the GETMAIN or STORAGE OBTAIN macros to obtain user-region private area storage, use the information in the table below to understand the implications of using the new behavior.

<table>
<thead>
<tr>
<th>z/OS V1R9 and earlier, or z/OS V1R10 with the PTF for APAR OA27291 installed and VSM USEZOSV1R9RULES(YES) specified or defaulted, or z/OS V1R11 and VSM USEZOSV1R9RULES(YES) specified or defaulted</th>
<th>z/OS V1R11 and VSM USEZOSV1R9RULES(NO) specified, z/OS V1R10 with the PTF for APAR OA27291 installed and VSM USEZOSV1R9RULES(NO) specified, or z/OS V1R10 without the PTF for APAR OA27291 installed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage is more likely to be obtained from a fresh page (which by MVS rules is guaranteed to be cleared to binary zeros).</td>
<td>Storage requests are more likely to be fulfilled from areas that were previously obtained with the GETMAIN or STORAGE OBTAIN requests (which means they might contain residual data). Depending on the contents of the uncleared storage and how it is used, programs that do not clear the storage before use might experience abend X'0Cx', overlay of storage, or other unexpected problems. (See APAR OA27291.)</td>
</tr>
<tr>
<td>Storage is allocated from the top (higher address) of the page to the bottom (lower address).</td>
<td>Storage is allocated from the bottom (lower address) of the page to the top (higher address). Programs that depend on the previous allocation method might be affected. (See APAR OA27291.)</td>
</tr>
<tr>
<td>Unless a GETMAIN request can be satisfied entirely from an existing FQE, a new DQE must be obtained for each GETMAIN request. Very long DQE/FQE chains can result in performance degradation.</td>
<td>Storage requests can now be satisfied partly from an FQE on a page adjacent to a newly obtained DQE. New DQEs obtained by GETMAIN are merged with adjacent DQEs of the same subpool and key that are owned by the same task. Programs that depend on the previous allocation method for DQEs might be affected.</td>
</tr>
</tbody>
</table>

**Element or feature:** BCP.

**When change was introduced:** z/OS V1R10.

**Applies to migration from:** z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.

**Is the migration action required?** No, but recommended for better performance of programs that issue large numbers of GETMAIN or STORAGE OBTAIN requests in a user-region private area subpool.
Steps to take:

1. If you previously coded a NUCLABEL ENABLE|DISABLE(IGVGPVTN) statement in your DIAGxx parmlib member as a circumvention for HIPER APAR OA27291, delete the statement because this syntax is no longer recognized with z/OS V1R11 or with the installation of the PTF for APAR OA27291 on z/OS V1R10.

   If you do not delete the NUCLABEL ENABLE|DISABLE(IGVGPVTN) statement, the following message will display:

   ASA008I ERROR IN PARMLIB MEMBER=DIAG00 ON LINE 32, POSITION 18:
   VALUE IS NOT VALID - NO MATCH FOUND.
   DETECTING MODULE IS IGVDPVR. INPUT LINE:
   NUCLABEL ENABLE(IGVGPVTN)

2. To enable the new z/OS V1R10 and later storage allocation behavior, use the following line in the running DIAGxx parmlib member: VSM USEZOSV1R9RULES(NO). Then issue the SET DIAG=xx command to dynamically activate the new setting.

3. If it is necessary to back out the new storage allocation behavior, specify the following line in the running DIAGxx parmlib member: VSM USEZOSV1R9RULES(YES). Then issue the SET DIAG=xx command to dynamically activate this setting.

Note: As with most of the parameters in DIAGxx, the current behavior for parameter USEZOSV1R9RULES can only be changed by the presence of this parameter in DIAGxx. At IPL, the current behavior and the default is as if USEZOSV1R9RULES(YES) were specified. If SET DIAG=xx changes the value to NO, this value remains the current setting until explicitly changed. SET DIAG=xx, which does not have USEZOSV1R9RULES included, does not change the value back to the default of YES. Only an IPL will change USEZOSV1R9RULES back to the default value without the parameter being included in DIAGxx.

Reference information:

- For details about using the GETMAIN macro, see z/OS MVS Programming: Authorized Assembler Services Reference ABE-HSI or z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG.

Accommodate the change of directory information for PDSE program objects with authorization code zero

Description: If the authorization code for a program object (PDSE) is not specified or is specified as zero during bind, the program management binder builds a directory entry with the bit set indicating that the authorization code is not present. However, this is not consistent with load module (PDS) processing and the IEHLIST LISTPDS command shows inconsistent information for PDS modules and
PDSE program objects where the authorization code is either not specified or is specified as zero (using the binder AC option or SETCODE control statement). For PDSEs, the information is blank unless a nonzero authorization code is specified. For PDSs, the Auth Req column contains NO if the authorization code is zero or unspecified. As of z/OS V1R9 and APAR OA21759, the binder always sets a valid authorization code in the directory for a program object (PDSE) with the value specified by the user on the AC option or SETCODE control statement, or the default value if none is specified.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>BCP.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>APAR OA21759 on z/OS V1R9, z/OS V1R8, and z/OS V1R7 (integrated in z/OS V1R10).</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR OA21759 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use IEHLIST LISTPDS output or examine the directory entries to determine the authorization requirement of PDSE program objects.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Ensure that the change of directory information for the PDSE program object with authorization code zero does not affect your existing processing. For example, if your program reads the Auth Req column listed by the IEHLIST LISTPDS command for the PDSE program object, it needs to be adjusted to handle the new display of NO, which means AC=00.

**Notes:**
1. To update the directory information and achieve the improved IEHLIST LISTPDS command output (new display of NO), existing program objects in PDSE data sets must be relinked with the program management binder.
2. If there is no APF code stored in the directory entry for a program object, ISPF displays 00 in the APF authorization code column on the member list panel. This functionality was introduced by ISPF APAR OW52063, which was integrated in z/OS V1R5 and does not depend on this enhancement to the program management binder.

**Reference information:** For details about the change, see APAR OA21759.
Chapter 6. CIM migration actions

CIM actions to perform before installing z/OS V1R11

None.

CIM actions to perform before the first IPL of z/OS V1R11

This topic describes CIM migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Update the environment file

Description: Some CIM providers use an additional library path that might not be defined in z/OS V1R9. The library path is /usr/lpp/wbem/lib:/usr/lpp/wbem/provider:/usr/1ib. This library path is defined in the environment file cimserver.env located in /etc/wbem, and must be updated manually.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>CIM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your CIM provider needs the updated library path.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>Failure to update the environment file for a CIM provider that needs the updated library path could cause the CIM server to fail when the CIM provider is started.</td>
</tr>
</tbody>
</table>

Steps to take: Replace the environment file cimserver.env located in /etc/wbem with the new sample installed in directory /usr/lpp/wbem. However, if you prefer, instead of replacing cimserver.env with the new sample, make sure that the following directories are included in the LIBPATH defined in cimserver.env: /usr/lpp/wbem/lib:/usr/lpp/wbem/provider:/usr/1ib.

Reference information: For more information about customizing environment file cimserver.env, see z/OS Common Information Model User's Guide.
CIM actions to perform after the first IPL of z/OS V1R11

None.
Chapter 7. Communications Server migration actions

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This topic describes migration actions for base element Communications Server.

Communications Server actions to perform before installing z/OS V1R11

This topic describes Communications Server migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

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IP Services: Modify applications to no longer add IPv6 type 0 routing headers to outgoing packets

Description: The IPv6 type 0 routing header is deprecated, as described in RFC 5095 [http://www.ietf.org/rfc/rfc5095.txt]. Beginning with z/OS V1R11, an application will receive an error if it attempts to add an IPv6 type 0 routing header to outgoing packets. If your installation is affected by this change, you must update applications that run on the TCP/IP stack to remove the use of the IPV6_RTHDR option to build IPv6 type 0 routing headers.

Note: The IPv6 type 0 routing header is rarely used.

Element or feature: Communications Server.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you run applications on the TCP/IP stack that build IPv6 type 0 routing headers in outgoing packets.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
2. Identify any applications you run on your TCP/IP stack that use the IPV6_RTHDR option to build IPv6 type 0 routing headers in outgoing packets.
3. For each application identified in Step 2, determine if changes are required in order to continue using the application on a stack that does not support IPv6 type 0 routing headers.
4. For each application that requires changes, complete those changes or discontinue use of the application.


IP Services: Update automation to accommodate FTP output that is changed for extended address volumes

Description: The output of several FTP subcommands and commands has changed in support of extended address volumes:

- The FTP client LOCSITE and SITE subcommands with the QDISK parameter, and the FTP server SITE command with the QDISK parameter, display statistics about the amount of space available on a volume. In z/OS V1R11, the output format has been changed to accommodate the larger amounts of free space available on extended address volumes.
You must change FTP client API programs and automation tools to recognize the new formats.

Note that the new formats are used for all volumes.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use FTP to display statistics about the space on any volume and you process the space statistics programmatically.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:**
- Be aware of the changes in messages and replies that FTP uses to report space statistics for volumes:
  - The following messages have changed: EZA2192I, EZA2193I, and EZA2194I.
  - The following replies have changed:
    - 200- Percent Free Free Largest Free
    - 200- Volume Free Cyls Trks Cyls-Trks Exts Use Attr
- Update any automated processing tools or FTP client API applications to recognize the format of messages and replies issued by FTP to report space statistics for volumes.

**Reference information:**
- For details about messages EZA2192I, EZA2193I, and EZA2194I, see [z/OS Communications Server: IP Messages Volume 1 (EZA)](https://www.ibm.com).  
- For details about FTPD reply codes, see [200- Percent Free Free Largest Free and 200- Volume Free Cyls Trks Cyls-Trks Exts Use Attr](https://www.ibm.com) in [z/OS Communications Server: IP and SNA Codes](https://www.ibm.com).
- For details about the LOCSITE and SITE subcommands, see [LOCSite subcommand](https://www.ibm.com) and [SITE subcommand](https://www.ibm.com) in [z/OS Communications Server: IP User’s Guide and Commands](https://www.ibm.com).

**IP Services: Update procedures that use the syslogd job name**

**Description:** Before z/OS V1R11, the job name of the syslog daemon (syslogd) was the name of the cataloged procedure plus an additional character (usually the character “1”) when syslogd was started from a procedure and when the procedure name was less than 8 characters in length. An additional character was also appended to the program name when syslogd was started from the z/OS UNIX shell. Beginning with z/OS V1R11, the syslogd job name is the same as the procedure name or program name.

| Element or feature: | Communications Server. |
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you have automation or procedures that use the syslogd job name, or if you reserve the syslogd UDP port using the job name.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- Update any automation or other procedures that use the syslogd job name. If you run two copies of syslogd, be sure to use a unique job name for each copy.
- Update the syslogd UDP port reservation in the TCP/IP profile to use the syslogd procedure name.

Reference information: For details about updating procedures that use the syslogd job name, see TCP/IP Customization in z/OS Communications Server: IP Configuration Guide.

IP Services: Accept the new behavior of TCP receive buffer size

Description: Before z/OS V1R11, there was no automatic buffer size tuning of inbound streaming TCP connections. Starting in z/OS V1R11, the TCP stack automatically tunes the ideal window size for inbound streaming TCP connections over networks with large bandwidth and high latency. The stack enables the TCP receive buffer size to grow as large as 2 MB for such TCP connections, irrespective of the TCMPMAXRCVBUFFSIZE value. The pre-V1R11 behavior is no longer possible; this is a performance enhancement.

Element or feature: Communications Server.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you have inbound streaming TCP connections over networks with large bandwidth and high latency.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: This function does not take effect for applications that request a TCP receive buffer size smaller than 64 KB on the SO_RCVBUF socket option on SETSOCKOPT(). Also, if the TCP RCVBUFSIZE value is less than 64 KB, this function does not take effect for applications that do not use the SO_RCVBUF socket option on SETSOCKOPT().

System impacts: None.

Steps to take: Update applications that process output from the Netstat ALL/-A command so they can handle the larger values for the reported RcvWnd, ReceiveBufferSize, and ReceiveDataQueued fields.

Reference information: See Netstat ALL/-A report in z/OS Communications Server: IP System Administrator’s Commands.

IP Services: Migrate from NDB function

Description: z/OS V1R10 was the last release in which z/OS Communications Server supported the Network Database (NDB) function. Starting with z/OS V1R11 you have to use the distributed data facility (DDF) provided by DB2 for z/OS, and the DB2 Runtime Client.

Element or feature: Communications Server.

When change was introduced: Removal of support effective with an unspecified future release was announced on 7 August 2007 in the z/OS V1R9 availability announcement. Removal of support following z/OS V1R10 was announced on 26 February 2008 in the z/OS V1R10 preview announcement. Removal of support did occur in z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you use the NDB function.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Change your processes to use the distributed data facility (DDF) provided by DB2 for z/OS, and the DB2 Runtime Client. DDF allows client applications running in an environment that supports Distributed Relational Database Architecture™ (DRDA®) to access data at DB2 servers.

Tip: Use IBM Health Checker for z/OS to determine if the NDB function is in use. The check is named ZOSMIGV1R10_CS_NDB.

Reference information: For an introduction to the distributed data facility of z/OS for DB2, see Introduction to DB2 for z/OS, SC18-9847-00.
IP Services: Migrate from BIND DNS 4.9.3 function

**Description:** z/OS V1R10 was the last release in which z/OS Communications Server supported BIND DNS 4.9.3.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>The removal of BIND DNS 4.9.3 function was announced in October 2003. At that time, z/OS V1R7 was planned to be the last release in which the function would be available. Subsequently, the removal was delayed until after z/OS V1R10, as stated in the 26 February 2008 z/OS V1R10 preview announcement. Removal of the function did occur in z/OS V1R11.</td>
</tr>
</tbody>
</table>

| Applies to migration from: | z/OS V1R10 and z/OS V1R9. |
| Timing: | Before installing z/OS V1R11. |
| Is the migration action required? | Yes, if you use BIND DNS 4.9.3 function. |

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:**

- If you have been using BIND DNS 4.9.3 as a caching-only name server, use the z/OS Resolver DNS Caching function in z/OS V1R11 instead.
- If you have been using BIND DNS 4.9.3 as a primary or secondary authoritative name server, migrate to BIND DNS on Linux for System z.
- If you want to implement a temporary replacement, implement BIND DNS 9.2.0, which has been included in z/OS beginning with V1R4. Use the dnsmigrate tool to migrate a z/OS BIND 4.9.3 DNS server configuration file to a z/OS BIND 9.2.0 DNS server configuration file. Note that support for BIND DNS 9.2.0 is planned to be removed in a future release.
- If you exploit the Connection Optimization (DNS/WLM) feature of BIND 4.9.3, you have to use an alternative solution. One alternative would be using the sysplex distributor function, which is implemented using distributed dynamic VIPAs (VIPADISTRIBUTE statement in the TCPIP PROFILE). Another alternative is the z/OS Load Balancing Advisor in combination with the Automated Domain Name Registration application (ADNR), which provides the ability to automatically update DNS with the availability status of sysplex resources.

**Tip:** Use IBM Health Checker for z/OS to determine if a BIND DNS name server function is in use. The check for the BIND DNS 4.9.3 is named ZOSMIGV1R10_CS_BIND4 and the check for the BIND DNS 9.2.0 is ZOSMIGV1R11_CS_BIND9.

**Reference information:** For details about the resolver, BIND 9.2.0 name server, z/OS Load Balancing Advisor, ADNR, and the sysplex distributor function, see [z/OS Communications Server: IP Configuration Guide](#) and [z/OS Communications Server: IP Configuration Reference](#).
## IP Services: Migrate from BINL function

**Description:** z/OS V1R10 was the last release in which z/OS Communications Server supported the Boot Information Negotiation Layer (BINL). Starting with z/OS V1R11, you have to use another product, such as IBM Tivoli Provisioning Manager for OS Deployment V5 (5724-Q99), for network-based operating system installation services.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Removal of support effective with an unspecified future release was announced on 7 August 2007 in the z/OS V1R9 availability announcement. Removal of support following z/OS V1R10 was announced on 26 February 2008 in the z/OS V1R10 preview announcement. Removal of support did occur in z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the BINL function.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Use the product IBM Tivoli® Provisioning Manager for OS Deployment V5 (5724-Q99) for network-based operating system installation services.

**Tip:** Use IBM Health Checker for z/OS to determine if the BINL function is in use. The check is named ZOSMIGV1R10_CS_BINL.

**Reference information:** For more information, see *IBM Tivoli Provisioning Manager for OS Deployment Users Guide*, SC32-2582.

## IP Services: Migrate from DHCP server function

**Description:** z/OS V1R10 was the last release in which z/OS Communications Server supported the Dynamic Host Configuration Protocol (DHCP) server function. Starting with z/OS V1R11, you have to use a DHCP server on a system other than your z/OS system.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Removal of support effective with a future release was announced on 7 August 2007 in the z/OS V1R9 availability announcement. Removal of support following z/OS V1R10 was announced on 26 February 2008 in the z/OS V1R10 preview announcement. Removal of support did occur in z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
</tbody>
</table>
Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you use the DHCP server.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Implement the DHCP server on a system other than your z/OS system. If you want to continue to run the DHCP server on your System z hardware, you can implement a DHCP server inside a Linux® for System z image. DHCP servers are widely available on a variety of platforms.

Tip: Use IBM Health Checker for z/OS to determine if the DHCP function is in use. The check is named ZOSMIGV1R10_CS_DHCP.

Reference information: For information about implementing a DHCP server on a non-z/OS system, refer to the documentation for that system.

IP Services: Remove customization of SNMP sysObjectID MIB object in OSNMPD.DATA file

Description: The SNMP agent allows you to provide some initial settings for a small set of MIB objects by using the OSNMPD.DATA file. One of the objects for which an initial value can be provided is sysObjectID.0. The sysObjectID.0 object is the vendor's authoritative identification of the network management subsystem contained in the entity. That is, it is intended to uniquely identify the SNMP agent. Changing this value is not recommended and the ability to change it will be disabled in a future release. As of z/OS V1R4, warning message EZZ6317I is written to the syslog daemon if the object is set by using the OSNMPD.DATA file. As of z/OS V1R8, message EZZ6317I is also written to the console.

Element or feature: Communications Server.

When change was introduced: Future removal of the ability to customize the sysObjectID value was announced in the z/OS V1R4 time frame. Message EZZ6317I is written to the syslog daemon as of z/OS V1R4, and to both the syslog daemon and console as of z/OS V1R8.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? No, but recommended because the ability to customize the sysObjectID value is planned to be removed in a future release.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.
Steps to take: Review the statements in your OSNMPD.DATA configuration file. If this file contains a statement for the sysObjectID object, remove the statement from the file.

Reference information: For details about statements in the OSNMPD.DATA configuration file, see the network management topic of z/OS Communications Server: IP Configuration Guide.

IP Services: Update IP filter policy to filter IP fragments correctly for RFC 4301 compliance

Description: IP filter policy support for filtering fragments was improved in z/OS V1R10. Before z/OS V1R10, Communications Server filtered all IP fragments using a policy of first possible filter match, and filtered IPv6 fragments as protocol IPv6Frag. Beginning in z/OS V1R10, Communications Server follows rules and restrictions established by RFC 4301 to ensure proper classification of fragments. RFC 4301, “Security Architecture for the Internet Protocol”, specifies the base architecture for IPSec-compliant systems, including restrictions on the routing of fragmented packets.

Communications Server does not implement stateful fragment checking; therefore, restrictions are added as required by RFC 4301 to optionally require that IP filter rules applying to routed traffic not apply to specific ports, types, or codes. These restrictions are globally configured as to whether or not they are applied. Additionally, support is added for use of OPAQUE protocol selector values for IPv6 fragments in which the upper layer protocol value is not known.

Note: In a future release of z/OS, RFC 4301 compliance might become mandatory. Changing an IPSec policy from being noncompliant to compliant might require minor changes to IP filters for IP traffic that is routed through z/OS. The Configuration Assistant for z/OS Communications Server includes functions to assist with identifying and making such changes.

<table>
<thead>
<tr>
<th>Element or feature:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you enable RFC 4301 compliance and your IP filter policy selectively matches routed traffic based on TCP port, UDP port, ICMP type and code, ICMPv6 type and code, or OSPF type. The migration action is also recommended if your IPSec policy is noncompliant because RFC 4301 compliance might become mandatory in a future release of z/OS.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take: If you configure the RFC4301Compliance parameter on the IpFilterPolicy statement as No, or use the default value of No, no further action is required at this time. You should, however, review your existing IP filter policy and possibly make changes to become compliant because RFC 4301 compliance might become mandatory in a future release.

If you configure the RFC4301Compliance parameter on the IpFilterPolicy statement as Yes, perform the steps that are appropriate for you:

1. If you currently use IBM Configuration Assistant for z/OS Communications Server, perform the following steps.
   a. Be aware that IBM Configuration Assistant for z/OS Communications Server requires a onetime migration step in preparation for RFC 4301 compliance. Specifically, IBM Configuration Assistant for z/OS Communications Server requires you to remove the ambiguous routing setting of Either on the Traffic Descriptors. This applies only to the connectivity rules configured for filtering, such as Permit and Deny.
   b. Install the z/OS V1R11 IBM Configuration Assistant for z/OS Communications Server.
   c. Start IBM Configuration Assistant for z/OS Communications Server.
   d. IBM Configuration Assistant for z/OS Communications Server automatically performs a onetime migration step. It creates a new backing store binary file without altering the pre-z/OS V1R11 backing store. A report is displayed.
   e. Study the report. The report indicates if there was insufficient information to seamlessly migrate all connectivity rules, in which case a user action is required. The report also indicates if any rules were detected that are not RFC 4301 compliant, and it explains the reasons why.
   f. If the report indicates a user action is required, go to each rule marked as incomplete, select the rule, and click the View Details button to determine the user action required. Edit each rule to make the correction.
   g. Consider eliminating or changing the rules that are not RFC 4301 compliant.

2. If you do not wish to use IBM Configuration Assistant for z/OS Communications Server, you may perform the following steps manually to ensure that all IpFilterRule objects pertaining to routed traffic do not distinguish between port, type, or code values. For this process, identify all IpFilterRule objects that pertain to routed traffic (for example, objects that have an IpService Routing specification of Routed or Either). For each of these IpFilterRule objects, perform the following steps:
   a. If the IpService Routing specification is Either but the filter rule applies only to local traffic, correct the Routing specification to read Local.
   b. If the IpService Routing specification is Routed and the filter rule applies to certain specific ports, types, or codes, perform the following steps:
      1) Identify all IpFilterRule objects that apply to routed traffic between the same or overlapping endpoints as the IpFilterRule under consideration.
      2) z/OS V1R11 Communications Server requires that the same filter policy action be applied to all ports, types, or codes between the same routed endpoints. This is necessary because of the inherent ambiguity in determining the correct policy action to take for fragments in which these values are unknown. At your choice, you may apply the same policy action to a single IP protocol or to all IP protocols between the same routed endpoints. Consult the filter rules identified in the previous
step and choose an appropriate filter action of deny, permit, or ipsec to be applied to all of this traffic. If you choose an action of ipsec, choose an appropriate level of IPSec protection for all of this traffic.

3) Create a single IpFilterRule for the traffic identified in the previous step pertaining to all port, type, or code values or to all protocols, at your choice and with the filter action of your choice.

4) Remove all port-, type-, and code-specific IpFilterRule objects that were previously identified as pertaining to routed traffic between the same pair of endpoints as the IpFilterRule under consideration.

5) Change the policy at the corresponding security endpoint to match the changes made to local policy.

6) For this routed traffic, enforce sufficient IP filter policy at the final IP traffic destination node to ensure that unwanted traffic is denied based on the port-, type-, or code-specific IpFilterRule objects that were previously removed from the local policy.

c. If the IpService Routing specification is Either and the filter rule applies to certain specific ports, types, or codes, perform the following steps:
1) Create two copies of this filter rule, one of which has a Routing specification of Local and one of which has a Routing specification of Routed.

2) Leave the Local filter rule unchanged; for the Routed filter rule, perform the steps listed in 2b on page 136 to apply new routed traffic restrictions.

d. If the IpService Protocol specification is IPv6Frag, perform the following steps. z/OS V1R11 Communications Server identifies the IPv6 upper layer protocol in fragmented IPv6 packets wherever possible. The IPv6Frag specification is removed and is replaced with an Opaque protocol specification.

1) If you know that IPv6 fragments between this filter rule’s endpoints have no IPv6 extension headers that will prevent TCP/IP from identifying the upper layer protocol in each fragment, then remove this filter rule; it is unnecessary.

2) If it is possible or unknown whether IPv6 fragments will have unknown upper layer protocol values, and the filter rule action is permit or the filter rule action is ipsec with a manual VPN, replace the IpService Protocol specification of IPv6Frag with the keyword Opaque.

3) If it is possible or unknown whether IPv6 fragments will have unknown upper layer protocol values, and the filter rule action is ipsec with a dynamic VPN, perform the following steps:
   a) Identify all IpFilterRule objects that apply to routed traffic between the same or overlapping endpoints as the IpFilterRule under consideration.

   b) Because it is not possible to negotiate tunnels for an unknown protocol value, you must define a tunnel for all protocol values. Consult the filter rules identified in the previous step and choose an appropriate level of IPSec protection for all of this traffic.

   c) Create a single IpFilterRule for the traffic identified in the previous step, pertaining to all protocol values.

   d) Remove all IpFilterRule objects that were previously identified as pertaining to routed traffic between the same pair of endpoints as the IpFilterRule under consideration.
e) Change the policy at the corresponding security endpoint to match the changes made to local policy.

f) For this routed traffic, enforce sufficient IP filter policy at the final IP traffic destination node to ensure that unwanted traffic is denied based on the more granular IpFilterRule objects that were previously removed from the local policy.

e. Otherwise no change is necessary for this IpFilterRule.

3. If you do not currently use IBM Configuration Assistant for z/OS Communications Server and would like to start using it, there is new support to help you migrate.


   b. Use the new import policy data function to have IBM Configuration Assistant for z/OS Communications Server initialize with the parameters you configured manually.

   c. Study the import report to see if any user actions are required.

Tip: Use IBM Health Checker for z/OS check ZOSMIGV1R11_CS_RFC4301 to determine whether IPSec filter rules are compliant with RFC4301. This check is available in z/OS V1R10 with the installation of PTF UA47191 (APAR OA28605).

Reference information:
- IPSec RFC currency in [z/OS Communications Server: New Function Summary](http://www.ibm.com/software/network/commserver/zos/newfunction)

**IP Services: Migrate FTP servers sharing FTP.DATA with FTP clients**

**Description:** Before z/OS V1R10, only the FTP client supported the SECUREIMPLICITZOS statement. In z/OS V1R10, the FTP server was enhanced to support implicitly secured TLS connections from non-z/OS FTP clients. Thus, the server will start supporting the SECUREIMPLICITZOS statement.

If you want to keep the behavior of past releases, you must take action.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your FTP server and FTP client use a common FTP.DATA file or data set, and you have coded SECUREIMPLICITZOS FALSE in FTP.DATA.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
</tbody>
</table>
System impacts: When SECUREIMPLICITZOS FALSE is coded in FTP.DATA, the server will support implicitly secured TLS connections when non-z/OS clients connect to the server’s protected port as specified by the TLSPORT statement in FTP.DATA. The client that shares FTP.DATA with the server will now be able to log into the server’s protected port.

z/OS FTP clients that do not share FTP.DATA with the server could have configured SECUREIMPLICITZOS TRUE, the default. These clients will no longer be able to log into a z/OS FTP server using the protected port when the server shares FTP.DATA with an FTP client that has specified SECUREIMPLICITZOS FALSE in FTP.DATA.

Steps to take: Do one of the following:

- Create a separate FTP.DATA file or data set for the FTP server, and code SECUREIMPLICITZOS TRUE (the default) in the server’s FTP.DATA. This preserves the behavior of past releases.
- For clients that share FTP.DATA with the server, change the SECUREIMPLICITZOS setting after starting the client but prior to logging into the server’s protected port, as follows:
  1. Start the FTP client with the -n option to suppress logging into the server.
  2. Use the locsite subcommand with the secureimplicitzos parameter to set SECUREIMPLICITZOS to TRUE.
  3. Use the open subcommand to log into the FTP server’s protected port.

  Tip: Use the locstat subcommand to display the client’s current SECUREIMPLICITZOS setting.

Rules:

- To enable a z/OS FTP client to log into a z/OS FTP server’s protected port, the client and server must be configured with the same value for SECUREIMPLICITZOS.
- To enable a non-z/OS FTP client to log into a z/OS FTP server’s protected port, SECUREIMPLICITZOS FALSE must be coded in the server’s FTP.DATA.

Reference information:

- ‘TLSPORT (FTP client and server)’ in z/OS Communications Server: IP Configuration Reference
- ‘SECUREIMPLICITZOS (FTP client and server)’ in z/OS Communications Server: IP Configuration Reference
- ‘LOCsite subcommand-Specify site information to the local host’ in z/OS Communications Server: IP User’s Guide and Commands
- ‘LOCStat subcommand-Display local status information’ in z/OS Communications Server: IP User’s Guide and Commands
IP Services: Update network management applications for SNMP support of the RFC versions of networking MIB modules

**Description:** In z/OS V1R5 and V1R6, in order to support IPv6 network management data, the SNMP TCP/IP subagent was enhanced to support IETF Internet drafts of the standard networking MIB modules, which are:
- IP-MIB
- IP-FORWARD-MIB
- TCP-MIB
- UDP-MIB
- INET-ADDRESS-MIB

The Internet drafts provided support for IPv6 network management data in the form of version-neutral tables, that is, tables that supported both IPv4 and IPv6 data.

As of z/OS V1R10, the SNMP TCP/IP subagent has been changed to support the RFC version of these same MIB modules, as follows (RFC text is at the Web addresses in parentheses):

The RFC version of the IP-MIB renames and renumbers some of the MIB objects in the earlier Internet draft, so if you have network management applications that use the changed IP-MIB MIB objects, you might have to change the applications so they continue to access the same data. Also, the Internet draft sample files for the MIB modules are no longer shipped, so if you copied these samples for use by a network management application, you should replace them with the RFC version of the MIB modules.

**Element or feature:** Communications Server.
**When change was introduced:** z/OS V1R10.
**Applies to migration from:** z/OS V1R9.
**Timing:** Before installing z/OS V1R11.
**Is the migration action required?** Yes, if you have network management applications that use the changed IP-MIB MIB objects, or if you have network management applications that are using the Internet draft sample files for the MIB modules.

**Target system hardware requirements:** None.
**Target system software requirements:** None.
**Other system (coexistence or fallback) requirements:** None.
**Restrictions:** None.
**System impacts:** None.
Steps to take:
1. If you have applications that use the version-neutral data from the IP-MIB, you might have to change the applications to continue to access the same data. Review RFC 4293 to verify which MIB objects have changed.

2. If you copied the following Internet draft samples from the z/OS UNIX file system directory /usr/lpp/tcpip/samples for use by a network management application, replace them with the RFC version of the MIB modules:
   - ipmib.mi2: IP-MIB
   - ipfwdmib.mi2: IP-FORWARD-MIB
   - tcpmib.mi2: TCP-MIB
   - udpmib.mi2: UDP-MIB
   - iaddrmib.mi2: INET-ADDRESS-MIB

Reference information:
- For an overview of the SNMP support for the MIB modules, see “Management data supported” in z/OS Communications Server: IP System Administrator’s Commands.
- For details about the SNMP support for specific MIB objects in the MIB modules, see “SNMP capability statement” in z/OS Communications Server: IP System Administrator’s Commands.

IP Services: Specify at least one valid ZIIP subparameter on GLOBALCONFIG ZIIP statements

Description: Before z/OS V1R10, specification of a GLOBALCONFIG statement with the ZIIP parameter but without a valid ZIIP subparameter would cause the NOIPSECURITY subparameter to be assumed. Beginning with z/OS V1R10, at least one valid ZIIP subparameter is required. Lack of a valid ZIIP subparameter on a GLOBALCONFIG statement causes the ZIIP parameter to be ignored, and informational message EZZ0318I is issued.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are currently specifying a TCP/IP configuration statement of GLOBALCONFIG with a ZIIP parameter and no associated subparameters, and you do not want your ZIIP parameter to be ignored.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

Steps to take:
1. Check the GLOBALCONFIG statement in your TCP/IP profile to see if the ZIIP parameter is specified.
2. If the ZIIP parameter is specified without a subparameter, either delete the ZIIP parameter or add an appropriate subparameter. Specifying the NOIPSECURITY subparameter will ensure that message EZZ0318I is not issued, and the prior default behavior of not displacing CPU cycles to a ZIIP for IPSec workloads will continue.

Reference information: For information about subparameters for the GLOBALCONFIG statement, see ‘GLOBALCONFIG’ in z/OS Communications Server: IP Configuration Reference.

IP Services: Migrate from QoS TR policy to IDS TR policy

Description: z/OS V1R9 was the last release that supported the Traffic Regulation (TR) policy as part of the Quality of Service (QoS) policy type. The TR policy function is still available but only as part of the Intrusion Detection Services (IDS) policy type. Note that this change is only for the TR policy configuration. The TR policy functions themselves remain unaffected and continue to run.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Removal of support effective with release z/OS V1R10 was announced on 6 February 2007 in the z/OS V1R9 preview announcement. Removal of support did occur in z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if TR policies are configured as part of the QoS policy type (PolicyScope TR).</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
1. Convert QoS policies that specify the PolicyScope TR parameter on the PolicyAction statement to IDS policies. All PolicyRule statements that reference any such PolicyAction statement must be converted to an IDSRule statement with the ConditionType TR parameter. The PolicyAction statements must be converted to IDSAction statements with the ActionType TR parameter. The new IDS policies must be configured in an existing or new IDS configuration file.

2. If you were not using IDS policies prior to the conversion, specify the IDSConfig statement to point to the new image-specific IDS configuration file. Optionally, configure the IDS policies in both common and image-specific configuration files, and also specify the CommonIDSConfig statement.

3. Refresh the policies by issuing the MODIFY procname,UPDATE command, waiting for the refresh interval to expire, or restarting the Policy Agent. If you are using UNIX files and you previously started the Policy Agent using the -i startup option, no action is necessary; the new policies will be refreshed as soon as the configuration files are saved.
Conversion tables: In conjunction with the steps above, use the following tables as you migrate from QoS TR policies to IDS TR policies.

Table 9. Converting QoS TR policy action to IDS TR policy rule/action

<table>
<thead>
<tr>
<th>QoS configuration file</th>
<th>Statement parameter</th>
<th>IDS configuration file</th>
<th>Statement parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>PolicyAction</td>
<td>PolicyScope TR</td>
<td>IDSAction</td>
<td>ActionType TR</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>TypeActions Limit</td>
<td>IDSAction</td>
<td>ActionType TR Limit</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>TypeActions Statistics or Log</td>
<td>IDSReportSet</td>
<td>TypeActions Statistics or Log</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>TotalConnections</td>
<td>IDSTRCondition</td>
<td>TRtcpTotalConnections</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>Percentage</td>
<td>IDSTRCondition</td>
<td>TRtcpPercentage</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>TimeInterval</td>
<td>IDSTRCondition</td>
<td>StatInterval</td>
</tr>
<tr>
<td>PolicyAction</td>
<td>LoggingLevel</td>
<td>IDSTRCondition</td>
<td>LoggingLevel</td>
</tr>
</tbody>
</table>

Table 10. Converting QoS TR policy rule to IDS TR policy rule

<table>
<thead>
<tr>
<th>QoS configuration file</th>
<th>Statement parameter</th>
<th>IDS configuration file</th>
<th>Statement parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>PolicyRule</td>
<td>PolicyRulePriority</td>
<td>IDSRule</td>
<td>Priority</td>
</tr>
<tr>
<td>PolicyRule</td>
<td>DestinationPortRange</td>
<td>IDSTRCondition</td>
<td>LocalPortRange</td>
</tr>
<tr>
<td>PolicyRule</td>
<td>PolicyActionReference</td>
<td>IDSTRCondition</td>
<td>IDSActionRef</td>
</tr>
</tbody>
</table>

Example of a converted policy:

QoS TR Policy:

```
PolicyRule TRRule
{
    PolicyRulePriority 50
    DestinationPortRange 8000
    PolicyActionReference TRAction
}
PolicyAction TRAction
{
    PolicyScope TR
    TypeActions Log Limit Statistics
    TimeInterval 90
    LoggingLevel 2
    TotalConnections 1000
    Percentage 80
}
```

IDS TR Policy:

```
IDSRule TRRule
{
    Priority 50
    ConditionType TR
    IDSTRCondition
    {
        LocalPortRange 8000
        Protocol TCP
        TRtcpTotalConnections 1000
        TRtcpPercentage 80
        TRtcpLimitScope Port
    }
}
SNA Services: Ensure compatible levels of VTAM for HPR sessions

**Description:** In order to run z/OS V1R10 and later Communications Server as an HPR-capable interchange node in a mixed subarea and APPN network, you must ensure that all HPR-capable VTAMs in your APPN network (and in attached APPN networks) are running z/OS V1R8 or later Communications Server, or sessions established with or through these earlier VTAMs might fail. z/OS V1R8 and later Communications Server provides additional information on APPN session establishment flows to identify when sessions cross from APPN into subarea (or vice versa) through an interchange node. This additional information is used by z/OS V1R10 and later Communications Server to separate interchange node sessions from APPN-only sessions by placing them on different RTP pipes. If any of the VTAMs in your network (or in attached APPN networks) are not running z/OS V1R8 or later, then z/OS V1R10 and later interchange nodes might incorrectly place interchange node sessions onto the wrong RTP pipe, which could result in session setup failures. (If any of the HPR-capable VTAMs in your APPN network or in attached APPN networks are running an earlier release of z/OS Communications Server, contact your IBM representative to find out what alternatives are available.)

You should also be aware that this new function might result in interchange nodes creating more RTP pipes to adjacent APPN nodes than prior releases because separate RTP pipes are now used for interchange node sessions versus APPN-only sessions.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you plan to enable APPN and HPR support in VTAM using the NODETYPE and HPR start options.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback) requirements:

All HPR-capable VTAMs in your network (and in attached APPN networks) must be running z/OS V1R8 or later Communications Server.

Restrictions:

None.

System impacts:

As a result of separating interchange node sessions from APPN-only sessions by placing them onto separate RTP pipes, there may be an increase in the number of RTP pipes created by interchange nodes to adjacent APPN nodes and a corresponding increase in the amount of storage used to represent these RTP pipes.

Steps to take: Ensure that all HPR-capable VTAMs in your network (and any APPN-attached networks) are running z/OS V1R8 or later Communications Server. All HPR-capable VTAMs must be upgraded to this level before IPLing the first z/OS V1R10 or later Communications Server interchange node. Alternatively, you can configure your HPR-capable interchange nodes to avoid the incompatibility with earlier releases of VTAM by specifying the HPRSESLM=DISABLED start option value when the VTAM interchange node is started. The HPRSESLM=DISABLED start option value is provided by APAR OA28332 for z/OSV1R10 and APAR OA28727 for z/OSV1R11.

Reference information: For more information about VTAM start options, see z/OS Communications Server: SNA Resource Definition Reference.

SNA Services: Update applications and user exits that use the VTAM version and release level in algebraic expressions

Description: The VTAM version and release level is available to applications and user exits to allow the applications and exits to react based on the level of VTAM that is active. Before z/OS V1R10, applications and exits could use the version and release fields algebraically to determine the level of support. Beginning with z/OS V1R10, the fields cannot be used algebraically.

For example, after a VTAM application program issues an OPEN macroinstruction with an access method control block (ACB) to indicate it desires VTAM services, the VTAM version and release level is available to it in the access-method-support vector list. The application cannot use the two bytes containing the version and release in algebraic expressions, such as checking whether the two bytes are greater than the characters 1 and 9. The reason is that, with z/OS V1R10 (and later), the version and release characters are 1 and A, respectively, and the character A cannot be used reliably in algebraic comparisons.

Element or feature:

Communications Server.

When change was introduced:

z/OS V1R10.

Applies to migration from:

z/OS V1R9.

Timing:

Before installing z/OS V1R11.

Is the migration action required?

Yes, if any user-written applications or exits use the VTAM release level in algebraic comparisons to determine release support.

Target system hardware requirements:

None.
Target system software requirements:  None.
Other system (coexistence or fallback) requirements:  None.
Restrictions:  None.
System impacts:  None.

Steps to take:
1. Examine any applications and user exits for use of the VTAM version and release level, which is available to the following applications and exits:
   - Any VTAM program application using the access-method-support vector list available after the program issues the OPEN macroinstruction
   - VTAM Common Management Information Protocol (CMIP) applications using the MIB connection function or analyzing MIB.ServiceError strings
   - Applications using the SNA network monitoring NMI and referencing the Enterprise Extender initialization record
   - A session management exit (SME) that is passed the environment vector list
   - A selection of definitions for dependent LUs (SDDLU) exit that uses the product set ID
2. Update the applications or exits so that they do not use the VTAM version or release level algebraically.

Reference information:
- “Opening an application program” and “Vector lists supplying information to the application” in z/OS Communications Server: SNA Programming
- “MIBConnect–MIB connection function” and “MIB.ServiceError error codes” in z/OS Communications Server: CMIP Services and Topology Agent Guide
- “SNA network monitoring NMI” in z/OS Communications Server: IP Programmer’s Guide and Reference
- “Session management exit routine” in z/OS Communications Server: SNA Customization
- “Selection of definitions for dependent LUs exit routine” in z/OS Communications Server: SNA Customization

Communications Server actions to perform before the first IPL of z/OS V1R11

This topic describes Communications Server migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

IP Services: Allow usage of the full range of ephemeral ports

Description: Before z/OS V1R11, TCP/IP used the lowest available ephemeral ports when establishing new connections. Starting in z/OS V1R11, or in V1R10 or V1R9 with APAR PK66387, TCP/IP uses the full range of available ephemeral port values (1025 - 65535) beginning with the lowest port before an available port is reused. You must take action if you have security definitions in your network that restrict ephemeral ports to various ranges.

Element or feature: Communications Server.
When change was introduced: z/OS V1R11 and rolled back to V1R10 and V1R9 by APAR PK66387.

Applies to migration from: z/OS V1R10 and z/OS V1R9, both without the PTF for APAR PK66387 installed.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you have security definitions in your network that restrict ephemeral ports to various ranges.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Do one of the following:

- Change the definitions in your network to allow the full range of ephemeral ports. The range of allowed values is 1025-65535.
- Modify the TCPIP profile to restrict the ephemeral ports used so that the values of the ephemeral ports match the values that are allowed in the network. For example, to exclude the use of ports 6666-6669 for both TCP and UDP applications, you can add the following PORTRANGE statements to the TCPIP profile:
  
  ```
  PORTRANGE 6666 4 TCP RESERVED
  PORTRANGE 6666 4 UDP RESERVED
  ```


**IP Services: Run the syslog daemon in the background when starting from the UNIX shell**

**Description:** Starting in z/OS V1R11, the syslog daemon (syslogd) does not automatically run in the background when it is started from the UNIX shell or from BPXBATCH. As a result, you need to include a trailing ampersand character (&) on the syslogd command line to run it in the background. If you do not include a trailing ampersand, control will not return to your shell session until syslogd ends. If syslogd is started from a shell script, in particular /etc/rc, this can cause the shell to hang, waiting for syslogd to end. For example, if you run syslogd from/etc/rc and you do not change syslogd to run in the background, OMVS will not complete initialization until OMVS times out.

If you start syslogd from a cataloged procedure that uses BPXBATCH, you need to include a trailing ampersand character, as noted above, for shell scripts. You also need to include a sleep command in your script after starting syslogd to give syslogd time to initialize before the shell script ends. For details on including a sleep command, see [Setting up for daemons](https://www.ibm.com/docs/en/zos-unix-system-services-planning?topic=servers-logging) in [z/OS UNIX System Services Planning](https://www.ibm.com/docs/en/zos-unix-system-services-planning).

Element or feature: Communications Server.

When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if syslogd is started from the UNIX shell or BPXBATCH.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Determine how syslogd is started:

- If it is started from /etc/rc or another shell script, or from BPXBATCH, add a trailing ampersand character to the command line.
- If you start syslogd manually from the UNIX shell, include a trailing ampersand on the command line.
- If you start syslogd from a cataloged procedure that uses BPXBATCH, add a trailing ampersand character to the command line, and include a sleep command in your script after starting syslogd to give syslogd time to initialize before the shell script ends.
- If you start syslogd from a cataloged procedure that does not use BPXBATCH, no changes are needed.

Reference information:

- See Starting syslogd from the UNIX shell in z/OS Communications Server: IP Configuration Guide for more information about starting syslogd.
- See Setting up for daemons in z/OS UNIX System Services Planning for details on including a sleep command.

IP Services: Accept the new resolver behavior of saving the results of DNS queries

Description: Before z/OS V1R11, the z/OS system resolver did not cache results of domain name server (DNS) queries. Starting in z/OS V1R11, the resolver automatically saves the results of such queries. This is a performance and usability enhancement and can eliminate some setup, monitoring, and administration steps. However, if you want to keep the behavior of past releases and disable the resolver DNS caching function, you must take action.

Element or feature: Communications Server.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? No, but recommended if you are using the resolver to query DNS servers because the new behavior can eliminate some setup, monitoring, and administration steps.

Target system hardware requirements: None.

Target system software requirements: None.
**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** Do one of the following:

- If you want to accept the new behavior and cache the results of previous DNS queries, no action is necessary. Optionally, you can code the CACHE resolver setup statement.
- If you have a caching-only name server defined locally, you can choose one of the following steps:
  - If you want to accept the new behavior and allow the resolver to cache results of previous DNS queries, you can remove the caching-only name server from your system, saving operation and configuration costs. Alternatively, you might choose to use resolver system-wide caching to maintain the DNS A, AAAA, and PTR record information to obtain performance improvements for those searches, but continue to use the caching-only name server for the other DNS record types.
  - Guideline: If the local caching-only name server is the only name server in the NSINTERADDR list of name servers to be contacted, replace the caching-only name server entry with one or more name server IP addresses to be contacted. If there is already more than one name server in the NSINTERADDR list of name servers, simply delete the IP address of the local caching-only name server.
  - If you want to keep the existing behavior and want only the caching-only name server to cache results of previous DNS queries, you must code the NOCACHE resolver setup statement. This option might be attractive to you if a significantly large percentage of the information cached by the caching-only name server involves DNS records other than the DNS A, AAAA, and PTR records that the resolver will cache.
- If you want to selectively limit the caching function, you must code the TCPIP.DATA NOCACHE statement in the TCPIP.DATA files used by applications that are not permitted to utilize the caching function.

**Reference information:**

- See Resolver caching in [z/OS Communications Server: IP Configuration Guide](http://www.ibm.com/support/knowledgecenter/SSECG1_6.2.0/com.ibm.zos.v6r2 already) for more information about the resolver caching function.
- See the following statements in [z/OS Communications Server: IP Configuration Reference](http://www.ibm.com/support/knowledgecenter/SSECG1_6.2.0/com.ibm.zos.v6r2 already):
  - CACHE/NOCACHE resolver setup statement
  - NOCACHE TCPIP.DATA statement

**IP Services: Update network management applications for SNMP interface data changes**

**Description:** Starting in z/OS V1R10, the SNMP TCP/IP subagent interface data support is changed as follows:

- Changes to the standard interface tables, ifTable and ifXTable, which are defined in the IF-MIB from RFC 2233 ([http://www.ietf.org/rfc/rfc2233.txt](http://www.ietf.org/rfc/rfc2233.txt)), are as follows:
- The tables will support a dynamically-generated OSA-Express QDIO port entry for IPAQENET and IPAQENET6 interfaces defined only by the INTERFACE profile statement. The interface counters for the OSA-Express QDIO port entry will reflect the sum of the counters for all the IPAQENET and IPAQENET6 interfaces defined for the same port.
- When defining interfaces with DEVICE and LINK profile statements, a device layer entry is created in the tables, with the link entry as a lower interface layer under it. When defining interfaces with INTERFACE profile statements (other than IPAQENET or IPAQENET6), only an interface entry is created in the interface tables. There is no higher-layer device entry associated with the interface.

- The standard linkUp and linkDown notifications from the IF-MIB will no longer be created for VIPA interfaces.
- The proprietary ibmTcpipMvsDeviceTable (defined in the IBM TCP/IP MVS Enterprise-specific MIB module) will only support entries for IPv4 interfaces either defined with a DEVICE profile statement or dynamically defined due to dynamic XCF or dynamic VIPA configuration.
- The indexes of the proprietary osaexpEthPortTable and osaexpEthSnatTable (defined in the IBM TCP/IP MVS Enterprise-specific MIB module) are changed from the interface index of an interface defined with the LINK profile statement to the interface index of a device or OSA-Express QDIO port.
- The index of the standard dot3StatsTable, which is defined in the EtherLike-MIB from RFC 2665 [http://www.ietf.org/rfc/rfc2665.txt], is changed from the interface index of an interface defined with the LINK profile statement to the interface index of a device or OSA-Express QDIO port.

These changes might affect network management applications that retrieve the above SNMP data.

### Element or feature:
- Communications Server.

### When change was introduced:
- z/OS V1R10.

### Applies to migration from:
- z/OS V1R9.

### Timing:
- Before the first IPL of z/OS V1R11.

### Is the migration action required?
- Yes, if the changes affect network management applications that retrieve the affected SNMP data.

### Target system hardware requirements:
- None.

### Target system software requirements:
- None.

### Other system (coexistence or fallback) requirements:
- None.

### Restrictions:
- None.

### System impacts:
- None.

### Steps to take:
- Update your network management applications to accommodate the SNMP TCP/IP subagent interface data changes.
- Update your network management applications for the removal of the VIPA linkup/linkdown notifications. For dynamic VIPA interfaces, your network management applications could replace the linkup/linkdown support with support for proprietary status change notifications defined in the IBM MVS TCP/IP Enterprise-specific MIB module.
IP Services: Adjust for a new client error code for the FTP client

Description: Starting in z/OS V1R10, the FTP client returns a new client error code, FTP_NEEDS_CONNECTION, when an interactive user or FTP client API program attempts a subcommand that needs a connection to the server. This client error code replaces more general client error codes returned by earlier releases.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your FTP client application is expecting a specific client error code when it attempts a client subcommand that needs a connection to the server while the client has no connection to the server.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- Verify that your FTP client application does not attempt to issue subcommands that require connections before the server connection is established.
- Verify that your application can tolerate the new FTP client error code.

Reference information:
- FTP client error codes in z/OS Communications Server: IP User’s Guide and Commands
- Interface layering in z/OS Communications Server: IP System Administrator’s Commands
- SNMP Enterprise-specific trap types in z/OS Communications Server: IP System Administrator’s Commands
- Multiple VLAN support and INTERFACE statement support for QDIO in z/OS Communications Server: New Function Summary

IP Services: Update automation that handles FTP job informational messages for MVS data set transfers

Description: Before z/OS V1R10, when a file transfer failed because the MVS data set was in use, the FTP server reply and the FTP client message indicated that the
data set was in use by another process but did not identify the job or jobs holding
the MVS data set. The FTP server would send a 450 reply and the FTP client
would send messages EZA2562W and EZA2799W.

Beginning with z/OS V1R10, in the above situation:
• The following additional FTP client messages are issued to identify the job or
jobs holding the MVS data set when the file transfer fails:
  – A sequence of EZZ9819I messages identifying the jobs that are holding the
    MVS data set
  – Message EZZ9820I to end the sequence of messages
• The following additional FTP server replies are issued:
  – A sequence of 125- replies identifying the jobs that are holding the MVS data
    set
  – A single 125- reply to end the sequence of replies for this sequence

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your installation uses automation or software to capture FTP client messages or FTP server replies, and you use FTP to transfer MVS data sets.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** Do one of the following:
• Because the client might issue messages EZZ9819I and EZZ9820I when
  transferring an MVS data set to indicate that the data set is held by one or more
  jobs, ensure that your software or other automation can tolerate the additional
  client messages.
• Because the server might send an extended reply 125 when transferring an MVS
  data set to indicate that the data set is held by one or more jobs, ensure that
  your software or other automation can tolerate the extended reply 125.

**Note:** In z/OS V1R11 (and in z/OS V1R10 with the PTF for APAR PK67061
installed), the FTP server reply displaying the holder and other useful
information related to the MVS data set is only issued when
REPLYSECURITYLEVEL is not enabled. (By default,
REPLYSECURITYLEVEL is not enabled in the FTP.DATA.)

**Reference information:**
• [DSWAITTIME (FTP client and server)] in [z/OS Communications Server: IP Configuration Reference]
• [z/OS Communications Server: IP Messages Volume 4 (EZZ, SNM)]
• “FTP server replies” in [z/OS Communications Server: IP and SNA Codes]
IP Services: Configure GLOBALCONFIG
SEGMENTATIONOFFLOAD if TCP segmentation offload support is desired

Description: Before z/OS V1R10 (and APAR PK47376 on z/OS V1R9, and APAR PK46334 on z/OS V1R8, V1R7, and V1R6), TCP segmentation was offloaded to the OSA-Express2 feature by default. Beginning with z/OS V1R10 (and APAR PK47376 on z/OS V1R9, and APAR PK46334 on z/OS V1R8, V1R7, and V1R6), the default behavior is to not offload TCP segmentation to the OSA-Express2 feature. If you want to continue to offload TCP segmentation to the OSA-Express2 feature, you must configure SEGMENTATIONOFFLOAD on the GLOBALCONFIG statement.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10; z/OS V1R9 by APAR PK47376; and z/OS V1R8, V1R7, and V1R6 by APAR PK46334.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR PK47376 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if TCP segmentation offload is desired.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: To obtain the prior behavior, configure SEGMENTATIONOFFLOAD on the GLOBALCONFIG statement in the TCP/IP profile.

Reference information:
- TCP segmentation offload in z/OS Communications Server: IP Configuration Guide
- The GLOBALCONFIG statement in z/OS Communications Server: IP Configuration Reference

IP Services: Update automation that handles message EZZ42011

Description: When TCP/IP is started, the console ID used on the START command is saved. This console ID is used when TCP/IP sends messages to the console. When TCP/IP is stopped, message EZZ42011 TCP/IP TERMINATION COMPLETE FOR jobname uses the console ID from the START command rather than the STOP command, causing EZZ42011 to not be trapped if the STOP command was issued from a different console from the START command.

As of z/OS V1R10 (and APAR PK46221 on z/OS V1R9, z/OS V1R8, and z/OS V1R7), STOP command processing has been changed to save the WTO CART
(command and response token) and console identifier value. As a result, message EZZ4201I issued in response to the STOP command is sent to the correct console, that is, the one that issued the STOP command.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10; and APAR PK46221 on z/OS V1R9, z/OS V1R8, and z/OS V1R7.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR PK46221 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you depend on the message EZZ4201I issued in response to the TCP/IP STOP command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Change your automation to expect the response message EZZ4201I returned to the console that issued the TCP/IP STOP command.

Reference information: For details about the change, see APAR PK46221.

**IP Services: Make changes for Netstat enhancements**

**Description:** The Netstat command displays the status of a local host. Each release, the Netstat reports are changed in ways that can affect automation or front-end programs.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 and z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if the changed or removed settings affect either (1) automation that uses the Netstat report output or (2) front-end programs that invoke the Netstat command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Accommodate Netstat changes in your automation and front-end programs. You can begin planning your changes by reviewing the ways in which the displays are updated each release. For details about how each Netstat report
has changed, see [z/OS Summary of Message and Interface Changes](#). However, you will have to execute the commands to know with certainty what changes to make.

Reference information:
- For details about using Netstat, see [z/OS Communications Server: IP System Administrator’s Commands](#).
- For details about Netstat report changes, see [z/OS Summary of Message and Interface Changes](#).

### IP Services: Update /etc configuration files

**Description:** Some utilities provided by Communications Server require the use of certain configuration files. You are responsible for providing these files if you expect to use the utilities. IBM provides default configuration files as samples in the `/usr/lpp/tcpip/samples` directory. Before the first use of any of these utilities, you should copy these IBM-provided samples to the `/etc` directory (in most cases). You can further customize these files to include installation-dependent information. An example is setting up the `/etc/osnmpd.data` file by copying the sample file from `/usr/lpp/tcpip/samples/osnmpd.data` to `/etc/osnmpd.data` and then customizing it for the installation.

If you customized any of the configuration files that have changed, then you must incorporate the customization into the new versions of the configuration files.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Various releases. See <a href="#">Table 11</a>.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have customized a configuration file (listed in <a href="#">Table 11</a>) that IBM has changed.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you added installation-dependent customization to any of the IBM-provided configuration files listed in [Table 11](#), make the same changes in the new versions of the files by copying the IBM-provided samples to the files shown in the table and then customizing the files.

<table>
<thead>
<tr>
<th>Utility</th>
<th>IBM-provided sample file</th>
<th>Target location</th>
<th>What changed and when</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND</td>
<td><code>/usr/lpp/tcpip/samples/IBM/EZANSBOO</code></td>
<td><code>/etc/named.boot</code></td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td>BIND</td>
<td><code>/usr/lpp/tcpip/samples/IBM/EZANSCH4</code></td>
<td><code>/etc/caching.boot</code></td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td>Utility</td>
<td>IBM-provided sample file</td>
<td>Target location</td>
<td>What changed and when</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/EZANSSL4</td>
<td>/etc/slave.boot</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/EZATDDSD</td>
<td>/etc/dhcpsd.cfg</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/EZATDLS</td>
<td>/etc/binlsd.cfg</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td>Network security services (NSS)</td>
<td>/usr/lpp/tcpip/samples/nssd.conf</td>
<td>Update as needed by your installation and put in user directory.</td>
<td>In z/OS V1R10, the NSS server introduced support for discipline-specific NSS clients. The two disciplines supported in V1R10 are IPSec and XMLAppliance. To account for the configurable support of each discipline, the NSS server’s sample configuration file was updated to indicate that support for both disciplines is enabled by default. A new syslog level for the SAF access service within the XMLAppliance discipline was also introduced.</td>
</tr>
<tr>
<td>Policy Agent</td>
<td>/usr/lpp/tcpip/samples/pagent.conf</td>
<td>/etc/pagent.conf</td>
<td>In z/OS V1R11, new configuration statements are provided to support automatic starting, stopping, and monitoring for a selected set of applications.</td>
</tr>
</tbody>
</table>
Table 11. Changed Communications Server configuration files (continued)

<table>
<thead>
<tr>
<th>Utility</th>
<th>IBM-provided sample file</th>
<th>Target location</th>
<th>What changed and when</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNMP agent</td>
<td>/usr/lpp/tcpip/samples/osnmpd.data</td>
<td>/etc/osnmpd.data</td>
<td>Every release, the value of the sysName MIB object is updated to the current release. In z/OS V1R10, the SNMP agent was changed to create its default z/OS UNIX connection file in the /var file system directory instead of the /tmp directory. So the value of the dpiPathNameForUnixStream MIB object in this sample was changed from /tmp/dpi_socket to /var/dpi_socket. If you use the updated sample, the z/OS UNIX file will be created in the /var file system directory instead of in the /tmp directory. Because the Agent will no longer use the /tmp/dpi_socket file, this file can be removed.</td>
</tr>
<tr>
<td>syslog daemon</td>
<td>/usr/lpp/tcpip/samples/syslog.conf</td>
<td>/etc/syslog.conf</td>
<td>In z/OS V1R11, new configuration statements are provided to support automatic archiving of z/OS UNIX files.</td>
</tr>
<tr>
<td>z/OS UNIX Telnet server (otelnetd)</td>
<td>None</td>
<td>/etc/otelnetd.banner</td>
<td>In z/OS V1R11, this file was added to display a banner page, prior to the login prompt, when a user connects to the z/OS UNIX Telnet server (otelnetd).</td>
</tr>
</tbody>
</table>

Reference information:
- For more details about configuration files, see [z/OS Communications Server: IP Configuration Guide](#).
- For information about modifying the NFS samples, see the “Customization” chapter in [z/OS Network File System Guide and Reference](#).

**IP Services and SNA Services: Increase region size for Telnet**

**Description:** Starting in z/OS V1R10, extended common system area (ECSA) usage for Telnet sessions is reduced. This change requires growth in Telnet private storage usage. The amount of Telnet private storage increase depends upon the number of Telnet sessions on the LPAR. If Telnet is using most of its allotted region size, you must increase it.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
</tbody>
</table>
### Timing:
Before the first IPL of z/OS V1R11.

### Is the migration action required?
Yes, if you use the TN3270E Telnet server.

### Target system hardware requirements:
None.

### Target system software requirements:
None.

### Other system (coexistence or fallback) requirements:
None.

### Restrictions:
None.

### System impacts:
The overall use of ECSA in the system is decreased but the usage of Telnet private storage is increased.

### Steps to take:
1. Determine the number of Telnet sessions that will exist on the LPAR.
2. Increase the size specified on the REGION parameter of the Telnet started task by 1 MB for each 25 000 Telnet sessions.
3. Examine the values for your CRPLBUF pool defined in the ATCSTRxx VTAM start list, particularly the base size. If the base size is large because of a large number of Telnet sessions, you can reduce it; failure to reduce it can minimize the amount of ECSA savings realized.

### Reference information:
For more information about the CRPLBUF pool and the VTAM start list, see [z/OS Communications Server: SNA Network Implementation Guide](#).

## IP Services and SNA Services: Disable path MTU discovery for IPv4 and IPv6 Enterprise Extender connections

### Description:
Starting in z/OS V1R10, path MTU discovery is enabled for Enterprise Extender (EE) connections. It is automatically enabled for IPv6 Enterprise Extender connections, and is enabled for IPv4 when the PATHMTUDISCOVERY keyword is specified on the IPCONFIG profile statement for the EE associated TCP/IP stack.

### Element or feature:
Communications Server.

### When change was introduced:
z/OS V1R10.

### Applies to migration from:
z/OS V1R9.

### Timing:
Before the first IPL of z/OS V1R11.

### Is the migration action required?
Yes, if you do not want path MTU discovery enabled for IPv4 and IPv6 Enterprise Extender connections.

### Target system hardware requirements:
None.

### Target system software requirements:
None.

### Other system (coexistence or fallback) requirements:
Path MTU discovery uses ICMP fragmentation-needed errors to detect the path MTU for a path. For path MTU discovery to work, you must permit ICMP errors to flow at all hosts along the path of a connection. Path MTU discovery does not function if a firewall blocks ICMP errors.

### Restrictions:
None.

### System impacts:
None.
Steps to take: To disable path MTU discovery for IPv4 and IPv6 Enterprise Extender connections, perform one of the following actions:

- Specify PMTUD=NO in the appropriate ATCSTRxx VTAM start list or on the VTAM START command.
- When VTAM is active, issue the MODIFY procname,VTAMOPTS, PMTUD=NO command.

Reference information:

- "PMTUD start option" in z/OS Communications Server: SNA Resource Definition Reference
- The PATHMTUDISCOVERY parameter in "IPCONFIG" in z/OS Communications Server: IP Configuration Reference
- "Path MTU discovery for Enterprise Extender (for SNA)" and "Path MTU discovery for Enterprise Extender (for IP)" in z/OS Communications Server: New Function Summary

SNA Services: Ensure that dump data sets are large enough to include VTAM internal trace data space

Description: Before z/OS V1R11, VTAM INOP dump processing did not capture the VTAM internal trace (VIT) data space in the dump. Starting in z/OS V1R11, VTAM INOP dump processing automatically captures the VIT data space in the dump when the VIT data space is in use. This provides more information for problem determination in INOP dumps. In order to continue to capture all INOP dump information, you must ensure that your dump data set allocation will accommodate the additional space required for the VIT data space.

Element or feature: Communications Server.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: Increased disk storage might be required for VTAM INOP dumps because these dumps will now include the VIT data space when the VIT data space is in use. The maximum possible size of the VIT data space, 50 MB, should be taken into consideration in your dump data set allocation procedure.

Steps to take:

1. Be aware that if the VIT data space is active, VTAM INOP dumps will automatically capture the VIT data space (ISTITDS1) to provide more information in the dump for problem determination. This can result in larger INOP dumps.
2. Review the size of your current dump data sets and ensure that they are large enough to accommodate the maximum size of the VIT data space.
   - Because VIT data space tracing is not new in z/OS V1R11, your dump data sets might already be large enough for INOP dumps. VTAM SVC dumps have always dumped the VIT data space. These include dumps taken by ABEND recovery routines (FRRs and ESTAE routines) and any dumps taken with the F vtamproc,CSDUMP command. If your system can currently capture a complete dump of VTAM, no changes are required.
   - If current VTAM dumps are incomplete, modify your dump data set allocation to accommodate the maximum size of the VIT data space.

3. VIT data space tracing is important to capture sufficient trace data for VTAM problem determination. With VIT data space tracing enabled at all times, you might be able to resolve VTAM problems on the first failure, preventing the need for you to recreate the problem, or wait for the problem to occur again, to get additional documentation. To ensure that you always have the maximum amount of VIT trace data available for problem diagnosis, do one of the following:
   - Activate the VIT data space at VTAM start by coding DSPSIZE=5 on any TRACE,TYPE=VTAM,MODE=INT start option included in the VTAM start list or on the VTAM start command.
   - If the VIT data space is not activated at VTAM start, activate it with the MODIFY vtamproc,TRACE,TYPE=VTAM,DSPSIZE=5 command.

Tip: Use IBM Health Checker for z/OS check CSVTAM_VIT_DSPSIZE to determine whether the VIT dataspace table size is set to 5 (50 MB).

Reference information: For details about VTAM INOP dump processing and activation of the VIT data space, see [z/OS Communications Server: SNA Resource Definition Reference](#) and [z/OS Communications Server: SNA Operation](#).

### SNA Services: Increase region size for VTAM

**Description:** ECSA usage for HPR has been reduced. To accomplish this reduction, some growth in VTAM private storage usage was required. The amount of VTAM private storage increase will depend upon the number of RTP endpoints that are supported on the LPAR. If VTAM is using nearly all of its allotted region size, you will need to increase it.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have large numbers of HPR connections and VTAM is using a high percentage of its allocated region size.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
### System impacts:
This change decreases the overall use of ECSA in the system, but the usage of VTAM private storage will increase.

### Steps to take:
1. Determine the maximum number of RTP pipes that have endpoints in this VTAM.
2. Increase the region size for VTAM by 1.5 MB for each 1,000 RTP pipes.

### Reference information: None.

---

**Communications Server actions to perform after the first IPL of z/OS V1R11**

This topic describes Communications Server migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**IP Services: Ensure that IKE daemon retransmission settings are compatible**

**Description:** Before z/OS V1R11, the following four Internet Key Exchange daemon (IKED) parameters were used to control the IKE daemon’s retransmission behavior:

- `KeyWait`
- `KeyRetries`
- `DataWait`
- `DataRetries`

If you used the IBM Configuration Assistant, these parameters’ values were set by selecting retry limit and retry interval values for the Phase 1 IKE key negotiation retry tuning or Phase 2 IKE data negotiation retry tuning settings on the Advanced IKE Daemon Settings dialog under the IPSec perspective. The parameters established a fixed retransmission interval and maximum number of retransmissions for a given IKE message.

Starting in z/OS V1R11, the old parameters are ignored and the following two new parameters are used to determine all IKE message retransmission:

- `IkeInitWait`
- `IkeRetries`

Like the old parameters, these new parameters are also set through the Advanced IKE Daemon Settings dialog of the IBM Configuration Assistant. The new parameters enforce a geometrically increasing retransmission interval (each successive interval is twice as long as the one that preceded it). The length of the first interval is specified by `IkeInitWait` and the number of transmissions is specified by `IkeRetries`.

You cannot keep the previously-existing behavior of controlling the IKED retransmissions. In most cases, the new default behavior will work well for all of your IKE peers. However, there may be some circumstances where closer control over the retransmission behavior is required (often because of low bandwidth, or slow or unreliable network connections). In these cases, you might need to specify one or both of the new parameters to tailor the behavior. In most cases, the change
will be to reduce the allowed number of retransmissions to avoid very long retransmission timeouts.

**Element or feature:** Communications Server.

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.

**Is the migration action required?** No, but recommended if you have specified a KeyWait, KeyRetries, DataWait, or DataRetries parameter in your IKED configuration file to control the IKE daemon's retransmission behavior.

**Target system hardware requirements:** None.

**Target system software requirements:** This migration action only applies to systems running IKED.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** All of these IKED parameters affect the length of time that it will take for a given IKE message to time out.

**Steps to take:**

1. If you generated the IKED configuration file using the IBM Configuration Assistant, check the Advanced IKE Daemon Settings dialog under the IKE Daemon Settings tab under the IPSec perspective for the z/OS image. If any IKE negotiation retry tuning settings are specified, you might have some site- or network-specific retransmission considerations to accommodate. If you configured your IKED configuration file manually, check it to see if any of KeyWait, KeyRetries, DataWait, or DataRetries were specified to tailor the IKE daemon's retransmission behavior. If they were, you might have some site- or network-specific retransmission considerations that must be accommodated.

2. Set the IKE retry tuning values in the IBM Configuration Assistant Advanced IKE Daemon Settings dialog or, if you manually edit your IKED configuration file, specify the IkeInitWait and/or IkeRetries parameters to accommodate the site- or network-specific considerations.

**Reference information:** See [z/OS Communications Server: IP Configuration Reference](#).

### IP Services: Use ETHERNET instead of TOKENRING with IPCS CTRACE

**Description:** Before z/OS V1R10, the TOKENRING keyword of the SNIFFER option of the IPCS CTRACE subcommand would format packet trace output for token-ring analysis. Because of the phaseout of token-ring technology, beginning with z/OS V1R10, the TOKENRING keyword is no longer supported.

**Element or feature:** Communications Server.

**When change was introduced:** z/OS V1R10.

**Applies to migration from:** z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.
Is the migration action required?   No, but recommended if you use the TOKENRING keyword of the IPCS CTRACE subcommand because someone could be confused by ETHERNET taking effect when they see that TOKENRING is specified.

Target system hardware requirements:   None.
Target system software requirements:   None.
Other system (coexistence or fallback) requirements:   None.
Restrictions:   None.
System impacts:   None.

Steps to take: Use the ETHERNET keyword instead of the TOKENRING keyword when formatting the SNIFFER data set trace. ETHERNET formats output for Ethernet analysis and is the default. If you specify TOKENRING, the keyword is ignored and ETHERNET is in effect.

Reference information: For details about using the ETHERNET keyword, see the topic “Formatting packet traces using IPCS” in z/OS Communications Server: IP Diagnosis Guide.

IP Services: Modify FTPOSTPR exit routines to handle a new parameter

Description: The FTPOSTPR exit routine is called upon completion of the FTP commands RETR, STOR, STOU, APPE, DELE, and RNTO. In z/OS V1R10 (and later), the exit routine has a new parameter: a pointer to a buffer containing the complete text of the server reply sent to the client. If you have an FTPOSTPR exit routine that cannot tolerate this new parameter, you must modify the routine.

Element or feature:   Communications Server.
When change was introduced:   z/OS V1R10.
Applies to migration from:   z/OS V1R9.
Timing:   After the first IPL of z/OS V1R11.
Is the migration action required?   Yes, if you have installed an FTPOSTPR exit routine and it expects 18 or fewer parameters.

Target system hardware requirements:   None.
Target system software requirements:   None.
Other system (coexistence or fallback) requirements:   None.
Restrictions:   None.
System impacts:   None.

Steps to take: Modify your FTPOSTPR exit routine to tolerate 19 parameters.

Reference information: For information about the parameters passed to the FTPOSTPR exit routine, see z/OS Communications Server: IP Configuration Reference.
### SNA Services: Create a new APPN topology checkpoint data set

**Description:** In z/OS V1R11 the format of the records in the APPN topology checkpoint data set has changed. A topology checkpoint data set created on a prior release cannot be read by a z/OS V1R11 network node, and a topology checkpoint data set created in z/OS V1R11 cannot be read by a prior release. Therefore, after migrating an APPN network node to z/OS V1R11, you must create a new APPN topology checkpoint data set.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you checkpoint APPN topology and restore it with the INITDB=TOPO or INITDB=ALL start option.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>When CP-CP sessions are started for the first time with other APPN network nodes, performance might be impacted temporarily because a full topology exchange is required.</td>
</tr>
</tbody>
</table>

**Steps to take:** To create a new APPN topology checkpoint data set after migrating an APPN network node to z/OS V1R11, do the following:

1. Start all desired CP-CP sessions between network nodes in the APPN network and activate desired transmission groups (TGs).
   - Because you cannot retrieve existing APPN topology from a topology checkpoint data set created with a prior release of VTAM when a z/OS V1R11 VTAM is started, a full topology exchange will occur when the z/OS V1R11 network node joins an APPN network for the first time. This happens when the z/OS V1R11 network node activates CP-CP sessions with any adjacent network node in the APPN network. This initial exchange, made necessary by the difference in old and new data set formats, can degrade performance until all of the network topology is transmitted to the z/OS V1R11 network node.
   - After the z/OS V1R11 network node has received all of the network topology from the adjacent network node, there is no further negative performance impact caused by the difference in format of the new topology checkpoint data set, as long as you create a topology checkpoint data set with the new format on the z/OS V1R11 network node after the initial topology exchange.
   - Otherwise, a full topology exchange will be required every time the z/OS V1R11 network node is recycled.

2. When your APPN network is stable, enter the following command to create a topology checkpoint data set in the new format: MODIFY procname,CHKPT,TYPE=TOPO.
   - A checkpoint of APPN topology is also done automatically when you end VTAM with a HALT or HALT QUICK command but not when you end VTAM with a HALT CANCEL command.
3. After the topology checkpoint data set is initially created, you can restore it with INITDB=TOPO or INITDB=ALL when you restart z/OS V1R11 VTAM.

   If you start VTAM as a network node with the INITDB=TOPO or INITDB=ALL start option with a version of the APPN topology checkpoint data set that is not recognized, you will receive message IST1288I TOPOLOGY DATASET RETRIEVAL WAS NOT SUCCESSFUL, CODE = 12.

Reference information:

- z/OS Communications Server: SNA Network Implementation Guide
- z/OS Communications Server: SNA Resource Definition Reference
# Chapter 8. Cryptographic Services migration actions

<table>
<thead>
<tr>
<th>Cryptographic Services actions to perform before installing z/OS V1R11</th>
<th>167</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

This topic describes migration actions for base element Cryptographic Services. Included are the components Integrated Cryptographic Service Facility (ICSF), Open Cryptographic Services Facility (OCSF), PKI Services, and System Secure Sockets Layer (SSL).

## Cryptographic Services actions to perform before installing z/OS V1R11

This topic describes Cryptographic Services migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

### ICSF: Ensure PKCS #11 applications call C_Finalize() prior to calling dlclose()

**Description:** A PKCS #11 application initializes the environment by calling dlopen() to load the PKCS #11 DLL into storage, and then calling C_Initialize(). Later, when processing is complete, the application terminates processing by calling C_Finalize(), and then calling dlclose(). Re-initialization, if desired, can be achieved by calling dlopen() and C_Initialize() a second time.

In prior releases, z/OS PKCS #11 allowed an application to implicitly finalize the environment by calling dlclose() without first calling C_Finalize(). Starting in ICSF FMID HCR7770, this will no longer be supported. If an application does not call C_Finalize() prior to calling dlclose(), a subsequent attempt to re-initialize PKCS #11 by calling C_Initialize() will result in error CKR_FUNCTION_FAILED being returned.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Cryptographic Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>ICSF FMID HCR7770, which was made available in Web deliverable Cryptographic Support for z/OS V1R9-R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R11, z/OS V1R10, and z/OS V1R9, all without ICSF FMID HCR7770 installed (which is in Web deliverable Cryptographic Support for z/OS V1R9-R11).</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
</tbody>
</table>
Is the migration action required? Yes, if you use the following sequence of calls: dlopen(), C_Initialize(), processing functions, dlclose(), dlopen(), C_Initialize().

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: PKCS #11 application developers must:
1. Scan their source code for the following sequence of calls: dlopen(), C_Initialize(), processing functions, dlclose(), dlopen(), C_Initialize().
2. Change all such sequences to insert a call to C_Finalize() before the call to dlclose().

Reference information: For more information on writing PKCS #11 applications, refer to z/OS Cryptographic Services ICSF Writing PKCS #11 Applications.

ICSF: Stop using retained RSA private keys on a PCICC or PCIXCC/CEX2C cryptographic card

Description: A PCICC or PCIXCC/CEX2C card might possess the only copy of a retained RSA private key. If you have applications or middleware that use the retained key functionality of these cards, loss of keys could occur if the hardware fails. The hardware failure could be caused by something as simple as an exhausted or malfunctioning card battery. Lost retained keys have the further implication of lost data for retained key management keys, and an inability to verify signatures for retained signature keys.

Starting with the Cryptographic Support for z/OS V1R7-V1R9 and z/OS.e V1R7-V1R8 Web deliverable (ICSF FMID HCR7750), you no longer have the ability to store new private RSA keys intended for key management usage in a cryptographic coprocessor. Existing applications will continue to be able to use the retained keys and to delete them from the cryptographic coprocessor cards. However, if you have any RSA private keys on a PCICC or PCIXCC/CEX2C cryptographic card, it is recommended that you migrate them to an alternate key strategy.

Note: The storing of private RSA keys intended for signature usage in a cryptographic coprocessor continues to be supported when the modulus length is 2048 bits or less.

Element or feature: Cryptographic Services.

When change was introduced: ICSF FMID HCR7750, which was initially made available in Web deliverable Cryptographic Support for z/OS V1R7-R9 and z/OS.e V1R7-R8 and later integrated in z/OS V1R10.

Applies to migration from: z/OS V1R9 without ICSF FMID HCR7750 installed (which is in Web deliverable Cryptographic Support for z/OS V1R7-R9 and z/OS.e V1R7-R8).
Timing: Before installing z/OS V1R11.

Is the migration action required? No, but recommended to avoid loss of keys upon a hardware failure.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: If you have any RSA private keys on a PCICC or PCIXCC/CEX2C cryptographic card, migrate them to an alternate key strategy.

Tip: Use IBM Health Checker for z/OS to detect the existence of retained RSA private keys on a PCICC or PCIXCC/CEX2C cryptographic card. The check is named ICSFMIG7731_ICSF_RETAINED_RSAKEY.

Reference information: For more information about RSA private keys, see z/OS Cryptographic Services ICSF Administrator’s Guide.

Cryptographic Services actions to perform before the first IPL of z/OS V1R11

This topic describes Cryptographic Services migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

OCSF: Migrate the directory structure

Description: If you previously configured Open Cryptographic Services Facility (OCSF), you need to verify that the OCSF directories have been migrated to the target system.

Note: If you want to take advantage of the new Software Cryptographic Service Provider 2 (SWCSP2), you should bypass this migration action. When your z/OS V1R10 or z/OS V1R11 system is up and running, install OCSF by running the install script and then the IVP.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Cryptographic Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you currently use OCSF or if new products or functions on your new z/OS system require OCSF to be active. However, if you installed your new z/OS system with ServerPac or SystemPac, the OCSF installation script has been run and you do not have to perform this migration action for that system.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Migrate the OCSF `/var` directory structure to the target system. If you installed z/OS V1R11 with CBPDO or by cloning an already-installed V1R11 system, you can either copy the `/var/ocsf` directory from your old system or rerun the installation script. If you installed z/OS V1R11 with ServerPac or SystemPac, the OCSF installation script has been run and you have no migration actions for that target system (although you still have to migrate the directory structure to any cloned systems, as stated above).

If you copy `/var/ocsf`, verify that the OCSF `/var` directory structure has been migrated to the target system as described in "Migrate /etc and /var system control files" on page 25. The OCSF registry (the `/var/ocsf` files) contains the directory path names to the code libraries. If the registry files are copied, the CSSM DLL and the add-ins must be in the same location on the target system as on the prior release. The normal locations are `/usr/lpp/ocsf/lib` for the CSSM and supporting DLLs and `/usr/lpp/ocsf/addins` for the add-in libraries.

If you copied `/var/ocsf`, do the following:

1. Verify that the following four files exist in that directory:
   - `CDSA_Registry.dir` with permissions (-rw-r--r--)
   - `CDSA_Registry.pag` with permissions (-rw-r--r--)
   - `CDSA_Sections.dir` with permissions (-rw-r--r--)
   - `CDSA_Sections.pag` with permissions (-rw-r--r--)

2. Verify that the required RACF FACILITY class profiles are defined and set up:
   - `CDS.CSSM` — authorizes the daemon to call OCSF services
   - `CDS.CSSM.CRYPTO` — authorizes the daemon to call a cryptographic service provider (CSP)
   - `CDS.CSSM.DATALIB` — authorizes the daemon to call a data storage library (DL) service provider

3. Ensure that the necessary libraries are program controlled:
   - `XL C/C++ runtime libraries`
   - `Language Environment libraries`
   - `SYS1.LINKLIB`
   - `SYS1.SIEALNKE`

If you did not copy `/var/ocsf`, rerun the installation script:

1. Set up the RACF FACILITY class profiles required by OCSF and authorize the appropriate user IDs to those profiles:
   - `CDS.CSSM` — authorizes the daemon to call OCSF services
   - `CDS.CSSM.CRYPTO` — authorizes the daemon to call a cryptographic service provider (CSP)
   - `CDS.CSSM.DATALIB` — authorizes the daemon to call a data storage library (DL) service provider
2. Ensure that the following libraries are defined as program controlled:
   - XL C/C++ runtime libraries
   - Language Environment libraries
   - SYS1.LINKLIB
   - SYS1.SIEALNKE

3. Run the `oscf_install_crypto` script from the OMVS shell. This must be run from the target system.
   a. Verify and update $LIBPATH.
   b. Change directory to the location of the script (/usr/lpp/ocsf/bin).
   c. Run the script.

Whether you reinstalled or migrated, it is strongly recommended that you rerun IVP `oscf_baseivp` from the OMVS shell. This IVP verifies that OCSF is installed and configured correctly. To run the IVP:
1. Mount /usr/lpp/ocsf/ivp.
2. Read the README file and follow the instructions.
3. Run the IVP.

If you were using other IBM or non-IBM services to supplement the functions in OCSF, such as the Open Cryptographic Enhanced Plug-ins (OCEP) component of base element Integrated Security Services, or the PKI Services component of base element Cryptographic Services, you must ensure that these are migrated or reinstalled.

Reference information: z/OS Open Cryptographic Services Facility Application Programming

System SSL: Modify applications to address disablement of SSL V3 and TLS session renegotiation

Description: Session renegotiation allows an existing SSL V3 or TLS session to perform a re-handshake. A common reason for this is to refresh the session keys used to encrypt data transmitted across the secure connection. In z/OS V1R11, z/OS V1R10, and z/OS V1R9 without the PTFs for APAR OA31172 installed, the default behavior of System SSL was to permit applications to perform SSL V3 and TLS server session renegotiations. The new default behavior for z/OS V1R11, with the PTFs for APAR OA31172 installed, is to disable session renegotiation.

If you run System SSL applications that handle session renegotiation, server renegotiation will fail unless renegotiation is explicitly enabled. The gsk_secure_socket_read API will return with error code 432. The gsk_secure_socket_read API will return with error code -7.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Cryptographic Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11, z/OS V1R10, and z/OS V1R9 by APAR OA31172</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R11, z/OS V1R10, and z/OS V1R9 without the PTFs for APAR OA31172 installed</td>
</tr>
</tbody>
</table>
**Timing:**
Before first IPL of z/OS V1R11. If SSL V3 or TLS renegotiation is required and you use the new environment variable GSK_RENEGOTIATION to alter the new default behavior, then the migration action can be performed prior to installing z/OS V1R11 with PTF for APAR OA31172. However, if you use the gsk_set_attribute_enum API, the PTFs for APAR OA31172 need to be installed. The PTFs contain updated header files for the new enumeration defines.

**Is the migration action required?**
Yes, if you run any System SSL applications that request session renegotiation.

**Target system hardware requirements:**
None.

**Target system software requirements:**
None.

**Other system (coexistence or fallback) requirements:**
None.

**Restrictions:**
None.

**System impacts:**
None.

**Steps to take:**
1. Identify the System SSL applications your installation runs, and determine whether any of those applications require session renegotiation. If no application require session renegotiation, no further action is needed.
2. If any System SSL applications your installation runs attempts session renegotiation, determine whether this renegotiation is required.
   - If the renegotiation is not required, modify the application so that it does not attempt session renegotiation.
   - If server session renegotiation is necessary, and you are willing to accept potential risks, server session renegotiation can be explicitly enabled.
     - For applications that accept the specification of environment variables, the GSK_RENEGOTIATION environment variable should be used.
       - Specify GSK_RENEGOTIATION=None to disable SSL V3 and TLS handshake renegotiation as a server. This is the default.
       - Specify GSK_RENEGOTIATION=ALL to allow SSL V3 and TLS handshake renegotiation as a server. This is equivalent to the System SSL behavior for session renegotiation.
       - Specify GSK_RENEGOTIATION=ABBREVIATED to allow SSL V3 and TLS abbreviated handshake renegotiation as a server for resuming the current session only, while disabling SSL V3 and TLS full handshake renegotiation as a server. The System SSL session ID cache is not checked when resuming the current session with this value set.
     - For applications that don’t allow the specification of environment variables or want to tailor individual SSL environments within an application, use the enumeration identifier GSK_RENEGOTIATION on the gsk_attribute_set_enum API. For the GSK_RENEGOTIATION enumeration identifier:
       - Specify GSK_RENEGOTIATION_NONE to disable SSL V3 and TLS handshake renegotiation as a server. This is the default.
- Specify GSK_RENEGOTIATION_ALL to allow SSL V3 and TLS handshake renegotiation as a server.
- Specify GSK_RENEGOTIATION_ABBREVIATED to allow SSL V3 and TLS abbreviated handshake renegotiation as a server for resuming the current session only, while disabling SSL V3 and TLS full handshake renegotiation as a server. With this enumeration value set, the System SSL session ID cache is not checked when resuming the current session.

The gsk_attribute_get_enum API also accepts the enumeration identifier GSK_RENEGOTIATION, and will return one of the preceding enumeration values indicating the current renegotiation setting for the specified SSL environment.

Reference information: For information about System SSL programming, refer to z/OS Cryptographic Services System SSL Programming.

System SSL: Modify applications that encode an Issuing Distribution Point certificate extension using the gsk_encode_certificate_extension API

Description: The Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile has introduced a new field to its definition of the Issuing Distribution Point extension for CRLs. Specifically, a Boolean indicator field onlyContainsAttributeCerts has been appended to the Issuing Distribution Point structure. For this reason, the corresponding structure (x509_issuing_dist_point) in the System SSL CMS header file (gskcms.h) has been modified to contain the new field.

typedef struct _x509_issuing_dist_point {
    x509_dist_point distributionPoint;
    gsk_boolean onlyContainsUserCerts;
    gsk_boolean onlyContainsCaCerts;
    gsk_bitstring onlySomeReasons;
    gsk_boolean indirectCrl;
    gsk_boolean onlyContainsAttributeCerts;
} x509_issuing_dist_point;

Because the x509_issuing_dist_point structure is part of a union in x509_extension, and because the largest element in the union is larger than the x509_issuing_dist_point structure, the onlyContainsAttributeCerts field could, unless it is instantiated or set, take on a value already defined in the allocated union storage. Depending on the value that was already defined in the allocated union storage, users of the CRL may experience unexpected results.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Cryptographic Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if any of your System SSL applications use the gsk_encode_certificate_extension API to encode an Issuing Distribution Point certificate extension.</td>
</tr>
<tr>
<td>Target system hardware requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements</td>
<td>None.</td>
</tr>
</tbody>
</table>
Restrictions: None.

System impacts: None.

Steps to take: If you have System SSL applications that use
gsk_encode_certificate_extension to encode an Issuing Distribution Point certificate
extension, be sure that the extension structure x509_decoded_extension is properly
initialized with binary zeroes before setting up the extension details.

Reference information:
- For additional information about the gsk_encode_certificate_extension API, refer to
  [z/OS Cryptographic Services System SSL Programming, SC24-5901](#).
- For more information about the Issuing Distribution Point extension for CRLs,
  refer to RFC 3280 (Internet X.509 Public Key Infrastructure Certificate and
  Certificate Revocation List Profile).

System SSL: Modify applications that use
x509_reason_removeFromCrl_byte and
x509_reason_removeFromCrl_mask

Description: In z/OS V1R11, the System SSL gskcms.h header file has been
updated to remove the x509_reason_removeFromCrl_byte and
x509_reason_removeFromCrl_mask bit definitions. These bit definitions within the
ReasonFlags field of the CRL Distribution Point extension of an X.509 certificate are
not defined correctly according to RFC 2459 and RFC 3280 (Internet X.509 Public

Element or feature: Cryptographic Services.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if any of your System SSL applications
reference x509_reason_removeFromCrl_byte and x509_reason_removeFromCrl_mask
fields.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Update your System SSL-based applications to no longer reference
the following fields:
- x509_reason_removeFromCrl_byte
- x509_reason_removeFromCrl_mask

Reference information: For more information about the ReasonFlags field, refer to
RFC 2459 and RFC 3280 (Internet X.509 Public Key Infrastructure Certificate and
Certificate Revocation List Profile).
ICSF: Modify ICSF startup procedure

**Description:** The program that started ICSF in earlier releases was named CSFMAIN. In ICSF FMID HCR7770 (which was made available in the Web deliverable *Cryptographic Support for z/OS V1R9-R11*), the CSFMAIN program is replaced by the CSFINIT program. If your ICSF startup procedure is not modified to run this new program, the procedure will not start the HCR7770 level of ICSF.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Cryptographic Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>ICSF FMID HCR7770, which was made available in Web deliverable <em>Cryptographic Support for z/OS V1R9-R11</em>.</td>
</tr>
<tr>
<td><strong>Applies to migration from:</strong></td>
<td>z/OS V1R11, z/OS V1R10, and z/OS V1R9, all without ICSF FMID HCR7770 installed (which is in Web deliverable <em>Cryptographic Support for z/OS V1R9-R11</em>).</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>Yes.</td>
</tr>
<tr>
<td><strong>Target system hardware requirements:</strong></td>
<td>z/OS V1R9 PTF UA49999 (APAR OA26245) and z/OS V1R10 PTF UA50000 (APAR OA26245) are required to update the IBM supplied default PPT to include the CSFINIT program definition.</td>
</tr>
<tr>
<td><strong>Target system software requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Other system (coexistence or fallback) requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Restrictions:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>System impacts:</strong></td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** In your startup procedure for ICSF:
1. Find the job step that identifies the ICSF startup program (CSFMAIN) that was used in earlier releases. For example:
   ```
   CSFSTART EXEC PGM=CSFMAIN,REGION=0M,TIME=1440
   ```
2. Modify the PGM parameter on this EXEC statement to identify the new startup program (CSFINIT):
   ```
   CSFSTART EXEC PGM=CSFINIT,REGION=0M,TIME=1440
   ```
3. Save your changes to the startup procedure.

**Tip:** Member CSF in SYS1.SAMPLIB contains a sample JCL code for an ICSF startup procedure.

**Reference information:** For more information on ICSF startup procedures, refer to *z/OS Cryptographic Services ICSF System Programmer’s Guide*.

ICSF: Increase the size of your PKDS

**Description:** With ICSF FMID HCR7750, the record size of the PKA key data set (PKDS) has increased. You must allocate a new PKDS with a larger record size so that internal I/O routines can handle 4096-bit tokens. Failure to migrate the PKDS before starting ICSF results in error messages CFC0286, CSFM406A, and CSFM407A.

| Element or feature          | Cryptographic Services. |
When change was introduced: ICSF FMID HCR7750, which was initially made available in Web deliverable Cryptographic Support for z/OS V1R7-R9 and z/OS.e V1R7-R8 and later integrated in z/OS V1R10.

Applies to migration from: z/OS V1R9 without ICSF FMID HCR7750 installed (which is in Web deliverable Cryptographic Support for z/OS V1R7-R9 and z/OS.e V1R7-R8).

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you use ICSF.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: If the PKDS is shared with a system having an earlier level of ICSF (HCR7740 or earlier), install the PTF for APAR OA21807 on that system to allow continued sharing of the PKDS. ICSF will be able to interact with both sizes of the PKDS.

Restrictions: None.

System impacts: Failure to update the PKDS record size will result in ICSF not initializing.

Steps to take:
1. Create the larger PKDS. Use the JCL in SYS1.SAMPLIB(CSFPKDS) from the HCR7750 or later system. If the PKDS will be shared, place the VSAM data set where it can be shared.
2. Suspend activity with the PKDS: disable the PKDS READ, PKDS WRITE, PKDS CREATE, and PKDS DELETE access from the ADMINCNTL option. This will prevent any updates from being made while the migration action is performed. It will affect applications that use the PKDS services.
3. If the old PKDS is not empty, copy it to the larger PKDS using the JCL in SYS1.SAMPLIB(CSFPKDCP) from the HCR7750 or later system. If the original PKDS is an empty one, you will need to initialize the new PKDS.
4. Protect the VSAM data set from use by unauthorized personnel.
5. Update the ICSF started procedures on all systems to reference the new PKDS.
6. Activate the new PKDS on each system: refresh the PKDS from the Master Key Mgmt option on the main ICSF Administration panel.
7. Resume activity with the PKDS: enable the PKDS READ, PKDS WRITE, PKDS CREATE, and PKDS DELETE access from the ADMINCNTL option. Resume any applications that use the PKDS services.

Tip: Use IBM Health Checker for z/OS to verify that the PKDS size in an ICSF pre-HCR7750 environment is sufficiently allocated to support 4096-bit RSA keys. The check is named ICSFMIG7731_ICSF_PKDS_TO_4096BIT.

Reference information: For more information about the PKDS, see z/OS Cryptographic Services ICSF System Programmer’s Guide.
None.
Chapter 9. DFSMS migration actions

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<td>DFSMSdfp: Back up SMS control data sets</td>
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<td>DFSMSdfp: Redefine existing VSAM data sets that contain the IMBED, REPLICATE, and KEYRANGE attributes</td>
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<tr>
<td>DFSMSdfp: Specify a control interval size for the IDCAMS DEFINE DATA component</td>
<td>183</td>
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<td>DFSMSdfp: REDFIND existing VSAM data sets that contain the IMBED, REPLICATE, and KEYRANGE attributes</td>
<td>181</td>
</tr>
<tr>
<td>DFSMSdfp: Update SMS control data sets</td>
<td>180</td>
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<tr>
<td>DFSMSdfp: Define additional volumes to ML1 OVERFLOW and NOOVERFLOW pools for backup and migration</td>
<td>184</td>
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<td>DFSMSHsm: Define facility class names to protect (H)BACKDS RETAINIDAYS commands</td>
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</tr>
<tr>
<td>DFSMSHsm: Accommodate the change of ARCBDEXT exit</td>
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</tr>
</tbody>
</table>
DFSMSdss, DFSMSShsm, DFSMSrmm, and DFSMStvs.

DFSMS actions to perform before installing z/OS V1R11

This topic describes DFSMS migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

**DFSMSdfp: Back up SMS control data sets**

*Description:* In a multisystem Storage Management Subsystem (SMS) complex, operating systems share a common set of SMS classes, groups, ACS routines, and a configuration base, which make up the storage management policy for the complex. This storage management policy is maintained in a source control data set (SCDS). When this policy is activated for SMS, the bound policy is maintained in processor storage and on DASD in an active control data set (ACDS). Systems in the complex communicate SMS information through a common communications data set (COMMDS).

IBM recommends that to successfully share SMS control data sets in a multisystem environment where there are mixed levels of DFSMS, you update, translate, validate, and activate SMS policies on the system with the latest level of DFSMS. When an earlier control data set is to be updated or activated, the control data set is formatted by the later-level system. The shared SMS control blocks reflect the new, rather than the previous, lengths and control information.

For fallback, IBM recommends restoring SMS control data sets from backups taken on the fallback release.

Editing a policy on an earlier system could invalidate unused control information and prevent the control data set from being accessed by a later system. A warning message is provided before a policy can be changed on an earlier system. ACS routines may need to be updated and translated so to not reference policy items not known to the earlier system.

Remember, you risk policy activation failures if SCDS changes are not validated using the latest-level system in a sysplex.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to ensure data integrity.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback) requirements: Install the PTFs in "Install coexistence and fallback PTFs" on page 8 if they are not already installed.

Restrictions: None.

System impacts: None.

Steps to take: Do the following on your pre-z/OS V1R11 systems:

1. Back up SMS control data sets according to established procedures in the event that fallback is required. The control data set format is VSAM linear.
2. Install all coexistence PTFs in "Install coexistence and fallback PTFs" on page 8.

In addition, if you modified and activated a higher-level policy on a pre-z/OS V1R11 system, do the following to ensure that the ACDS can be accessed on z/OS V1R11:

1. On the pre-z/OS V1R11 system, save the active ACDS as an SCDS with the SETSMS SAVESCDS command.
2. On z/OS V1R11, update, translate, validate, and activate the saved SMS policy.

Note: With z/OS V1R10 (and prior releases by APAR OA22373), CDS uplevel checking only checks the formatted release against the updating release level. The construct size change no longer causes warning messages.

Reference information:
• z/OS DFSMS Implementing System-Managed Storage
• z/OS DFSMSdfp Storage Administration

**DFSMSdfp: Redefine existing VSAM data sets that contain the IMBED, REPLICATE, and KEYRANGE attributes**

Description: No supported release of z/OS honors the IMBED, REPLICATE, and KEYRANGE attributes for new VSAM data sets. In fact, using these attributes can waste DASD space and often degrades performance. Servicing these VSAM data sets has become increasingly difficult. In some cases, unplanned outages have occurred. For these reasons, IBM recommends that you stop using IMBED and REPLICATE, and that you minimize or eliminate your use of KEYRANGE.

IMBED and REPLICATE were intended as performance improvements and have been obsoleted by newer, cached DASD devices. Striped data sets provide much better performance than KEYRANGE and should be viewed as a candidate for any existing KEYRANGE data sets.

Element or feature: DFSMSdfp.
<table>
<thead>
<tr>
<th>When change was introduced:</th>
<th>The recommendation to migrate from IMBED, REPLICATE, and KEYRANGE was originally made in the z/OS V1R6 timeframe. In Software Announcement 204-180 (RFA39951), dated August 10, 2004, IBM announced its intent to withdraw support for VSAM IMBED, REPLICATE, and KEYRANGE attributes in a future release. Based on customer feedback, IBM no longer plans to remove this support from z/OS in the foreseeable future. IBM still recommends that you stop using these attributes and plans to remove IMBED and REPLICATE attributes during logical DFSMSdss restore operations and DFSMSShsm recall operations as announced in Software Announcement 207-175 4 (RFA45594), dated August 7, 2007.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to avoid degraded performance and wasted DASD space.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

1. Determine which VSAM data sets and ICF catalogs were defined with the IMBED, REPLICATE, or KEYRANGE attribute. To help you perform this task, you can get a tool that reads existing VSAM data sets and ICF catalogs and reports which ones have these attributes. The tool is available from the software server (ftp.software.ibm.com) in the s390/mvs/tools directory as IMBDSHIP/JCLTRS. Download the file in binary format and unterse it on your z/OS system using AMATERSE or TRSMAIN. Instructions for using the tool are included in the downloaded JCL.

**Notes:**

a. The tool only checks data sets that are on DASD. Data sets that were migrated by DFSMSshsm or backed up by DFSMSdss continue to retain their IMBED, REPLICATE, and KEYRANGE attributes when recalled or restored. In a future release of z/OS, when support for IMBED and REPLICATE is removed and data sets are recalled or restored by DFSMSShsm or DFSMSdss, the IMBED and REPLICATE attributes will be removed during the recall or restore and the data sets will be in a usable state. Because the data sets will be in a usable state, there is no need for a tool to identify data sets that were backed up or migrated at a time when the data sets had the IMBED or REPLICATE attribute and support for IMBED and REPLICATE still existed.

b. “AMATERSE” and “TRSMAIN” are names for a service aid that compresses and decompresses data exchanged with IBM. “AMATERSE” is the preferred program name since its integration into z/OS V1R9. “TRSMAIN” is the original program name and is now shipped as an alias entry point to
AMATERSE. For more information about AMATERSE, including several differences with TRSMAIN, see [z/OS MVS Diagnosis: Tools and Service Aids](#).

2. Schedule a time for the affected VSAM data sets and ICF catalogs to be unavailable, and redefine them.

For VSAM data sets you can use JCL similar to the following:

```plaintext
//* EXPORT A KSDS
//STEP1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*.
//INDD DD DSN=EXAMPLE.KSDS,DISP=OLD
//OUTDD DD DSN=EXAMPLE.KSDS.EXPORTED,DISP=(NEW,CATLG),
// SPACE=(CYL,(1,1)),UNIT=SYSDA
//SYSIN DD *
//EXPORT EXAMPLE.KSDS -
//INFILE(INDD) -
//OUTFILE(OUTDD) -
//TEMPORARY

//* NOW IMPORT THE EXPORTED COPY
//STEP1 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*.
//INDD DD DSN=EXAMPLE.KSDS.EXPORTED,DISP=SHR
//SYSIN DD *
//IMPORT -
//INFILE(INDD) -
//OUTDATASET(EXAMPLE.KSDS)
```

For ICF catalogs, see informational APAR II13354 for step-by-step instructions on using IDCAMS EXPORT/IMPORT with ICF catalogs.

**Tip:** Use IBM Health Checker for z/OS check CATALOG.IMBED_REPLICATE on z/OS V1R11 to detect IMBED and REPLICATE attributes in your master catalog and any connected user catalogs.

**Reference information:**

- For more information about IDCAMS EXPORT and IMPORT, see [z/OS DFSMS Access Method Services for Catalogs](#).
- For more information about the AMATERSE service aid, see [z/OS MVS Diagnosis: Tools and Service Aids](#).

### DFSMSdfp: Specify a control interval size for the IDCAMS DEFINE DATA component

**Description:** Before z/OS V1R11, IDCAMS DEFINE could be used to specify CONTROLINTERVALSIZE for the CLUSTER component when calculating the space for a data set allocation. If a CONTROLINTERVALSIZE was specified for the DATA component, the specified value was ignored and the CLUSTER CONTORLINTERVALSIZE used. A default value of 4096 is used for the DATA component if a size is not specified for the CLUSTER. Beginning with z/OS V1R11, IDCAMS DEFINE now processes the CONTROLINTERVALSIZE being specified for the DATA component. Existing JCL, which specifies a CONTROLINTERVALSIZE for the DATA component, can result in a different allocation amount when executed on z/OS V1R11.

**Note:** To preserve consistency in space allocations across releases, specify CONTROLINTERVALSIZE on the CLUSTER level of the DEFINE command and apply PTF UA36500 (APAR OA21369) on systems running z/OS V1R9. Jobs that do not specify a CONTROLINTERVALSIZE for the DATA component are unaffected. Specifying a value other than 4096 can improve VSAM performance.
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<th>Element or feature:</th>
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</tr>
</thead>
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<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10, and z/OS V1R9 without PTF UA36500 (APAR OA21369) applied.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because specifying a control interval size other than 4096 (with the DEFINE command) can improve VSAM performance.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- Review production JCL libraries for instances of an IDCAMS DEFINE of a linear data set and specify a control interval size value other than 4096. The actual allocation amount will use the specified control interval size value instead of 4096.
- Determine if the specified value is appropriate for the data set.

Reference information: For additional details on CONTROLINTERVALSIZE, see the [Define Cluster] parameter in z/OS DFSMS Access Method Services for Catalogs.

**DFSMShsm: Define additional volumes to ML1 OVERFLOW and NOOVERFLOW pools for backup and migration**

**Description:** The way that DFSMShsm uses ML1 OVERFLOW volumes has changed. Before z/OS V1R11, volumes that you defined as OVERFLOW volumes using the ADDVOL MIGRATION(OVERFLOW) command were used for backup only for data sets greater than 500 tracks that encountered out of space errors. Beginning with z/OS V1R11, volumes defined with ADDVOL MIGRATION(OVERFLOW) are used by DFSMShsm for both backup and migration of large data sets.

There is also a new command, which determines the size of data sets for which an ML1 OVERFLOW volume is preferred for migration or backup:

```plaintext
SETSYS ML1OVERFLOW(DATASETSIZE(dssize) THRESHOLD(threshold))
```

The default for DATASETSIZE is 2000000 KB, so by default, DFSMShsm backs up and migrates data sets that are 2000000 KB and larger to ML1 OVERFLOW volumes.

Note that many installations do not use ML1 OVERFLOW volumes. The default setting for ADDVOL MIGRATION is NOOVERFLOW, so if you do not specify the OVERFLOW parameter specifically now, your installation is probably not using ML1 OVERFLOW volumes and this migration action does not apply to you.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you are migrating from a system that defined ML1 OVERFLOW volumes using the ADDVOL MIGRATION(OVERFLOW) command.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: Install the coexistence and fallback PTF for APAR OA26330 on pre-z/OS V1R11 systems.
Restrictions: If you are migrating an installation that uses ML1 OVERFLOW volumes to z/OS V1R11, you cannot fall back to the pre-z/OS V1R11 backup-only ML1 OVERFLOW behavior.
System impacts: None.

Steps to take: Define additional volumes to ML1 OVERFLOW and NOOVERTFLOW pools as follows:

1. Check to see if you are defining ML1 OVERFLOW volumes using the ADDVOL MIGRATION(OVERFLOW) command.
2. If you are, evaluate what the changed behavior will look like on your installation. See ML1OVERFLOW: Manage ML1 OVERFLOW volumes in z/OS DFSMShsm Storage Administration for information on how different size data sets will be backed up and migrated to ML1 OVERFLOW or NOOVERFLOW volumes.
3. Define additional volumes to the ML1 OVERFLOW and NOOVERFLOW pools if needed.
4. If needed, adjust the SETSYS ML1OVERFLOW command settings to change the size of data sets that DFSMShsm will prefer to migrate and back up to ML1 OVERFLOW volumes.

Reference information:
* See OVERFLOW | NOOVERFLOW: Specifying the Usage of a Level 1 Volume for Data Set Migration and Backup Versions in z/OS DFSMShsm Storage Administration
* See ML1OVERFLOW: Manage ML1 OVERFLOW volumes in z/OS DFSMShsm Storage Administration

DFSMSrmm: Use the new default for the EDGHSKP XREPTTEXT DD statement

Description: The default processing for the EDGHSKP XREPTTEXT DD statement is changed so that only extended records are created.

Before z/OS V1R10, DFSMSrmm report extract processing used allocated ddnames to determine whether extended records were required. If the ddname was REPTTEXT, DFSMSrmm created all records except the extended records in the extract. If the ddname was XREPTTEXT, DFSMSrmm created all records in the extract and then used the D and V records to create extended records.
Starting in z/OS V1R10, by default, the XREPTEXT DD statement receives only extended (X) records. To tailor the contents of the REPTEXT and XREPTEXT DD statements, DFSMSrmm report extract processing now checks for the existence of the RPTEXT command in the SYSIN file, and if the RPTEXT command is found, DFSMSrmm writes the selected extract records to the data set specified by either the REPTEXT or XREPTEXT DD statement.

The new default of only X records matches what most customers want. In addition, the new default requires less DASD space and fewer resources to create the extract.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because the new default requires less DASD space and fewer resources to create the extract.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>Install PTF UA38172 (for APAR OA23177) on z/OS V1R9.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- To obtain the new behavior, which is recommended, do nothing.
- If you want the prior behavior, which is for the XREPTEXT DD statement to contain all records, not just X records, update any report extract JCL used to create a report extract file containing extended records (run to create records other than the extended records) by adding the following statements to your existing JCL:

  ```
  //SYSIN DD *
  RPTEXT RECORDS(X,O,R,B,S,P,V,D)
  /*
  ```

  This change must be made to your JCL before IPLing z/OS V1R11 and running extract, but it can be made on your current (z/OS V1R9) release (with the coexistence PTF installed) because it will only be used by DFSMSrmm on z/OS V1R11.

Reference information: For additional information, see “SYSIN File for the EDGHSKP Utility” in z/OS DFSMSrmm Implementation and Customization Guide.

**DFSMSrmm: Migrate from VRSEL(OLD) to VRSEL(NEW) in parmlib member EDGRMMxx**

**Description:** The VRSEL(OLD) or VRSEL(NEW) operand of the OPTION command in DFSMSrmm parmlib member EDGRMMxx specifies the type of vital record processing you want performed. In z/OS V1R11, VRSEL(OLD) has been removed.
From z/OS V1R8 to V1R10, if you did not migrate from VRSEL(OLD) to VRSEL(NEW), you received warning message EDG2317E when you ran VRSEL(OLD) processing, and EDGHSKP processing ended with job step return code 4. Beginning with z/OS V1R11, you can no longer specify VRSEL(OLD) in parmlib and the default value is changed to VRSEL(NEW).

Specifying OPTION VRSEL(OLD) will result in error messages from parse:

EDG0208I RECORD INPUT:- OPTION VRSEL(OLD)
EDG0209E PARSE MESSAGE:- IKJ56712I INVALID KEYWORD, OLD
EDG0215D ERRORS DETECTED IN INITIALIZATION PARAMETERS
   - ENTER ?Y? TO CONTINUE OR ?N? TO CANCEL

Reply with “Y” and the default VRSEL(NEW) is used. Reply with “N” and the response is:

EDG0104E DFSMSRMM SUBSYSTEM INITIALIZATION FAILED
EDG0107A ENTER SUFFIX OF INITIALIZATION MEMBER OR "CANCEL"

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the VRSEL(OLD) operand of the OPTION command in DFSMSrmm parmlib member EDGRMMxx.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: To migrate from VRSEL(OLD) to VRSEL(NEW), follow the steps in z/OS V1R10.0 DFSMSrmm Guide and Reference.

Tip: Use IBM Health Checker for z/OS to determine whether you need to perform this migration action. The relevant check is named ZOSMIGV1R11_RMM_VRSEL_OLD and is available by installing PTF UA45968 (APAR OA26947) on z/OS V1R9 and PTF UA45967 (APAR OA26947) on z/OS V1R10. The check determines whether you are still using OPTION VRSEL(OLD).

Reference information: See migrating from VRSEL(OLD) to VRSEL(NEW) in z/OS V1R10.0 DFSMSrmm Guide and Reference.

DFSMS actions to perform before the first IPL of z/OS V1R11

This topic describes DFSMS migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.
DFSMSdfp: Ensure that the Language Environment runtime library is available for DLLs

**Description:** Language Environment provides common services and language-specific routines in a single runtime environment. You can use Language Environment to build and use dynamic link libraries (DLLs) for applications.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your installation builds or references DLLs.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If your installation builds or references DLLs, either you must set up the system link list to refer to the Language Environment runtime libraries (SCEERUN and SCEERUN2), or each job that creates or uses a DLL must include a STEPLIB DD statement referencing these libraries.

**Reference information:**
- z/OS Language Environment Run-Time Application Migration Guide
- z/OS Language Environment Customization
- z/OS Language Environment Programming Guide

DFSMSdfp: Update SYS1.IMAGELIB

**Description:** If you use page mode printers such as the IBM 3800 or the IBM 3900 running in line mode (not page mode), you must install library character sets, graphic character modification modules, and character arrangement tables in SYS1.IMAGELIB. This migration action does not apply if you are using IBM 3900 printers that are driven by PSF.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are not using your old SYS1.IMAGELIB, you are installing with ServerPac or SystemPac, and you are using line mode printers such as the 3800 or 3900.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>IBM 3800 or 3900 printers.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
### Other system (coexistence or fallback) requirements:
None.

### Restrictions:
None.

### System impacts:
None.

---

**Steps to take:**

1. Run the LCSBLD1 job from the samplib data set to create character sets, graphic character modification modules, and character arrangement tables in SYS1.IMAGELIB.
2. Copy customized or locally-written FCBs and UCS images from your old system’s SYS1.IMAGELIB data set to the new system’s SYS1.IMAGELIB data set.

**Reference information:** For information about maintaining SYS1.IMAGELIB, see z/OS DFSMSdfp Advanced Services

---

### DFSMSdfp: Permit DEVMAN to call ICKDSF

**Description:** Starting with z/OS V1R11, support is added to the device manager (DEVMAN) to invoke ICKDSF for the new DEVMAN REFVTOC function. During startup of the DEVMAN address space, ICKDSF is loaded by DEVMAN regardless of whether or not you have enabled the REFVTOC function.

If you use program control in RACF to restrict access to ICKDSF, you must ensure the profile which protects the ICKDSF resource in the PROGRAM class allows the user ID associated with the DEVMAN address space to have READ access.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have enabled RACF program control and you use it to protect the ICKDSF profile in the PROGRAM class.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | Message ICH408I will be issued when the DEVMAN address space is started if you use program control for ICKDSF and you have not allowed DEVMAN to call ICKDSF. You will not be able to exploit the new REFVTOC function. Note that DEVMAN initialization continues even if DEVMAN does not have sufficient authority. |

**Steps to take:** If you use RACF:

1. Define a user ID for the DEVMAN started task if one is not already established.
2. Define a profile for DEVMAN in the RACF STARTED class. Assign the user ID from Step 1 to the DEVMAN procedure in the STARTED class.

3. Permit the user ID for the DEVMAN started task to call ICKDSF by allowing read access to ICKDSF in the PROGRAM class. For example:
   PERMIT ICKDSF CLASS(PROGRAM) ID(userid) ACCESS(READ)

4. Refresh the storage RACF profiles by using the command SETR WHEN(PROGRAM) REFRESH.

5. Refresh the STARTED profiles, if necessary, using the command SETR RACLASS(STARTED) REFRESH.

Reference information:
- For information about using program control to restrict access to programs such as ICKDSF, see z/OS Security Server RACF Security Administrator's Guide.
- For information about using RACF commands to set up the security definitions, see z/OS Security Server RACF Command Language Reference.

**DFSMSdfp: Use a permanent VSAM data set if using REUSE with RESET**

Description: VSAM enables you to define reusable data sets to use as work files. Instead of using the DELETE-DEFINE sequence, you can specify the REUSE parameter in the IDCAMS DEFINE CLUSTER|ALTERNATEINDEX command. The REUSE parameter lets you treat a filled data set as if it were empty and load it again and again regardless of its previous contents. In a reusable data set, you can reset to zero the high-used RBA field at OPEN by specifying MACRF=RST in the ACB at OPEN. VSAM can use this reusable data set like a newly defined data set.

VSAM does not support RESET for temporary data sets. However, in z/OS V1R9, z/OS V1R10, and z/OS V1R11, without the PTF for APAR OA29467 applied, even when a temporary VSAM data set is opened with RESET, the unsupported option is ignored with no message issued to notify the user. Therefore, there are unexpected results because the existing records in the data set are not cleared during the OPEN process.

After the PTF for APAR OA29467 is applied to z/OS V1R9, z/OS V1R10 or z/OS V1R11, OPEN will be failed with message IEC161I 084-061 if REUSE with RESET is used with temporary VSAM data sets.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R11, z/OS V1R10, z/OS V1R9, and z/OS V1R8, all with APAR OA29467.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9, without the PTF for APAR OA29467 applied.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you OPEN a temporary VSAM data set with RESET option.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts</td>
<td>None.</td>
</tr>
</tbody>
</table>
**Steps to take:** Use a permanent data set if you wish to use REUSE with RESET on VSAM data sets. Do not use REUSE with RESET on temporary VSAM data sets. The message IEC161I 084-061 reports a cluster without the REUSE attribute, which indicates the object of an unsuccessful reset request. OPEN processing ends for the data set and the error flag (ACBERFLG) in the ACB (access method block) for the data set is set to 232 (X'E8').

**Notes:**
1. Temporary VSAM data sets must reside in storage managed by the Storage Management Subsystem.
2. The temporary data set does not need to be defined with a data class specifying REUSE to get the error message IEC161I 084-061.

**Reference information:**
- For information about the IDCAMS utility program, see [z/OS DFSMS Access Method Services for Catalogs](#).
- For information about IEC161I message, see [z/OS MVS System Messages, Vol 7 (IEB-IEE)](#).
- For information about the OPEN macro, see [z/OS DFSMS Macro Instructions for Data Sets](#).

**DFSMSe: Add columns ODSTATF, ODRETDT, and ODINSTID to OAM object directory tables**

**Description:** In z/OS V1R11, object access method (OAM) introduces 2 GB object support for tape media as well as archive retention enhancements. You must run the CBRSMR1B job to perform the migration from the z/OS V1R10 version of the object storage database to the z/OS V1R11 version. The job will add columns ODSTATF, ODRETDT, and ODINSTID to the existing object directory tables. Even if you do not take advantage of the new function added in this release, if you use OAM object support you must run the CBRSMR1B job to add the new columns to the tables.

**Element or feature:** DFSMSe.

**When change was introduced:** z/OS V1R11.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9.

**Timing:** Before the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you use OAM object support.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** Install the coexistence and fallback PTF for APAR OA26334 on pre-z/OS V1R11 systems.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:**
- If your installation’s OAM object directory tables in DB2 do not contain ODSTATF, ODRETDT, and ODINSTID columns, edit the sample job CBRSMR1B.
to make the changes specified in the comments section, and run the job. The job adds the new columns to the OAM object directory tables and primes them with default values.

- Run OAM DB2 BIND and GRANT jobs. To determine which BIND and GRANT jobs you need to run, see [z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support](#).

**Reference information:** For details about running the CBRSMR1B migration job, see [z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support](#).

## DFSMSdfp: Remove user-defined trace points for VSAM record management trace

**Description:** Before z/OS V1R11, DFSMS included an option to add your own trace points for the VSAM record management trace function. This option has been removed in z/OS V1R11. Therefore, any applications that have user-defined trace points for the VSAM record management trace function need to have them removed.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have previously added trace points for the VSAM record management trace function.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Remove user-defined trace points for the VSAM record management trace function from your applications. If a VSAM trace definition contains any trace point ID that is not listed in [z/OS DFSMSdfp Diagnosis](#), remove the user-defined trace point ID from the HOOK parameter in the DD statement. Failure to remove user-defined trace points could cause an ABEND0C1 when running with VSAM record management trace. You might be able to use new IBM-defined trace options in place of a user-defined one. See the list of IBM-defined trace points in [z/OS DFSMSdfp Diagnosis](#).

**Reference information:** For details about the VSAM record management trace, see the section on VSAM Record Management Trace Facility (Non-RLS Access) in [z/OS DFSMSdfp Diagnosis](#).

## DFSMSdfp: Accommodate layout change of IEHLIST LISTVTOC command output with FORMAT option

**Description:** Beginning with z/OS V1R10, the output of PGM=IEHLIST LISTVTOC command with the FORMAT option is changed to support the Extended Address Volume (EAV) capability.
The layout of output for the VTOC Format-4 DSCB is changed. It affects the position of header and values.

For the components of VSAM data sets, ICF Catalogs and VVDS data sets, no value (blank) is printed in the field of LAST BLK(T-R-L). In prior releases, it contained the value of 0 0 58786, which is derived from the VTOC Format-1 DSCB field DS1TRBAL (X'E5A2').

At the bottom of SYSPRINT, there is new information printed in the free space section as follows:

```
THERE ARE nnnnn EMPTY CYLINDERS PLUS nnnnnn EMPTY TRACKS
FROM THE TRACK-MANAGED SPACE
```

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you depend on the layout of PGM=IEHLIST LISTVTOC command output with FORMAT option.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Because the layout of SYSPRINT data set is changed, you need to review and change the post-processing program accordingly.

**Note:** After applying the PTF for APAR PK56092 for ICKDSF V1R17, the default size of the VTOC index is changed to be based on the required index records for a given volume size and the size of the VTOC. When the index size defined is smaller than 15 tracks (old default size), the number of VIRs obtained within the index will be decreased, which is reported by the PGM=IEHLIST LISTVTOC command.

```
THERE ARE nnnnnn UNALLOCATED VIRS IN THE INDEX
```

**Reference information:**
- For information about the IEHLIST utility program, see [z/OS DFSMSdfp Utilities](#).
- For information about VTOC layout, see [z/OS DFSMSdfp Advanced Services](#).
- For information about ICKDSF INIT command, see [ICKDSF R17 (Device Support Facilities R17) User's Guide and Reference](#).

**DFSMSdfp: Provide a 140-byte work area when using OBTAIN**

**Description:** Programs must pass the address of a 140-byte return area when they search for a data set name using the OBTAIN macro with the CAMLIST SEARCH option or the OBTAIN SVC 27 with the SEARCH for DSNAME operation code. In releases prior to z/OS V1R10, the system returned data in only the first 101 bytes of the return area. Beginning with z/OS V1R10, the system will return data in the first 103 bytes. Therefore, you should upgrade your programs to provide the entire 140-byte return area; otherwise, you might encounter storage overlay problems or program interruptions.
Element or feature: DFSMSdfp.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you have programs that do not specify at least a 103-byte DSCB return area.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: Failure to provide a 140-byte work area could cause storage overlay problems and program interruptions.

Steps to take: Upgrade programs to provide the entire 140-byte return area as stated in the reference information below.

Reference information:

- The OBTAIN macro with the CAMLST SEARCH option is described in DFSMSdfp Advanced Services.
- The OBTAIN SVC 27 parameter list is described in z/OS MVS Diagnosis: Reference.

DFSMSdfp: Accommodate new defaults for z/OS Global Mirror (XRC) parameter values

Description: Default values have changed for two parameters of the SHADOW statement in the XRC parmlib member. Before z/OS V1R10, the RequireUtility parameter had a default value of NO, and the UtilityDevice parameter had a default value of FLOAT. In z/OS V1R10 (and later), these default values have changed as follows:

- The default value of the RequireUtility parameter is now YES, which prevents XADDPAIR of a non-XRCUTL volume when an active storage control session does not exist for the specified (or default) SCSESSION. The previous default of NO enables XADDPAIR of a non-XRCUTL volume to proceed when an active storage control session does not exist.
- The default value of the UtilityDevice parameter is now FIX, which changes the method used for selecting a utility device. The FIX value causes XRC to use the most recently added XRCUTL volume as the utility device for the storage control session. The previous default of FLOAT allows the storage control to dynamically pick the primary volume to be used as the utility device for the storage control session. The nonreserved device with lowest I/O activity will typically be selected.
Is the migration action required? Yes, if you rely on the previous XRC default values.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: If your XRC sessions rely on the previous default values, you must add statements in your XRC parmlib to specify those values, thus overriding the new defaults.

Reference information: For more information about the new default values and the statements to specify the previous values, see z/OS DFSMS Advanced Copy Services.

DFSMSdfp: Update programs that process SMF record type 19

Description: In z/OS V1R10, the length of SMF type 19 records has increased. A type 19 record is created for each DASD volume that is online when IPL occurs, when a HALT EOD or SWITCH SMF command is issued, and when a DASD is varied offline. The type 19 record describes the space usage on the volume, and new fields have been added to the record for track-managed free space statistics and volume size information. Programs that process this record type might need to be modified to support the expanded length of the record or to utilize the new fields.

SMF type 19 records are recorded by LSPACE processing when SMF=YES or SMF=TEST is specified on the LSPACE macro invocation. YES specifies that the caller wants an SMF record containing volume information to be written. TEST specifies that LSPACE is to test for an active SMF system that has been defined to request volume accounting before writing the SMF record.

Element or feature: DFSMSdfp.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you rely on the previous SMF 19 record length.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Check any programs that process SMF type 19 records to determine if you must make any changes. If necessary, modify the programs to use the new record length.
DFSMSdfp: Accommodate changes to DEVSEVR command output

Description: z/OS V1R10 (and later) includes several changes to output from the DEVSEVR command:

- DEVSEVR QDASD output is changed as follows: the CYL column was expanded to accommodate a nine-digit number for cylinders. In addition, the extended function consistency check column EF-CHK is reduced to three characters. The new column heading is ECK.
- DEVSEVR PATHS output is changed to add the number of cylinders, in a new column labeled CYL. To accommodate the largest possible number of cylinders for a device (nine digits) in this new column, the original ALT column is replaced with this new CYL column and unnecessary spaces around the PIN and DDC columns are removed.

Note: The display in the header always contains the label “CYL”, which replaces the label “ALT”. The data in each row for a device always indicates the number of cylinders for a simplex device. For a device with an established or pending dual copy pair, the data in its row for this CYL-labeled column is the alternate device number prefixed by the “ALT” label in its row entry. These labels should satisfy any automation parsing requirements.

- The output for both DEVSEVR QDASD and PATHS has been shifted one position to the right, leaving the first character position blank.

Note: In z/OS V1R11, or after the PTF for APAR OA25793 is installed on z/OS V1R10 and z/OS V1R9, DEVSEVR PATHS and the QDASD command display 5-digit device numbers that consist of the subchannel set number and the normal device number. The blank that was in the first character position no longer exists and is replaced by 0 or 1 (subchannel set number). The unit field will be changed to "00ddd" from "0ddd" in case of the 3-digits device number.
Steps to take: Change any dependency you have on the output of DEVSERV QDASD or DEVSERV PATHS. The output has changed as shown in the following examples.

Old format for DEVSERV QDASD:
```
22.07.49 SYSTEM1 ds qd,d300,2
22.07.49 SYSTEM1 IEE4591 22.07.49 DEVSERV QDASD 491
UNIT VOLSER SCUTYPE DEVTYPE CYL SSID SCU-SERIAL DEV-SERIAL EF-CHK
D300 TK9085 2107921 2107900 65520 2401 0175-02411 0175-02411 **OK**
D301 ------ 1750511 1750500 65520 1601 0113-00016 0113-00016 BYPASS
**** 2 DEVICE(S) MET THE SELECTION CRITERIA
**** 0 DEVICE(S) FAILED EXTENDED FUNCTION CHECKING
```

New format for DEVSERV QDASD:
```
16.59.01 SYSTEM1 ds qd,d300,2
16.59.01 SYSTEM1 IEE4591 16.59.01 DEVSERV QDASD 613
UNIT VOLSER SCUTYPE DEVTYPE CYL SSID SCU-SERIAL DEV-SERIAL EFC
D300 TK9085 2107921 2107900 65520 2401 0175-02411 0175-02411 *OK
D301 TK3083 1750511 1750500 65520 1601 0113-00016 0113-00016 *OK
**** 2 DEVICE(S) MET THE SELECTION CRITERIA
**** 0 DEVICE(S) FAILED EXTENDED FUNCTION CHECKING
```

Old format for DEVSERV PATHS:
```
15.55.04 SYSTEM1 ds p,d300,2
15.55.05 SYSTEM1 IEE4591 15.55.04 DEVSERV PATHS 596
UNIT DTYPE M CNT VOLSER CHPID=PATH STATUS
RTYPE SSID CFW TC DFW PIN DC-STATE CCA DDC ALT CU-TYPE
D300,33909 ,O,000,TK9085,4B=< 4F=< 5B=< 5F=<
2107 2401 Y YY. YY. N SIMPLEX 05 05 2107
D301,33909 ,O,000,TK3083,14=< 18=<
PATH ATTRIBUTES NP PF
3390 1601 Y YY. YY. N SIMPLEX 03 03 2107
************************ SYMBOL DEFINITIONS ************************
O = ONLINE + = PATH AVAILABLE
< = PHYSICALLY UNAVAILABLE PF = PREFERRED
NP = NON-PREFERRED
```

New format for DEVSERV PATHS:
```
16.57.54 SYSTEM1 ds p,d300,2
16.57.54 SYSTEM1 IEE4591 16.57.54 DEVSERV PATHS 610
UNIT DTYPE M CNT VOLSER CHPID=PATH STATUS
RTYPE SSID CFW TC DFW PIN DC-STATE CCA DDC CYL CU-TYPE
D300,33909 ,O,000,TK9085,4B=< 4F=< 5B=< 5F=<
2107 2401 Y YY. YY. N SIMPLEX 05 05 65520 2107
D301,33909 ,O,000,TK3083,14=< 18=<
PATH ATTRIBUTES NP PF
1750 1601 Y YY. YY. N SIMPLEX 03 03 65520 2107
************************ SYMBOL DEFINITIONS ************************
O = ONLINE + = PATH AVAILABLE
< = PHYSICALLY UNAVAILABLE PF = PREFERRED
NP = NON-PREFERRED
```

Reference information: For details about the DEVSERV command, see [DFSMSdftp Storage Administration](https://www.ibm.com/docs/en/zos/2.4.0?topic=dfsmsdftp-storage-administration).

**DFSMSdftp: Update programs that use DCOLLECT**

**Description:** In a DCOLLECT type D record, the DCDOVERA field is a 4-byte field that reports on the amount of overallocated space for a data set. Before z/OS V1R10, the field was defined as a 31-bit signed number. Beginning with z/OS V1R10, DCDOVERA is defined as a 32-bit unsigned number in order to accommodate larger values.
Element or feature: DFSMSdfp.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you use DCOLLECT to process data set (type D) records to determine whether data sets are overallocated.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- If you use the IDCOUT macro to map DCOLLECT records, reassemble your programs to pick up the current mapping.
- If you do not use the IDCOUT macro to map DCOLLECT records, be aware that the field definition has changed for DCDOVERA from signed to unsigned. Use the new field definition when you create DCOLLECT reports.

Reference information:
- For information about interpreting DCOLLECT output, see z/OS DFSMS Access Method Services for Catalogs.
- For a complete list of available DCOLLECT changes, including APARs, browse SYS1.MACLIB(IDCOUT).

**DFSMSdfp: Accommodate changes in the CA sizes assigned to newly allocated VSAM data sets**

**Description:** z/OS V1R10 (and later) includes a change in control area (CA) size selection for all new allocations of VSAM data sets on any volume type (not only extended address volumes). The system selects a control area size of 1, 3, 5, 7, 9, or 15 tracks. Previously, the system selected from a wider variety of possible CA sizes. As previously, you cannot explicitly specify control-area size. Generally, the primary and secondary space allocation amounts determine the CA size. For requests where either the primary or secondary allocation amount is smaller than one cylinder, the system might adjust the primary and/or secondary quantity. The system might also select a CA size that is different from what was selected in a prior release. For example, a TRK(24,4) request results in a control area of 5 tracks, and primary and secondary amounts of 25 and 5 tracks, respectively.

Element or feature: DFSMSdfp.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you have a dependency on the CA size selected for a VSAM data set and the corresponding primary or secondary space amounts, or you have a dependency on the index control interval size (which may be increased by the CA size selection).

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:

- CA size is derived from the requested primary and secondary allocation. Because the CA size is computed differently in z/OS V1R10 and later, adjust any primary and secondary allocation requests to accommodate the CA size you rely upon.
- If you have any programs that depend upon a specific CA size that is no longer supported, change the programs to accept a CA size of 1, 3, 5, 7, 9, or 15 tracks.

Tip: A tool can help you perform this migration action. The tool is available from the FTP site ftp.software.ibm.com in the directory servers/storage/support/software/dfsms/ as INDXCI10.JCL.CNTL.TRSD. Download the tool in binary mode to a data set with the following attributes: LRECL=1024, BLKSIZE=6144, RECFM=FB, and DSORG=PS. After downloading, unterse it either with AMATERSE or TRSMAIN. The tool consists of a REXX exec and JCL to execute it in batch.

The tool lists the data sets that will have their index control interval (CI) size increased when they are redefined on z/OS V1R10 or later. (The increase can occur if the system-selected CA size is currently not 1, 3, 5, 7, 9, or 15 tracks.) You should ensure that any applications such as CICS, IMS, SMP/E, Netview, Batch Local Shared Resources (LSR), or Information Management that build LSR pools have buffers available for the increased index CI size. Otherwise, the data set will fail to open with an IEC1611 120-053 error message or other error messages issued by the application. Informational APAR III13288 describes a number of error situations that might occur if the index CI size is increased and proper preparation has not been taken. Review the comments in the JCL for more information about the tool.

Reference information: For more information about CA sizes and allocating space for a VSAM data set, see z/OS DFSMS Using Data Sets.

**DFSMSdfp: Tell users that the ISMF SORTREC line operator is no longer available**

**Description:** Beginning with z/OS V1R10, the DFSORT interactive storage management facility (ISMF) panels are no longer supported. Consequently, the SORTREC line operator is no longer available.

**Element or feature:** DFSMSdfp.

**When change was introduced:** z/OS V1R10.
<table>
<thead>
<tr>
<th>Applies to migration from:</th>
<th>z/OS V1R9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the SORTREC line operator.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Tell users that the SORTREC line operator is no longer available. Trying to use it will result in the message IKJ56500I COMMAND SORTREC NOT FOUND. An alternative to SORTREC is to use DFSORT against the data set from a batch job.

**Reference information:** For information about using ISMF, see [z/OS DFSMS Using the Interactive Storage Management Facility](#).

**DFSMSdfp: Ensure that the ANTMAIN address space has access to parmlib data sets**

**Description:** A new parmlib member, ANTMIN00, was introduced in z/OS V1R10. It contains new parameters related to the virtual-concurrent-copy function of DFSMSdss. The ANTMAIN address space, which is started automatically at IPL, will attempt to read this member from the parmlib data set concatenation. If your installation restricts started task access to these parmlib data sets, ANTMAIN should be given authorization to read these parmlib data sets. Authorization failure could result in messages ICH408I, IEC150I 913-38, IEA995I for SYSTEM COMPLETION CODE=913, and ANTI1027E. Note that ANTMAIN initialization continues if ANTMAIN cannot read the parmlib data set and the default virtual-concurrent-copy parameters are in effect.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to avoid security messages when ANTMAIN tries to access parmlib data sets.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Allow the ANTMAIN started task read access to the data sets in the parmlib concatenation.
**DFSMSdfp: Allow the dynamic volume count (data class attribute) to exceed 1 when allocating SMS-managed data sets with partitioned organization**

**Description:** Before z/OS V1R8, when allocating an SMS-managed data set with partitioned organization, you could assign to it a data class that specified a dynamic volume count greater than 1. Then, in z/OS V1R8 and V1R9, the base code was changed so that the dynamic volume count could not be greater than 1. However, APAR OA22738 on z/OS V1R8 and V1R9 restored the original situation, that is, the dynamic volume count could be greater than 1 again. Now, in z/OS V1R10 and later, the original (pre-z/OS V1R8) situation (greater than 1 allowed) has been permanently restored.

This migration action is not relevant to non-SMS data sets because the dynamic volume attribute only applies to SMS-managed data sets.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>A dynamic volume count greater than 1 was allowed in z/OS V1R7, disallowed in z/OS V1R8 and V1R9 base code, reallowed by APAR OA22738 on z/OS V1R8 and V1R9, and continues to be allowed in z/OS V1R10 and later base code.</td>
</tr>
<tr>
<td><strong>Applies to migration from:</strong></td>
<td>z/OS V1R9 without the PTF for APAR OA22738 installed.</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>Yes, if you use data classes that specify dynamic volume counts when allocating data sets with partitioned organization, and you want to allow the dynamic volume count (data class attribute) to exceed 1 (which is the pre-z/OS V1R8 situation).</td>
</tr>
<tr>
<td><strong>Target system hardware requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Target system software requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Other system (coexistence or fallback) requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Restrictions:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>System impacts:</strong></td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you desire, allow ACS routines to select a data class with a dynamic volume count greater than 1 for SMS-managed data sets with partitioned organization. Note that because PDSs and PDSEs can only exist on one volume (and cannot be extended to a second volume), the dynamic volume count will be ignored.

**Reference information:** None
DFSMSdfp, DFSMSdss, and DFSMShsm: Update automation for changed messages

**Description:** In z/OS V1R10, the text for messages with the following IDs was changed:

- ADRxxxxx (DFSMSdss)
- ANTxxxxx (DFSMSdfp)
- ARCxxxxx (DFSMShsm)
- DMOxxxxx (DFSMSdfp)
- IDCxxxxx (DFSMSdfp)
- IEAxxxxx (DFSMSdfp)
- IECxxxxx (DFSMSdfp)
- IEExxxxx (DFSMSdfp)
- IGDxxxxx (DFSMSdfp)

Some messages had a period (.) removed from the end of the message text. Other messages had text added, changed, or removed. These changes can affect automation programs that examine the text of the messages.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>DFSMSdfp, DFSMSdss, and DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have automation routines that examine the message text of the messages listed below in “Steps to take”.</td>
</tr>
</tbody>
</table>

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

**Steps to take:** Update your automation to handle the following DFSMSdfp message changes:

- The message text or explanation has been changed in the following messages to support extended address volumes, including new track, cylinder, or return code information:
  - ANTF073E, ANTF0401E, ANTF0443E, ANTX5117E, ANTX8030W, ANTM6004I, ANTM6005I, ANTM6006E, ANTM6007E, ANTM6013E, ANTM6015I, ANTM6016I, ANTM6020I, ANTM6021I, ANTM6022I, ANTM6023I, ANTM6024I, ANTM6025I, and ANTM8809I
  - DMO0011I, DMO0012I, DMO0013E, DMO0031E, DMO0032E, DMO0033I, DMO0040I, and DMO0041I
  - IDC3009I
  - IEA434I, IEA479E, IEA480E, and IEA480E
  - IEC142I, IEC144I, IEC602I, IEC609I, and IEC987I
  - IEE459I
- IGD002I, IGD031I, IGD17268I, IGD17279I, IGD17269I, IGD17318I, and IGD17389I

- Message IGD17038I now provides a number of volumes ("n volumes") in place of the words "this request".

Update your automation to handle the following DFSMSdss message changes:


- The message text or explanation has been changed in the following messages to support extended address volumes, including new track, cylinder, or return code information: ADR024E, ADR037E, ADR040I, ADR071I, ADR145I, ADR152E, ADR154E, ADR155E, ADR156E, ADR157I, ADR158I, ADR159I, ADR201E, ADR210E, ADR226W, ADR232E, ADR234I, ADR235I, ADR247W, ADR250I, ADR251W, ADR255E, ADR256E, ADR258I, ADR260I, ADR261I, ADR262I, ADR299E, ADR309E, ADR317I, ADR336I, ADR345D, ADR364W, ADR366W, ADR373E, ADR379E, ADR433E, ADR436E, ADR441W, ADR498E, ADR520I, ADR557I, ADR558I, ADR614E, ADR615E, ADR616E, ADR617E, ADR618E, ADR932W, ADR935W, ADR938E, ADR945W, ADR946I, and ADR973E. (The following messages have also been changed but they will never be analyzed by automation because they are only issued during stand-alone restore when z/OS is not in operation: ADRY0500I, ADRY0700I, ADRY1500W, ADRY1524W, ADRY1711I, ADRY2500I, and ADRY3521I.)

- The period has been removed and additional message text has been added to messages ADR037E and ADR345D.

- Message ADR049E has been enhanced to include abend reason code information at the end.

- References to JOBCAT and STEPCAT have been removed from messages ADR380E, ADR415W, ADR470W, ADR472E, and ADR485E.

Update your automation to handle the following DFSMSShsm message changes:

- The message text or explanation has been changed in the following messages to support extended address volumes, including new track, cylinder, or return code information: ARC0120I, ARC0157I, ARC0185I, ARC0269I, ARC0638I, ARC0742I, ARC1309I, ARC1359I, ARC1520I, and ARC1524I.

Reference information:

- For details about the ADR and ANT messages, see z/OS MVS System Messages, Vol 1 (ABA-AOM)
- For details about the ARC messages, see z/OS MVS System Messages, Vol 2 (ARC-ASA)
- For details about the DMO messages, see z/OS MVS System Messages, Vol 4 (CBD-DMO)
- For details about the IDC and IEA messages, see z/OS MVS System Messages, Vol 6 (GOS-IEA)
DFSMSdss: Build the IPLable stand-alone DFSMSdss image

Description: If you intend to use the Stand-Alone Services provided by DFSMSdss, you must use the DFSMSdss BUILDSA function to create the Stand-Alone Services IPL-capable core image.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>DFSMSdss</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you intend to use the Stand-Alone Services provided by DFSMSdss.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>Stand-Alone Services supports the IBM 3494 TotalStorage® Enterprise Automated Tape Library, the IBM 3495 TotalStorage Enterprise Automated Tape Library, and the IBM 3590 TotalStorage Enterprise Tape Subsystem.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>Stand-Alone Services does not support the creation of the core image on an SMS-managed volume.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>• To ensure that Stand-Alone Services is available when you run from DASD, do not delete the SYS1.ADR.SAIPLD.Vvolser data set or move it to another volume.</td>
</tr>
<tr>
<td></td>
<td>• If you IPL from DASD and later change the volume serial number, you must rerun the BUILDSA function to create a new core image data set with the new volume serial number in the name.</td>
</tr>
</tbody>
</table>

Steps to take:
1. Prepare for Stand-Alone Services by creating a Stand-Alone Services IPLable core image with the BUILDSA command. With the BUILDSA command you can specify the device (card reader, tape drive, or DASD volume) from which Stand-Alone Services will be IPLed. You can also specify the operator console to be used for Stand-Alone Services.

   The BUILDSA function builds the IPLable core image under the current operating system and determines a record size based on whether the IPL is from card, tape, or DASD.

2. Use RACF or another external security system to protect the SYS1.ADR.SAIPLD.Vvolser data set and the Stand-Alone Services modules.
3. If you have not done so already, make a backup copy of your system that can be restored by this function. For information about backing up volumes, see z/OS DFSMSdss Storage Administration.

Reference information: z/OS DFSMSdfp Storage Administration

**DFSMSdss: Update the storage size for jobs that invoke ADRDSSU**

**Description:** Beginning with z/OS V1R11, jobs invoking DFSMSdss ADRDSSU might require a storage size of greater than 2M. This could require changes to the JCL for jobs that invoke ADRDSSU, or to JES initialization statements that specify a default region size for jobs.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if the amount of storage requested for jobs that invoke ADRDSSU is 2M or smaller.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**
1. Check the JCL for jobs that invoke ADRDSSU. If the REGION parameter specifies a region of 2M or smaller, increase the region size. If the SIZE parameter on the EXEC statement specifies a size of 2M or smaller, increase the size.
2. Check your JES initialization parameters. If the REGION parameter specifies a default region size of 2M or smaller, you may want to increase this.

**Reference information:** For details about the REGION parameter in JCL, see z/OS MVS JCL Reference, SA22-7597. For details about the JES REGION initialization parameter, see z/OS JES2 Initialization and Tuning Reference, SA22-7533 or z/OS JES3 Initialization and Tuning Reference, SA22-7550. For details about the SIZE parameter, see z/OS DFSMSdss Storage Administration, SC35-0423.

**DFSMShsm: Handle changed LIST command output**

**Description:** Beginning with z/OS V1R11, the LIST DSNAME(dsname) BCDS and LIST LEVEL(hla) BCDS output will no longer display the RACF IND field when OUTPUTDATASET is specified as the destination for the output. The RACF IND field will still be displayed when TERMINAL is specified as the destination for the output.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
</tbody>
</table>
Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if your applications depend the RACF IND field value in the output of these commands with the OUTPUTDATASET destination.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Remove any dependency on the RACF IND field on the LIST DSNAMES(dsname) BCDS or LIST LEVEL(hilq) BCDS output when using OUTPUTDATASET.

Reference information: For details about using the LIST command, see z/OS DFSMShsm Storage Administration.

DFSMShsm: Use ALL, DATE, or VERSIONS with the (H)BDELETE command and ARCHBDEL macro

Description: Before z/OS V1R11, you could use the (H)BDELETE dsname command to delete all backup versions of data set dsname. In z/OS V1R11, you must specify the ALL keyword on the (H)BDELETE dsname command to delete all backup versions of the data set.

Element or feature: DFSMShsm.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you use the (H)BDELETE command or the ARCHBDEL macro.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: Install the coexistence and fallback PTF for APAR OA26327 on pre-z/OS V1R11 systems.
Restrictions: None.
System impacts: None.

Steps to take: In z/OS V1R11, you must use the (H)BDELETE command with one of these mutually exclusive keywords: ALL, DATE, or VERSIONS. The new keyword, ALL, specifies that DFSMShsm is to delete all backup versions of the specified data set, including both active and retained copies, except for the retired versions (if they exist). The DATE and TIME keyword deletes active or retained backup versions. The VERSIONS keyword deletes only active backup copies.

Reference information: For information about using the (H)BDELETE command and the ARCHBDEL macro, see z/OS DFSMShsm Storage Administration and z/OS DFSMShsm Managing Your Own Data.
DFSMShsm: Maintain coexistence when encountering backup copies with RETAINDAYS value

Description: In z/OS V1R11, the (H)BACKDS command is enhanced to allow users to specify a RETAINDAYS keyword to create a backup copy with a specified retention period. DFSMShsm maintains backup copies as active backup copies and retained backup copies. Active copies are the backup copies that have not yet rolled off. Retained copies are the backup copies that have rolled off from the active copies, but have not yet reached their retention periods.

Pre-z/OS V1R11 DFSMShsm functions that encounter a backup copy with a RETAINDAYS value, or a retained backup copy made on a z/OS V1R11 system, will have limited processing ability. The functions affected include (H)BACKDS, (H)RECOVER, EXPIREBV, (H)BDELETE, DELVOL, FREEVOL, AUTOBACKUP, RECYCLE, and AUDIT.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are using DFSMShsm functions to process any data set backup copies with a RETAINDAYS value made on z/OS V1R11 DFSMShsm, you must apply toleration APAR OA26327.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
**Other system (coexistence or fallback) requirements:**

APAR OA26327 provides coexistence for systems at releases prior to z/OS V1R11. Pre-z/OS V1R11 systems that encounter a retained backup copy or active backup version with a RETAINDAYS value will issue a message to instruct the user to issue the request from a V1R11 system. It is recommended that all non-essential backup copies with a RETAINDAYS value be deleted before falling back to an environment with no z/OS V1R11 level systems.

When you use the (H)BACKDS command on releases prior to z/OS V1R11, DFSMShsm will check if the version to be rolled off has RETAINDAYS specified but has not met its RETAINDAYS value. If the version to roll off has an unmet RETAINDAYS value, the second oldest version will be checked, and so on. If a version that has either met its RETAINDAYS or has no RETAINDAYS value is found, it will be rolled off. If all versions have been checked and all of them have not met their RETAINDAYS values, then a failure message ARC1334I with reason code of 20 will be issued to inform the user that the new backup version cannot be created because it would cause a non-expired backup version to be rolled off. You can either increase the number of versions to be kept, or reissue the request on z/OS V1R11 or later.

Pre-z/OS V1R11 systems cannot use the FIXCDS command on the new MCBR record.

When you use the LIST command on pre-z/OS V1R11, DFSMShsm will not display the retention period for active backup versions or retained backup copies that were created on z/OS V1R11 or later.

| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** Perform the following functions from a z/OS V1R11 system when data set backup versions are being created on z/OS V1R11 with the RETAINDAYS keyword: (H)BACKDS, (H)RECOVER, EXPIREBV, (H)BDELETE, DELVOL, RECYCLE, AUTO BACKUP, FREEVOL, and AUDIT.

**Reference information:** For information about using (H)BDELETE, (H)BACKDS, (H)RECOVER, EXPIREBV, and AUDIT function, see z/OS DFSMShsm Storage Administration and z/OS DFSMShsm Managing Your Own Data.

**DFSMShsm: Update the HZSPRMxx DATE parameter for HSM_CDSB_* checks**

**Description:** In z/OS V1R10, DFSMShsm made enhancements to correct a problem with the HSM_CDSB_* checks. Before z/OS V1R10, if one of these checks ran...
while you were doing maintenance for the CDS involving the MHCR cluster number field being set to 0xFF, these checks might fail continuously (even after maintenance has completed) with the following error:

```
HZS1002E CHECK(IBMHSM,HSM_CDSB_checkname):
AN ERROR OCCURRED, DIAG: 7A124000_000000FF
```

In z/OS V1R10, this problem was corrected so that the check fails only until maintenance is complete, with a specific error message:

```
ARCHC0003I The MHCR indicates that the storage administrator is performing maintenance on the control data sets. The check is disabled with REASON=ENVNA until the maintenance is complete.
```

Note that these checks cannot run successfully during CDS maintenance.

You must update the default data parameter for these checks in any HZSPRMxx policies that reference them. In addition, you should also consider returning to default values for any other parameters you changed in HZSPRMxx policies because of the continuous HZS1002E error, such as SEVERITY or INTERVAL.

---

**Element or feature:** DFSMShsm.

**When change was introduced:** z/OS V1R10.

**Applies to migration from:** z/OS V1R9.

**Timing:** Before the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you have policy statements in HZSPRMxx parmlib members for any of the following checks:

- HSM_CDSB_BACKUP_COPIES
- HSM_CDSB_DASD_BACKUPS
- HSM_CDSB_VALID_BACKUPS

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

---

**Steps to take:** Change the DATE parameter value in each policy statement referencing an HSM_CDSB_* check to 20071031.

In addition, you should also consider returning to default values for any other parameters you changed in HZSPRMxx policies to make the continuous HZS1002E error less conspicuous, such as SEVERITY or INTERVAL. For example, ensure that the policy UPDATE statement for the HSM_CDSB_BACKUP_COPIES check looked as follows:

```
UPDATE CHECK(IBMHSM,HSM_CDSB_BACKUP_COPIES)
SEVERITY(MED) INTERVAL(24:00) PARM('CRITVAL(4)')
DATE(20071031)
REASON(Ensure critical value of HSM CDS backups specified.)
```

Note that after you make the DATE change to the policies for this check, the policy statements will be rejected until the migration to z/OS V1R10 is made.

---
Reference information: See the following:
- Creating and maintaining IBM Health Checker for z/OS policies and HSM checks (IBMHSM) in IBM Health Checker for z/OS: User's Guide
- Using Multicluster Control Data Sets in z/OS DFSMShsm Implementation and Customization Guide

**DFSMSrmm: Use DFSMSrmm parmlib options instead of USERMOD to specify how VRSEL processing handles duplicate GDGs**

**Description:** Before z/OS V1R11, a USERMOD could be applied to the EDGVREC load module to influence how VRSEL processing handles duplicate generation data groups (GDGs). The USERMOD may be called RMDUPGD. Starting with z/OS V1R11, this USERMOD is no longer supported. You must now use the GDG operand of the OPTION command in parmlib member EDGRMMxx to specify how VRSEL processing handles duplicate generations.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if a USERMOD is used to influence duplicate GDG handling.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**
1. If a USERMOD is used to influence duplicate GDG handling, do not install it on z/OS V1R11. Remove the USERMOD if already installed on z/OS V1R11. If the USERMOD is retained, it will be ignored and the following warning message will be issued to the MESSAGE file during VRSEL processing:
   EDGX004I USERMOD HAS BEEN DETECTED AND IGNORED – USE THE GDG(CYCLEBY(GENERATION) DUP(COUNT)) PARMLIB OPTION INSTEAD.
2. Specify the desired duplicate GDG handling by using the GDG operand of the OPTION command.
   To obtain consistent VRSEL processing results, you can:
   - Run VRSEL either on your existing release or exclusively on z/OS V1R11.
   - Ensure that the GDG parmlib option is specified to match the results obtained from your existing system and run VRSEL on any system. The parmlib option that closely matches the USERMOD is GDG(CYCLEBY(GENERATION) DUPLICATE(COUNT)).

**Tip:** Use IBM Health Checker for z/OS to determine whether you need to perform this migration action. The relevant check is named ZOSMIGV1R11_RMM_DUPLICATE_GDG and is available by installing PTF
Reference information: To read more about the GDG operand of the OPTION command, see z/OS DFSMSrmm Implementation and Customization Guide, SC26-7405.

**DFSMSrmm: Update operator procedures and system automation for dynamic installation exits**

**Description:** Before z/OS V1R11, installation exits were loaded by DFSMSrmm during initialization. Starting with z/OS V1R11, z/OS dynamic exits services is used to load and activate the default (EDGXxx00) exit modules during initialization. This change requires changes to DFSMSrmm operating procedures and system automation (if any).

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if DFSMSrmm installation exits are in use.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- Update operator procedures to replace any mention of F DFRMM,REFRESH EXITS with use of the MVS operator commands that can be used with dynamic exits.
- If you use automation routines, ensure that any automated processing you have for the deleted messages EDG0301I, EDG0302I, EDG0303D, EDG0304I, EDG0305I, and EDG0306I is updated to instead process the EDG0311I through EDG0314I messages.
- If you use DFSMSrmm installation exits, you do not need to change them in any way; just install them as you always have. DFSMSrmm automatically exploits the dynamic exit services using your installation exits as the default exit modules at the first startup of the DFRMM procedure. You do not need to change the load module names used as exit routines with DFSMSrmm exits. However, you may change the names if desired. But if you do, you will have to update PROGxx or issue the SETPROG command to get them loaded because DFSMSrmm will not load the installation exits.

You can now have multiple exit modules associated with each of the exits. Other programs can use the CSVDYNEX macro to associate their exit modules with one or more of the DFSMSrmm exits, and can activate and deactivate as required. You can use the PROGxx member of parmlib or the operator SETPROG command to add and activate exit modules for each of the DFSMSrmm exits.
DFSMSrmm: Replace obsolete stem variables in REXX execs

**Description:** Before z/OS V1R11, when DFSMSrmm created REXX variables for SEARCH and LISTCONTROL subcommands, it returned these variables as stem variables and created a .0 stem variable for almost all stem variables. Starting with z/OS V1R11, DFSMSrmm creates a .0 stem variable only for the key variable for each SEARCH and LISTCONTROL command.

**Element or feature:** DFSMSrmm.

<table>
<thead>
<tr>
<th>When change was introduced</th>
<th>z/OS V1R11.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Applies to migration from</th>
<th>z/OS V1R10 and z/OS V1R9.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Timing</th>
<th>Before the first IPL of z/OS V1R11.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Is the migration action required?</th>
<th>Yes, if you have written any REXX execs that are used with any of the DFSMSrmm SEARCH or LISTCONTROL subcommands.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Target system software requirements</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Other system (coexistence or fallback) requirements</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>None.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>System impacts</th>
<th>None.</th>
</tr>
</thead>
</table>

**Steps to take:** Use the sample JCL from SAMPLIB (EDGJSTM0) to determine whether your execs must be updated. EDGJSTM0 runs ISRSUPC with the SRCHCMP parameter with SRCHFOR 'stem_variable' process statements to scan REXX exec libraries. If any REXX exec is identified as affected, you must replace the obsolete variable with the appropriate stem 0 variable for the subcommand processed.

**Note:** Once updated, the execs can be run on any supported release of DFSMSrmm because the key stem variables are always present on prior releases.

**Tip:** Use IBM Health Checker for z/OS to determine whether you need to perform this migration action. The relevant check is named ZOSMIGV1R11_RMM_REXX_STEM and is available by installing PTF UA45968 (APAR OA26947) on z/OS V1R9 and PTF UA45967 (APAR OA26947 on z/OS V1R10. This check determines whether installation-written REXX execs that issue DFSMSrmm TSO/E subcommands use stem variables that are removed in z/OS V1R11 systems.

**Reference information:**
**DFSMSrmm: Define default partitioning support**

**Description:** Before z/OS V1R10, the DFSMSrmm default processing for volumes that were not defined to DFSMSrmm was to add only system-managed volumes, and not non-system-managed volumes, to the DFSMSrmm control data set. Starting in z/OS V1R10, the DFSMSrmm default processing when PARTITION commands are in use, either because they are defined or because there are no REJECT commands, is to add all undefined volumes. If you do not use REJECT commands in parmlib, you must add a PARTITION command if you want to ensure that the DFSMSrmm default processing stays the same.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended if you have no REJECT commands in DFSMSrmm parmlib so that you get, by default, the desired type of volumes added to the DFSMSrmm control data set when the volumes are not defined to DFSMSrmm.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:**
- To ensure that the DFSMSrmm default processing stays the same, add the following PARTITION command to parmlib:
  
  `PARTITION VOLUME(*) TYPE(NORMM) NOSMT(IGNORE)`

  As a result, system-managed volumes are automatically added to the DFSMSrmm control data set during library entry/insert and OPEN processing, but non-system-managed volumes are not added automatically. Note that when adding volumes automatically, DFSMSrmm no longer creates a rack number but will use an empty rack number if it exists.
  
- To get the new behavior, do one of the following:
  
  - If you have no REJECT commands in parmlib, take no action. The new default is provided by the default PARTITION command created by DFSMSrmm.
  - If you have REJECT commands in parmlib, migrate to PARTITION and OPENRULE commands to exploit the new capabilities.
DFSMSrmm: Update volume replacement policies

Description: If you are using the usermod to the EDGMUPD module to set
LIMIT=n, where n is shipped as X'00000001', you can no longer use this usermod.

Before z/OS V1R10, you could use the usermod to override the shipped value. The
usermod could disable the volume replacement action setting by setting a value of
X'00000000'. The usermod was first available with APAR OW43870 and may be
called RMREPRL. Starting in z/OS V1R10, you must use the function of MEDINF
REPLACE in parmlib to implement any override or disablement. The usermod no
longer works with the EDGMUPD module, and DFSMSrmm processing is based
solely on MEDINF REPLACE.

Element or feature: DFSMSrmm.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you are using the usermod to the
EDGMUPD module to override the shipped value.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:

- To disable the replacement of IBM media, you can specify the following in the
  EDGRMMxx parmlib member:
    MEDINF NAME(IBM) REPLACE(PERM(0))
- To override the DFSMSrmm built-in default processing of PERM(1), use any of
  the available REPLACE operand values.

Tip: Use IBM Health Checker for z/OS to help with this migration action. The
relevant check is named ZOSMIGV1R10_RMM_VOL_REPLACE_LIM. The check
determines whether you have changed the value of the hard-coded volume
replacement limit (LIMIT=1) and shows you how to set the same limit in z/OS
V1R10 and later using MEDINF NAME(IBM) REPLACE(PERM(value)).

Reference information: For more information about MEDINF, see the topic
"Defining Media Information: MEDINF" in z/OS DFSMSrmm Implementation and
Customization Guide.
**DFSMSrmm: Use DELETE disposition support for tape data sets**

**Description:** Before z/OS V1R10, DFSMSrmm did not consider the disposition of a tape data set. If a job step abended, and CLOSE was entered because of abend processing, DFSMSrmm tracked this in the data set record and provided VRS management by using the ABEND VRses.

Starting in z/OS V1R10, DFSMSrmm considers the normal disposition for a tape data set. All tape data sets, whether using system temporary data set names or not, are considered. If the normal disposition (as coded in the JCL or dynamic allocation) is DELETE, the data set record is updated to track the data set as “deleted” by disposition processing. This is a flag just like the “abend” flag. VRSEL processing is updated to process the new restricted “DELETED” VRses.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use JOBNAME(DELETED) or DSNAME('DELETED') in any data set name VRses.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** If you use JOBNAME(DELETED) in any data set name VRses, you must change the VRS to use JOBNAME(DELETED) to avoid a conflict with the new ‘DELETED’ VRS support.

If you use DSNAME('DELETED') in any data set name VRses, you must change the VRS to use DSNAME('DELETED*') to avoid a conflict with the new ‘DELETED’ VRS support.

**Tip:** Use IBM Health Checker for z/OS to help with this migration action. The relevant check is named ZOSMIGV1R10_RMM_VRS_DELETED and is available through APAR OA26608. The check ensures that you do not have any VRses that conflict with the new ‘DELETED’ VRS support.

**Reference information:** The topic ‘Defining Vital Record Specifications’ in z/OS DFSMSrmm Managing and Using Removable Media

**DFSMSrmm: Use the backward-compatible CIM provider**

**Description:** The keys used for the DFSMSrmm CIM classes have changed with z/OS V1R10. If you have CIM clients that have been working on z/OS V1R9 and you want to use them against z/OS V1R11, and the clients have some hard-coded or specific processing of the keys of DFSMSrmm CIM classes, you can do either of the following:

- Use the backward-compatible CIM provider.
Update your code to handle the new key formats and then use the z/OS V1R11
CIM provider. If you choose this path, see “DFSMSrmm: Replace CIM providers
and CIM classes” on page 229.

The following table shows the old keys of DFSMSrmm CIM classes and the new
compound keys, which have formats of concatenated strings containing the values
of the old keys delimited with “+” and appended with spaces by the fix length if
needed.

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Key Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBMRMM_Dataset</td>
<td>DataSetName,PhysicalFileSequenceNumber, VolumeSerialNumber, and CdsID keys have been replaced with Name key of format DatasetName+FileSeq+Volser+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_Location</td>
<td>LocationName, LocationType, and CdsID keys have been replaced with Tag key of format LocationName+LocationType+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_LogicalVolume</td>
<td>VolumeSerialNumber and CdsID keys have been replaced with DeviceID key of format Volser+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_Owner</td>
<td>OwnerId and CdsID keys have been replaced with InstanceID key of format OrgId:OwnerId+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_PhysicalVolume</td>
<td>VolumeSerialNumber and CdsID keys have been replaced with Tag key of format Volser+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_PolicyRule</td>
<td>PolicyRuleType, PolicyRuleName, JobNameMask, and CdsID keys have been replaced with PolicyRuleName key of format RuleType+RuleName+JobNameMask+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_Product</td>
<td>ProductNumber and CdsID keys have been replaced with IdentifyingNumber key of format ProductNumber+CdsID.</td>
</tr>
<tr>
<td>IBMRMM_ShelfLocation</td>
<td>LocationName, MediaName, ShelfLocationNumber, and CdsID keys have been replaced with Tag key of format LocationName+MediaName+Number+CdsID.</td>
</tr>
</tbody>
</table>

Starting in z/OS V1R10, in order to simplify processing of the compound keys,
every changed class now has the KeyWithCdsIdName attribute containing the
name of its compound key. Additionally, xxxFormat and xxxMask attributes are
provided, where xxx is the name of the compound key. For example, TagFormat
property of IBMRMM_PhysicalVolume is set to “Volser+CdsID” and TagMask
string contains the consecutive concatenation of six blanks, symbol “+”, and eight
blanks.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use a CIM client with the DFSMSrmm CIM agent and decide not to update your code to handle the new key formats.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take: The backward-compatible CIM provider is provided as rmmcim19.tar.Z compressed tar archive within the /usr/1pp/dfsms/rmm directory. To use it, go to the Miscellaneous Functions panel provided by the rmmutil.sh script and invoke “Unpack RMM CIM Agent for V1R9”. As a result, you will have the old agent unpacked in the “v1r9” path within the current directory. For example, if you use the /usr/1pp/dfsms/rmm deployment directory, the new agent will reside in /usr/1pp/dfsms/rmm/v1r9.

Reference information: The topic ‘Setting Up DFSMSrmm Common Information Model (CIM) Provider’ in z/OS DFSMSrmm Implementation and Customization Guide.

DFSMS actions to perform after the first IPL of z/OS V1R11

This topic describes DFSMS migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**DFSMSdftp: Run OAM DB2 BIND jobs**

Description: When migrating to any new release of z/OS, you must run OAM DB2 BIND jobs if you are using OAM for object support. The BIND jobs update DB2 with new OAM DB2 code.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdftp</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use OAM object support.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Run the BIND jobs appropriate to your installation:

1. Update and execute the samplib job CBRPBIND (OAM DB2 Bind Package Job).
2. Do one of the following:
   - If your installation starts OAM, uses optical or tape devices, or uses the OAM storage management component (OSMC), do the following:
     - Update and execute samplib job CBRABIND (OAM DB2 Application Plan Bind for LCS and OSR).
     - Update and execute samplib job CBRHBIND (OAM DB2 Application Plan Bind for OSMC).
If your installation does not start OAM, use optical or tape devices, or use OSMC, update and execute samplib job CBRIBIND (OAM DB2 Application Plan Bind for OSR only).

3. For more information, see the topic "Migrating, Installing, and Customizing OAM" in z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support.

**Note:** The following list itemizes the changes to OAM BIND jobs in z/OS V1R10. (The jobs did not change in z/OS V1R11.) If you choose to edit a previous version, you must incorporate any new changes as described in the header of each new samplib BIND job:

- CBRPBIND: CBRIEDBS added
- CBRABIND: CBRIEDBS added to CBRIDBS plan
- CBRHBIND: no changes
- CBRIBIND: CBRIEDBS added to CBRIDBS plan

**Reference information:** For more information about OAM, see z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support.

### DFSMSdpf: Evaluate applications for sensitivity to changes to IDCAMS LISTCAT command output

**Description:** Starting with z/OS V1R11, the IDCAMS LISTCAT command output is enhanced to include a new EATTR field indicating whether or not a VSAM data set can be defined with extended attribute DSCBs.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdpf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your application depends on the output generated by the IDCAMS LISTCAT ALL command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Output from the IDCAMS LISTCAT command is not an intended programming interface. Evaluate applications that parse LISTCAT output to ensure that either there is no dependency on the order of the fields in the LISTCAT output or that they can accommodate the new EATTR fields in the output. To reduce future impact and maintenance, IBM suggests migrating the parsing routines or applications to use an IBM provided programming interface such as the Catalog Search Interface. See Catalog Search Interface User’s Guide in z/OS DFSMS Managing Catalogs.

The following example shows the EATTR field in LISTCAT ALL output:
Reference information: For details about the IDCAMS LISTCAT command, see z/OS DFSMS Access Method Services for Catalogs.

**DFSMSdfp: Accommodate the change of IDCAMS DEFINE for RECORDS involving VSAM linear data sets**

**Description:** Before z/OS V1R11, when space for linear data sets was calculated in response to an AMS DEFINE command with the RECORDS parameter, an implied control interval size of 4096 was used when the control interval size was larger than 4096. As of z/OS V1R11, in the same scenario, the actual (larger) control interval size is used instead of 4096.

**Note:** This migration action was previously documented, incorrectly, as being introduced by APAR OA21369 on z/OS V1R9. The correct APAR is FIN APAR OA25988 and the correct release is z/OS V1R11.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you define a linear data set with CISIZE greater than 4096 bytes and specify the RECORDS parameter.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Consider adjusting the value of the RECORDS specification when a linear data set is defined with CISIZE greater than 4096 bytes. If you continue to use the same IDCAMS DEFINE CLUSTER job in such a situation, the allocated space will be larger in z/OS V1R11 because the actual CISIZE (instead of 4096 bytes) has an influence on the amount of space allocated to the data set. You need to decrease the value of the RECORDS specification to achieve an allocation amount similar to before migration.
Notes:
1. DB2 allocates VSAM linear data sets using the RECORDS parameter, so DB2 allocations would be affected by this change when CISIZE greater than 4 KB is used. To avoid this side effect, apply the PTF for DB2 APAR PK42840. With this PTF, the define and extend code in DB2 has been changed to use KB when issuing the IDCAMS DEFINE command.
2. In z/OS V1R8, SMS added a new code to validate the space quantity for volume selection. The space calculation is based on the number of records multiplied by the actual CISIZE instead of the 4 KB record size. If SMS fails the allocation because the primary quantity requested is larger than the total capacity of the largest available volume, the following error message is issued:
   IGD17279I (n) VOLUMES WERE REJECTED BECAUSE OF INSUFF TOTAL SPACE.

Reference information: For details about the change, see APAR OA25988.

DFSMsdfp: Avoid errors from BDAM READ macros issued with a BSAM or BPAM DCB

Description: Prior to z/OS V1R10, it was possible for a program to open a BSAM or BPAM DCB and erroneously issue a BDAM READ macro without failing. In z/OS V1R10 or later, the access method takes that macro invocation as an SF64 request and the probable result will be a 002-EE ABEND and an IEC036I message.

Element or feature: DFSMsdfp.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if a program opened a BSAM or BPAM DCB and issues a BDAM READ macro.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- If you find an ABEND 002-EE or message IEC036I for reason code EE, check whether the application program is issuing a BDAM READ macro for a BSAM or BPAM DCB. Also check whether the application program is issuing a BISAM WRITE macro. In earlier releases the system did not detect these user errors.
- If the second operand on the READ macro is SF or SB, it is for BSAM. If the second operand on the READ macro is DI or DK, it is for BDAM. If the second operand on a WRITE macro begins with "K", it is for BISAM. A BDAM or BISAM macro issued with a BSAM or BPAM DCB is a user error that was not detected in earlier releases of the system.
- If the DCB has DSORG=PS, it is BSAM. If the DCB has DSORG=PO, it is BPAM. If the DCB has DSORG=DA, it is BDAM. If the DCB has DSORG=IS, it is BISAM.
- Change the READ or WRITE macro to use the documented BSAM or BPAM syntax.
DFSMSdfp: Examine the job and hardcopy logs for important Delete/Rename and storage constraint messages

Description: Before z/OS V1R10, some important DFSMS messages could be suppressed or not issued by some components of the system. An example of such a message is IGD17054I DATA SET NOT FOUND FOR DELETE/RENAME ON VOLUME xxxxxx DATA SET IS aaaa.bbbb.cccc.

In z/OS V1R10 (and later), DFSMS writes a number of these existing messages to the job log and hardcopy log for the first time. These include messages for Delete and Rename processing, as well as messages pertaining to storage constraints that need to be addressed to prevent possible storage-related failures. This change is made to help ensure that these important messages reach the attention of a storage administrator.

Note: This change does not alter the functioning of the system in any way beyond externalizing messages that may have been suppressed. Also, it applies to messages for SMS-managed data sets as well as non-SMS-managed data sets.

Element or feature: DFSMSdfp.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if these messages are not reaching a storage administrator now.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: On a regular basis, just as frequently as you would today, examine the job and hardcopy logs for important messages related to Delete, Rename, and storage constraint processing.

Reference information: For details about the IGD messages, see z/OS MVS System Messages, Vol 8 (IEF-IGD).

DFSMSdfp: Update programs or procedures that depend on output in reports from the LISTDATA PINNED command

Description: The track addresses in the output of the IDCAMS LISTDATA PINNED command are in a different format, regardless of the volume size.

Before z/OS V1R10, the report listed each pinned track and its associated data set name.
Beginning with z/OS V1R10, the report identifies a range of pinned tracks associated with a data set. Each track address is printed in eight hex digits in the native format of the device, using the form CCCCcccH. In addition, instead of one track being listed per line, consecutive tracks for each data set are gathered into one line and the range of track addresses is shown.

The meaning of “CCCCcccH” is as follows: “CCCC” is the low-order 16 bits of the cylinder address, “ccc” is the high-order 12 bits of the cylinder address, and “H” is the 4-bit track address. When a 28-bit cylinder address is greater than 65535 (X’FFFF”), the F column in the report contains an asterisk.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if users or programs depend on output from the LISTDATA PINNED command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** SYSPRINT and TSO terminal output from IDCAMS are not intended programming interfaces but the changes are stated here as a convenience to help you identify any changes to a program that uses this output. Change any affected program appropriately to parse the new format.

**Reference information:** For more information, see [z/OS DFSMS Using the New Functions](https://www.ibm.com) and [z/OS DFSMS Access Method Services for Catalogs](https://www.ibm.com).

**DFSMSdfp: Remove or correct multivolume VSAM data sets whose volumes are out of order**

**Description:** Beginning with z/OS V1R10 (and APAR OA24116 on z/OS V1R9, and APAR OA16372 on z/OS V1R8 and z/OS V1R7), non-RLS VSAM OPEN detects volumes out of order. Informational message IEC161I 071(005)-026 or IEC161I 071(006)-026, indicating extents out of sequence because volumes are out of order, is issued for a multivolume VSAM data set in this situation. Despite the volumes being out of order, OPEN processing continues successfully with ACBERFLG=00 and RC=00.

**Note:** Out-of-sequence volumes could have existed before z/OS V1R7, but at that time DFSMSdfp did not expose this situation.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdfp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10, z/OS V1R9 by APAR OA24116, and z/OS V1R8 and V1R7 by APAR OA16372.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR OA24116 installed.</td>
</tr>
</tbody>
</table>
Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you have affected VSAM multivolume data sets.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Correct the out-of-sequence volumes indicated by message IEC1611. Issue IDCAMS DELETE NOSCRATCH and DEFINE RECATALOG commands with the volumes specified in the correct order. Issue a LISTCAT command for the data set before doing the DELETE so that you can determine the correct order for the volumes.

Tip: Informational APAR II14289 documents an as-is tool (VOLSrchT) that can help identify multivolume VSAM data sets where the volumes are out of order in the catalog. The tool scans specified catalogs and provides the correct volume sequence for data sets.

Reference information: None.

DFSMsdfp: Verify the version set for ANTQFRVL

Description: ANTQFRVL is a parameter list for the Query Fast Replication Volumes (QFRVOLS) request of the ANTRQST API. With the introduction of IBM Remote Pair FlashCopy support, the version field of the parameter list is updated. Prior to this update, the input version was not validated, and an improperly coded program could provide a value of 'b. After the update, without the PTFs for APARs OA24809 and OA29249 installed, a value of 'b for the input version field results in a value of 110 (version, release and level). If you are using the QFRVOLS request of the ANTRQST API, prior to compiling with the updated level of ANTQFRVL, you should ensure that the correct version is being set.

Element or feature: DFSMsdfp.
When change was introduced: z/OS V1R8.
Applies to migration from: z/OS V1R10 and z/OS V1R9, both without the PTFs for APARs OA24809 and OA29249 installed.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if ANTRQST REQUEST=QFRVOLS is used.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.
Steps to take:

1. For programs that invoke ANTRQST REQUEST=QFRVOLS, verify that the version field is being set in the header.

2. If this field is not being set using the QFRVRLC constant, do not recompile with the updated ANTRQFRVL macro; otherwise, a value of 'b' will result in a version, release and level of 110 being assumed for ANTRQFRVL.

Reference information: For details about ANTRQST, see z/OS DFSMS Advanced Copy Services, SC35-0428.

DFSMSdss: Enable or disable the Catalog Search Interface

Description: Before z/OS V1R11, DFSMSdss would use generic catalog locates to find cataloged data sets based on generic filter criteria on the INCLUDE keyword when no input volumes are specified. In z/OS V1R11, DFSMSdss is changed to use the Catalog Search Interface (CSI) to find cataloged data sets based on the generic filter criteria on the INCLUDE keyword when no input volumes are specified. Prior to z/OS V1R11, you could make use of this functionality on z/OS V1R10, z/OS V1R9, and z/OS V1R8 systems by installing the PTF for APAR OA25644 and patching the offset X'54' into the ADRPATCH module to X'11'.

Element or feature: DFSMSdss.

When change was introduced: z/OS V1R11, z/OS V1R10 with PTF UA49333 (APAR OA25644), and z/OS V1R9 with PTF UA49335 (APAR OA25644).

Applies to migration from: z/OS V1R10 without PTF UA49333 (APAR OA25644) and z/OS V1R9 without PTF UA49335 (APAR OA25644).

Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you prefer the old method of finding cataloged data sets.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:

- To use the new function of DFSMSdss using the Catalog Search Interface, no action is needed.

- If the old method of finding cataloged data sets is desired, a DFSMSdss patch byte can be set. The DFSMSdss patch byte at offset X'54' can be set to any value other than X'00' and X'11' to disable the new functionality. This patch byte can be set using the DFSMSdss SET PATCH command or submitting the AMASPZAP job.

Note: If you currently make use of this functionality on z/OS V1R10, z/OS V1R9, or z/OS V1R8 systems by installing the PTF for APAR OA25644 and patching the offset X'54' into the ADRPATCH module to X'11', you have two choices to expect the functionality be effective in z/OS V1R11.
1. Do nothing, because the patch continues to select the new feature even in z/OS V1R11.

2. Remove the patch or reset to X'00' and use the default behavior in z/OS V1R11.

**Reference information:** For more information about the DFSMSdss patch byte, see [z/OS DFSMSdss Storage Administration](#).

### DFSMSdss: Use the new version of the DEFRAG command

**Description:** Before z/OS V1R10, the DFSMSdss DEFRAG command contained a CONSOLIDATE keyword. In z/OS V1R10, a new version of the DEFRAG command was added that is compatible with extended address volumes. This new version of the command drops the CONSOLIDATE keyword and adds other keywords to improve efficiency and debugging. To replace the CONSOLIDATE keyword, a new DFSMSdss CONSOLIDATE command is added for use in conjunction with the new version of the DEFRAG command. This new CONSOLIDATE command allows the consolidate function to be used without any additional DEFRAG processing of a volume.

The pre-z/OS V1R10 version of the DEFRAG command with its CONSOLIDATE keyword is still available if you specify it with the new VERSION1 keyword. Note that the previous version is not compatible with extended address volumes.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSdss.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended for improved efficiency, improved debugging, and compatibility with extended address volumes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- To use the z/OS V1R10 and later version of the DEFRAG command, specify the DEFRAG command without specifying the CONSOLIDATE keyword, and use the new, separate CONSOLIDATE command. Using both the CONSOLIDATE and DEFRAG commands consecutively in the same job will give the same information and do essentially the same thing as the old DEFRAG command with the CONSOLIDATE keyword. But in addition, the new commands are compatible with extended address volumes, you can use the new MAXTIME and MMOVPCT keywords to limit the amount of time a job runs, and the new CONSOLIDATE command reduces the number of extents of a data set as much as possible rather than only when the extents can be reduced to one.

To use the z/OS V1R10 and later CONSOLIDATE command, you must have access to the STGADMIN.ADR.CONSOLID profile in the FACILITY class. (Using
the z/OS V1R10 and later DEFRAG command continues to require access to the existing STGADMIN.ADR.DEFRAG profile.)

- To use the pre-z/OS V1R10 version of the DEFRAG command with its CONSOLIDATE parameter intact, specify the new VERSION1 keyword. Note that this previous version is not compatible with extended address volumes, and data sets will only have extent reduction when they can be reduced to one extent.

Existing (created on z/OS V1R9) JCL that specifies the DEFRAG command with the CONSOLIDATE keyword on z/OS V1R10 or later (without VERSION1) will cause the CONSOLIDATE command to be executed first, followed by the DEFRAG command using the new version of DEFRAG. Also, the following message will be issued: ADR145I OBSOLETE KEYWORD CONSOLIDATE SPECIFIED. THE CONSOLIDATE COMMAND WILL BE RUN PRIOR TO DEFRAG.

Reference information: For more information about using the DEFRAG command, see z/OS DFSMSdss Storage Administration and z/OS DFSMSdfp Storage Administration.

**DFSMShsm: Define facility class names to protect (H)BACKDS RETAINDAYS commands**

**Description:** Starting in z/OS V1R11, new DFSMShsm facility class names protect the BACKDS RETAINDAYS and HBACKDS RETAINDAYS commands. The new facility class names must be defined to protect from unintended use of this support by unauthorized users. This support is only available on z/OS V1R11. Earlier systems will be able to recover backup versions created with the RETAINDAYS keyword.

The RETAINDAYS keyword is added to the DFSMShsm (H)BACKDS command. You can use the RETAINDAYS keyword to specify the number of days to retain a specific backup version of a data set.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the BACKDS RETAINDAYS and HBACKDS RETAINDAYS commands.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Define new facility class name STGADMIN.ARC.BACKDS.RETAINDAYS to authorize any BACKDS RETAINDAYS command and STGADMIN.ARC.ENDUSER.HBACKDS.RETAINDAYS to authorize any HBACKDS RETAINDAYS command.
DFSMShsm: Accommodate the change of ARCBDEXT exit

Description: Prior to DFSMShsm z/OS V1R10, ARCBDEXT was called during volume-level backup operations (AUTOBACKUP for automatic and BACKVOL for command-based operations). Users examined information in the exit's input data structure to determine whether to allow or disallow backup of a data set. Starting with DFSMShsm z/OS V1R10, ARCBDEXT is called during individual data set backup operations, as well as volume-level backup operations. When called for individual data set backup, the exit's input data structure differs, but the return code values and meanings remain the same as for volume-level backups. Users must examine the level information in the input data structure, at offset x'04', to determine whether ARCBDEXT is being invoked for volume-level or for individual data set backup.

Element or feature: DFSMShsm.

When change was introduced: z/OS V1R11 by APAR OA28948 and z/OS V1R10 by APAR OA28136.

Applies to migration from: z/OS V1R10 without APAR OA28136, and z/OS V1R9.

Timing: After the first IPL of z/OS V1R10.

Is the migration action required? Yes, if you want to allow command backup but disallow autobackup for some data sets.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Examine the level information in the input data structure at offset x'04' to determine whether ARCBDEXT is being invoked for volume-level or for individual data set backup. The level field will contain ‘*EXPAND1’ for volume-level requests and ‘*EXPAND2’ for individual data set backup requests. For individual data set backup requests, the field at offset x'0C' contains additional status information about whether the backup request is the result of a backup data set command or the result of retry from a volume command.

Reference information: For more information, see z/OS DFSMS Installation Exits.

DFSMShsm: Define facility class names to protect (H)BACKDS NEWNAME commands

Description: Starting in z/OS V1R10, new DFSMShsm facility class names protect the BACKDS NEWNAME and HBACKDS NEWNAME commands. DFSMShsm also checks for RACF authorization to the data set name specified as the NEWNAME parameter. The new facility class names must be defined to protect from unintended use of this support by unauthorized users. This support is only
available on z/OS V1R10 and later. Earlier-level systems will be able to recover backup versions created with the NEWNAME keyword.

The NEWNAME keyword is added to the DFSMShsm (H)BACKDS command. When users specify the (H)BACKDS NEWNAME command, DFSMShsm creates a backup version of the data set specified on the command and makes the backup version look like it is a backup of the data set specified with the NEWNAME keyword.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use the BACKDS NEWNAME and HBACKDS NEWNAME commands.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Define new facility class name STGADMIN.ARC.BACKDS.NEWNAME to authorize any BACKDS NEWNAME command and STGADMIN.ARC.ENDUSER.HBACKDS.NEWNAME to authorize any HBACKDS NEWNAME command.

**Reference information:** For details about the BACKDS NEWNAME command, see [z/OS DFSMSdfp Storage Administration](#).

**DFSMShsm: Use the generic rather than the esoteric unit name for duplex generated tape copies**

**Description:** Before z/OS V1R10, when a duplex failure generated a tape copy, DFSMShsm passed the generic equivalent of a SETSYS unit name (such as 3590-1) to the tape copy. Beginning with z/OS V1R10, DFSMShsm instead passes a SETSYS-specified unit name (such as SETSYS MIGUNITNAME (esoteric-unitname)). This change ensures that the same output devices and unit name that are targeted for the failed duplex copy are targeted for the tape copy.

This change affects the DFSMShsm backup, migration, and recycle functions. The ABARS function is not changed.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMShsm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you need to use the generic unit name.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback)
requirements: None.

Restrictions: None.

System impacts: Any DFSMShsm sharing the same CDS
records with the z/OS V1R11 system can be
affected.

Steps to take: To change the behavior back to always passing the generic unit for
the tape copy, use the DFSMShsm PATCH command to set the
MCVTF_GENERIC_TCN_UNIT flag on. For example:

```
PATCH .MCVT.+196 BITS(....1...)  
```

To return to the default behavior of using the SETSYS specified unit name, use the
following command:

```
PATCH .MCVT.+196 BITS(....0...)  
```

Reference information: For details about the steps to take, see [z/OS DFSMShsm
Implementation and Customization Guide](#).

**DFSMSrmm: Replace CIM providers and CIM classes**

**Description:** In z/OS V1R10, the keys used for the DFSMSrmm CIM classes were
changed. You must unregister the previous CIM providers and CIM classes, and
register the z/OS V1R11 CIM providers and CIM classes.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSrmm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>

**Is the migration action required?**

Yes, if you have chosen to use the z/OS V1R11 CIM provider (not the
backward-compatible CIM provider as
described in "DFSMSrmm: Use the
backward-compatible CIM provider" on page
215).

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback)
requirements:** None.

<table>
<thead>
<tr>
<th>Restrictions:</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

1. If you are planning to use the z/OS V1R11 CIM provider rather than the
backward-compatible CIM provider, update your code to handle the new key
formats in z/OS V1R10 and later. For the new formats, see “DFSMSrmm: Use
the backward-compatible CIM provider” on page 215.

2. Using the rmmutil.sh tool, unregister all the z/OS V1R9 CIM providers and
unload all the z/OS V1R9 CIM classes.

3. Using the same rmmutil.sh tool, register the complete set of z/OS V1R11 CIM
providers and load the z/OS V1R11 CIM classes.
**DFSMSrmm: Modify programs that process the scratch list reports (SCRLIST and NEWSCR)**

**Description:** When DFSMSrmm utility program EDGRPTD creates scratch list reports, the output data set DCBs for SCRLIST and NEWSCR reports have the hardcoded block size equal to the logical record size (LRECL=133, BLKSIZE=133, RECFM=FBA.) This causes the data sets to use more DASD space than they really need. For instance, if the data set for the SCRLIST report using 781 tracks on a 3390 volume is copied with IEBGENER to another data set with BLKSIZE=0, the resulting data set uses 134 tracks on the 3390 — an 83% saving of DASD space.

As of z/OS V1R10 (and APAR OA23142 on z/OS V1R9, V1R8, and V1R7), to make the most of system determined blocksize (SDB) functionality, the utility program EDGRPTD has been changed to remove BLKSIZE and change LRECL from 133 to 132 for the SCRLIST and NEWSCR reports.

### Element or feature:
DFSMSrmm.

<table>
<thead>
<tr>
<th>When change was introduced:</th>
<th>z/OS V1R10; and z/OS V1R9, V1R8, and V1R7 by APAR OA23142.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR OA23142 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your program depends on the DCB information in scratch lists (SCRLIST or NEWSCR).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements:</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** After the PTF for APAR OA23142 is installed, the DCB information for SCRLIST and NEWSCR is changed. For example, the new DCB will have LRECL=132, BLKSIZE=27984, and RECFM=FBA. Therefore, if you have any programs that process the output of SCRLIST or NEWSCR, you need to remove the hardcoded LRECL of 133.

**Reference information:** For details about creating reports with DFSMSrmm utilities, see [z/OS DFSMSrmm Reporting](z/OS DFSMSrmm Reporting).
Chapter 10. DFSORT migration actions

DFSORT actions to perform before installing z/OS V1R11

Use means other than ISPF to invoke DFSORT

DFSORT actions to perform before the first IPL of z/OS V1R11

Update automation for changed DFSORT messages

DFSORT actions to perform after the first IPL of z/OS V1R11

Use ICEPRMxx members to specify changes to DFSORT installation options

This topic describes migration actions for optional feature DFSORT.

DFSORT actions to perform before installing z/OS V1R11

This topic describes DFSORT migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Use means other than ISPF to invoke DFSORT

Description: The DFSORT ISPF panels were used to generate and execute DFSORT jobs, and were available in both English and Japanese. z/OS V1R9 was the last release that supported these panels. No replacement is planned for this limited-function interactive facility.

All other previously supported methods for invoking DFSORT are planned to still be supported.

Element or feature: DFSORT.

When change was introduced:

Future removal of the panels was announced on 10 August 2004 in the z/OS V1R6 availability and z/OS V1R7 preview announcement. Removal of support effective with z/OS V1R10 was announced on 6 February 2007 in the z/OS V1R9 preview announcement. Removal did occur in z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you use the English or Japanese ISPF panels in DFSORT.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: You will no longer be able to use the ISPF panels to generate or execute DFSORT jobs, but instead will have to invoke DFSORT using batch jobs or from programs. While you still have access to the DFSORT ISPF panels, you can
use the “SAVE GENERATED JOB IN A DATA SET” function to save all of the generated DFSORT jobs you need in data sets so that you can execute them as batch jobs.

If you concatenated the DFSORT ISPF libraries to the ISPF ddnames shown in the table below, you must remove these DFSORT ISPF libraries from your logon procedures or allocation CLISTs.

<table>
<thead>
<tr>
<th>ddname</th>
<th>DFSORT library</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISPPLIB</td>
<td>SICEPENU or SICEPJPN</td>
<td>SICEPENU for U.S. English ISPF panels, SICEPJPN for Japanese ISPF panels</td>
</tr>
<tr>
<td>ISPMLIB</td>
<td>SICEMENU or SICEMJPN</td>
<td>SICEMENU for U.S. English ISPF messages, SICEMJPN for Japanese ISPF messages</td>
</tr>
<tr>
<td>ISPSLIB</td>
<td>SICESLIB</td>
<td>ISPF skeletons</td>
</tr>
<tr>
<td>ISPTLIB</td>
<td>SICETLIB</td>
<td>ISPF tables</td>
</tr>
<tr>
<td>SYSPROC</td>
<td>SICECLIB</td>
<td>CLISTs</td>
</tr>
</tbody>
</table>

Reference information: For details about invoking DFSORT, see **z/OS DFSORT Application Programming Guide**

**DFSORT actions to perform before the first IPL of z/OS V1R11**

This topic describes DFSORT migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

**Update automation for changed DFSORT messages**

Description: In z/OS V1R10, the text for some DFSORT messages (ICExxx) was changed. Text and insert fields were added, changed, or removed in the messages listed below in “Steps to take”. These changes can affect automation programs that examine the text of the messages.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSORT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have automation routines that examine the message text of the messages listed below in “Steps to take”.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** Update your automation to handle the following DFSORT message changes:

- The release level has changed from “V1R5” to “V1R10” in message ICE000I.
The “STIMER=x” text and insert field have been removed from message ICE130I.

Message ICE917I has been removed.

Text and insert fields have been changed in the following messages to support reason code information:
- ICE017A
- ICE018A
- ICE024A
- ICE042A
- ICE043A
- ICE109A
- ICE126A

Text has been changed in the following messages to improve clarity:
- ICE005I
- ICE193I
- ICE636A

Text and insert fields have been changed in the following messages to provide new information:
- ICE098A
- ICE642A
- ICE858I
- ICE889I
- ICE891I

Reference information: For details about the ICE messages, see z/OS DFSORT Messages, Codes and Diagnosis Guide.

**DFSORT actions to perform after the first IPL of z/OS V1R11**

This topic describes DFSORT migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**Use ICEPRMxx members to specify changes to DFSORT installation options**

**Description:** Beginning with z/OS V1R10, you can create and use ICEPRMxx members in concatenated parmlib to specify changes to DFSORT installation options. This simplifies the management of DFSORT installation options, particularly in multisystem environments.

ICEPRMxx members are now the recommended way to change DFSORT installation defaults because they are easier to use and more flexible than the former method of using the ICEMAC macro and SMP/E usermods. However, the former method is still supported, and the options in the activated members are merged with the ICEMAC defaults at runtime.

You activate the ICEPRMxx member or members you want to use by issuing an appropriate START ICEOPT command from the console or by including a START ICEOPT command in an appropriate COMMNDxx member in parmlib. You should test your ICEPRMxx members by activating them from the console before
activating them automatically with a COMMNDxx member. ICEOPT issues messages to the console to indicate the status of your installation default changes as well as any errors it detects. Be sure to review these console messages and the return code from ICEOPT.

**Note:** You can use MVS console security to control who can issue the START ICEOPT command.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSORT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended if you change DFSORT installation defaults because the use of ICEPRMxx members allows you to avoid changing the defaults with SMP/E usermods for each z/OS migration.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** See "Notes" below.

**Other system (coexistence or fallback) requirements:** In a multisystem environment, you can only activate ICEPRMxx parmlib members that contain DFSORT installation options in z/OS V1R10 and later. For z/OS V1R10 and later, the installation options in the activated ICEPRMxx members are merged with the ICEMAC installation options at runtime. The activated ICEPRMxx members have no effect on the systems running z/OS V1R9. For systems running z/OS V1R9, you must use the ICEMAC macro and SMP/E usermods to change DFSORT installation options.

**Restrictions:** None.

**System impacts:** The START ICEOPT command will use a minimum of 12 KB and a maximum of 24 KB in ECSA.

**Steps to take:** Consider using ICEPRMxx members activated by a START ICEOPT started task command to change DFSORT installation defaults. The use of ICEPRMxx members allows you to avoid changing the defaults with SMP/E usermods for each z/OS migration, resulting in the elimination of this migration task.

**Notes:**

1. The ICEOPT procedure requires READ authority to all of the data sets in the concatenated PARMLIB.

2. For ICEMAC, ALTSEQ=TABLE must be used if you need to change the positions of more than 50 characters. Because ALTSEQ=(fff1,...,fffN) can be used to change up to 256 characters with ICEPRMxx members, ALTSEQ=TABLE is not needed or allowed for ICEPRMxx members.

3. If you will be issuing a START ICEOPT command with SUB=MSTR, ensure that the PTF for DFSORT APAR PK70523 has been installed. The PTF adds a TIME.
parameter to the ICEOPT procedure to prevent ABENDS322. A sample ICEPROC can be found in the SICEPROC data set.

4. If you use DB2 utilities and set DFSORT installation defaults using parmlib members, you need a PTF so that the utilities can obtain the correct set of DFSORT installation defaults. The PTF for DB2 V8 (5625-DB2) is UK39757 and the PTF for DB2 V9 (5635-DB2) is UK39811. (The APAR for both versions of DB2 is PK59399.) With the PTFs, DB2 utilities can use DFSORT options from ICEPRMxx members that have been activated for DFSORT’s ICEAM2 environment.

5. Reference information:
   - For complete details about ICEPRMxx members, the START ICEOPT started task command, ICEOPT messages and return codes, and the syntax for options you can specify in ICEPRMxx members, see z/OS DFSORT Installation and Customization.
   - For details about controlling who can issue the START ICEOPT command, see the topic about planning console security in z/OS MVS Planning: Operations.
Chapter 11. Distributed File Service migration actions

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  zFS: Discontinue use of multi-file system aggregates .................................................. 237
  zFS: Ensure that sysplex_admin_level=2 is available on all systems in a shared file system environment .............. 238
  zFS: Stop using zfsadm setquota on compatibility mode aggregates ................................ 240
Distributed File Service actions to perform before the first IPL of z/OS V1R11 ............................. 241

This topic describes migration actions for base element Distributed File Service.

Distributed File Service actions to perform before installing z/OS V1R11

This topic describes Distributed File Service migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

zFS: Discontinue use of multi-file system aggregates

Description: Beginning in z/OS V1R11, you can no longer attach zFS multi-file system aggregates that are shared across systems in a sysplex. IBM has previously recommended that multi-file system aggregates not be shared in a sysplex environment. Any attempts to attach zFS multi-file system aggregates will fail in a z/OS UNIX shared file system environment with message IOEZ00046E. Attaching zFS compatibility mode aggregates, which have a single file system per data set, will continue to be supported in all environments.

In a future release, IBM plans to withdraw support for zFS multi-file system aggregates. When this support is withdrawn, only zFS compatibility mode aggregates will be supported.

Element or feature: Distributed File Service.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you are using zFS multi-file system aggregates.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.
**Steps to take:** Determine whether you are using zFS multi-file system aggregates by scanning your zFS IOEFSPRM configuration options file for define_aggr statements. You can also scan your /etc/rc file for any zfsadm attach commands. If you are using zFS multi-file system aggregates, copy the data from each file system into its own zFS compatibility mode aggregate.

**Tip:** Tip: Use IBM Health Checker for z/OS check ZOSMIGV1R11_ZFS_RM_MULTIFS (or ZOSMIGREC_ZFS_RM_MULTIFS in a single-system or monoplex environment) to determine whether you have any multi-file system aggregates attached on your system.

**Reference information:** For information about the zFS IOEFSPRM configuration options file or about copying data from one file system into another file system, see z/OS Distributed File Service zSeries File System Administration.

**zFS: Ensure that sysplex_admin_level=2 is available on all systems in a shared file system environment**

**Description:** z/OS V1R11 adds a new XCF protocol between sysplex members for zFS administration functions. The new protocol requires the installation of a coexistence PTF on coexisting systems so that zFS can function properly in z/OS V1R11 in a shared file system environment.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Distributed File Service.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have a shared file system environment with more than one system in that environment.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback) requirements:

Install the PTF for APAR OA25026 on z/OS V1R9 and z/OS V1R10.

If you have a problem on a z/OS V1R9 or z/OS V1R10 system running with zFS sysplex_admin_level=2, you can remove the specification (or specify sysplex_admin_level=1, which is equivalent to the default) and perform a rolling IPL or restart zFS on each system. This cannot be done after zFS on a z/OS V1R11 system has joined the sysplex. Also, if you try to start zFS in z/OS V1R11 on another system after you have backed out to sysplex_admin_level=1 on zFS V1R9 or z/OS V1R10, zFS on z/OS V1R11 will not come up because it requires all other systems to be at zFS sysplex_admin_level=2. If you try to bring in zFS z/OS V1R11 when sysplex_admin_level=2 is not active on all systems, the message "IOEZ00614A zFS has detected an incompatible interface level IntLevel for member Sysname " will appear. (Intlevel will be 1 if APAR OA25026 is installed; 0 if it is not.)

If you must go back to z/OS V1R8, remove z/OS V1R11 from the sysplex and restart any systems that are running zFS sysplex_admin_level=2 by removing the sysplex_admin_level specification (or by specifying sysplex_admin_level=1) and performing a rolling IPL or restart zFS on each of these systems. (The sysplex_admin_level specification is ignored in z/OS V1R8 and z/OS V1R11.)

Restrictions:

None.

System impacts:

- The new zFS toleration support uses additional ENQs to keep track of zFS ownership of zFS aggregates. The new ENQs all have a qname of SYSIOEZ.
- The behavior of unmount changes for any zFS file systems that are owned on a system running with sysplex_admin_level=2. (See Step 2 in “Steps to take” below.)

Steps to take:

1. Install the PTF for APAR OA25026 on all z/OS V1R9 and V1R10 systems. This is a conditioning function for zFS in z/OS V1R11. Make the PTF available on all systems through a rolling IPL. You are now running with zFS sysplex_admin_level=1.

2. Specify the sysplex_admin_level=2 configuration option in your IOEFSPRM file and make this level available on all z/OS V1R9 and V1R10 zFS systems through another rolling IPL or by restarting zFS. This allows zFS on z/OS V1R9 and z/OS V1R10 to tolerate running with zFS on z/OS V1R11. (The default for sysplex_admin_level is sysplex_admin_level=1.)
Notes:

1. You cannot specify the sysplex_admin_level configuration option dynamically through the `zfsadm config` command.

2. You cannot skip Step 1 and do only Step 2 in “Steps to take” above if you are running z/OS V1R9 or V1R10 on any systems that do not have the PTF applied and are activated by IPL.

When you configure `sysplex_admin_level=1` or `2`, the `MODIFY ZFS,QUERY,LEVEL` operator command returns a new line, at the end of the output, that shows the sysplex admin interface level when running in a shared file system environment.

The following example shows z/OS V1R10 displaying interface level 1:

```
f zfs,query,level
IOEZ00639I zFS kernel: z/OS zSeries File System
Version 01.10.00 Service Level OAnnnnn - HZFS3A0.
Created on Tue Jan 6 20:02:25 EST 2009.
sysplex(admin-only) interface(1)
```

If you are not running in a shared file system environment, then the new line at the end of the output, `sysplex(admin-only) interface(n)` will not appear, and this migration action is not applicable to you.

When you run zFS on z/OS V1R11, the `sysplex_admin_level` option is ignored and the `MODIFY ZFS,QUERY,LEVEL` operator command displays interface level 3.

When zFS initializes in a shared file system environment, the following message is displayed (as of z/OS V1R10): `IOEZ00617I zFS is running sysplex admin-only with interface level 1. This is normal. It shows the sysplex admin interface level that zFS is running.`

Tip: Use IBM Health Checker for z/OS to help determine whether you are running zFS at the correct interface level. You need level 2 in order to start zFS on z/OS V1R11 in a shared file system environment. The check is available through APAR OA27198 and is named IBMZFS,ZOSMIGV1R11_ZFS_INTERFACELEVEL.

Reference information:

- For information about the zFS sysplex-aware configuration options and considerations, see `z/OS Distributed File Service zSeries File System Administration`.
  Note that there are important mixed-system and other considerations when you decide to exploit the zFS sysplex-aware support.

- For information about specifying zFS configuration options, see `IOEFSPRM` in `z/OS Distributed File Service zSeries File System Administration`.

- For information about using check `IBMZFS,ZOSMIGV1R11_ZFS_INTERFACELEVEL`, see `IBM Health Checker for z/OS: User’s Guide`.

**zFS: Stop using zfsadm setquota on compatibility mode aggregates**

Description: Before z/OS V1R10, using the `zfsadm setquota` command on a compatibility mode aggregate was discouraged but accepted. Starting in z/OS V1R10, if you attempt to set the file system quota for a compatibility mode aggregate, zFS issues return code 121 (EINVAL) and reason code EFxx69B8.
Applies to migration from: z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you normally use the zfsadm setquota command for compatibility mode aggregates.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Do not use the zfsadm setquota command for compatibility mode aggregates.

Reference information: For details about using the zfsadm setquota command, see the topic about zfsadm setquota in z/OS Distributed File Service zSeries File System Administration.

Distributed File Service actions to perform before the first IPL of z/OS V1R11

This topic describes Distributed File Service migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

**SMB: Permit the SMB server user ID to BPX.DAEMON**

Description: In z/OS V1R11, the SMB server requires access to BPX.DAEMON and BPX.SERVER. The new settings provide greater security.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Distributed File Service.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Define the BPX.SERVER and BPX.DAEMON FACILITY classes in RACF (if not already defined) using the following steps:

1. Create the BPX.SERVER and BPX.DAEMON FACILITY class profile:
   ```
   RDEFINE FACILITY BPX.SERVER UACC(NONE)
   RDEFINE FACILITY BPX.DAEMON UACC(NONE)
   SETROPTS RACLIST(FACILITY) REFRESH
   ```
2. Permit the DFS user ID to the BPX.SERVER and BPX.DAEMON RACF
   FACILITY class profiles:
   PERMIT BPX.SERVER CLASS(FACILITY) ACCESS(READ) ID(DFS)
   PERMIT BPX.DAEMON CLASS(FACILITY) ACCESS(READ) ID(DFS)
   SETROPTS RACLIST(FACILITY) REFRESH

3. Follow your installation’s procedure for allowing the SMB daemon control task
   (IOEPDCT) to run if your system is set up for RACF program control
   protection. If your system is not set up for RACF program control protection,
   no action is necessary.

   If this security setup is not done prior to SMB startup, the following message
   occurs: IOEN00514A ThisProgram: Not permitted to BPX.DAEMON. Severity:
   svc_c_sev_fatal.

   Reference information: For additional details about setting the FACILITY class
   profiles for SMB, see [z/OS Distributed File Service SMB Administration]

zFS: Modify programs, execs, or procedures that issue an
unmount of zFS file systems

Description: Beginning with z/OS V1R11, and for z/OS V1R9 and V1R10 systems
that are running zFS with sysplex_admin_level=2, zFS fails an unmount of a
quiesced, growing, or cloning zFS file system unless unmount force is specified. In
previous releases (without sysplex_admin_level=2), zFS successfully returned in
these cases.

Here is an example of the failure message that is issued when a file system is
quiesced:
unmount filesystem(plex.jms.aggr006.lds0006)
RETURN CODE 00000072, REASON CODE EF0969B5. THE UNMOUNT FAILED FOR FILE SYSTEM
PLEX.JMS.AGGR006.LDS0006.

   Return code X’72” indicates that the file system is busy with an administration
   command.

   Element or feature: Distributed File Service.
   When change was introduced: z/OS V1R11.
   Applies to migration from: z/OS V1R10 and z/OS V1R9, both with the
   PTF for APAR OA25026 installed and at
   sysplex_admin_level=1.
   Timing: Before the first IPL of z/OS V1R11.
   Is the migration action required? Yes, if you have programs that assume that
   unmount is successful.
   Target system hardware requirements: None.
   Target system software requirements: None.
   Other system (coexistence or fallback) requirements: None.
   Restrictions: None.
   System impacts: None.

   Steps to take: Check your programs, execs and procedures to see if they can
handle a failure on unmount. If they cannot, modify them to handle a possible
unmount failure or to issue unmount with the FORCE option.
**Note:** An unmount force can cause a grow or clone to be terminated, causing a partial grow or a partial clone. The partial grow should not cause a mount failure. The grow can be issued again and completed. A partial clone must be deleted and issued again. An unmount force of a quiesced aggregate could cause a backup to fail if the quiesce was issued by the backup program. (It will fail when it tries to issue the unquiesce.)

**Reference information:**
- For information about the unmount API, see [z/OS UNIX System Services Programming: Assembler Callable Services Reference](#).
- For information about the unmount syscall, see [z/OS Using REXX and z/OS UNIX System Services](#).
- For information about the unmount command, see [z/OS UNIX System Services Command Reference](#).
- For information about zFS quiesce, grow, or clone, see [z/OS Distributed File Service zSeries File System Administration](#).

### Distributed File Service actions to perform after the first IPL of z/OS V1R11

This topic describes Distributed File Service migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**SMB: Fix syntax errors now reported during SMB startup**

**Description:** Before z/OS V1R10, when you started SMB, the syntax of SMB environment variables was not validated. Beginning with z/OS V1R10, when you start SMB, a new command automatically validates the syntax of the `/opt/dfslocal/home/dfskern/envar` file or another environment variable file you specify. SMB starts as usual, but if errors are not corrected, SMB might not start with the intended parameters.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Distributed File Service.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to avoid getting SMB startup errors and to ensure that SMB uses the configuration options you intend.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Before starting SMB, run the `dfssyntax` command against the file `/opt/dfslocal/home/dfskern/envar` or another environment variable file that your installation uses, and then correct any syntax errors that are reported.
Reference information: For details about using the dfssyntax command, see "z/OS Distributed File Service SMB Administration."
Chapter 12. HCD migration actions

HCD actions to perform before installing z/OS V1R11

None.

HCD actions to perform before the first IPL of z/OS V1R11

This topic describes HCD migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Set up the IBM TDS LDAP server for calling the HCD LDAP backend

Description: Before z/OS V1R10, HCD used a nonstandardized LDAP Backend interface to the LDAP server to process user requests against IODF configuration data. This interface is no longer supported with z/OS V1R10 and later. Instead, the HCD LDAP Backend must now be defined as a plug-in to the IBM TDS LDAP server.

Element or feature: HCD.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you want to continue to use the LDAP API to search or update IODFs.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
• Update the LDAP server configuration file ds.conf. A sample of how to define the HCD LDAP Backend as a z/OS LDAP server plug-in in the server configuration file is delivered with HCD and is installed in /usr/lpp/hcd/examples/ds.conf. Also, see the topic [How to provide LDAP support for HCD](/OS HCD User's Guide) for more information about how to do this.
• Integrate the HCD schema file schema.hcd.ldif, distributed with HCD, into the LDAP server by using the following command:
ldapmodify -h ldaphost -p ldapport -D adminDN -w passwd
   -f /usr/lpp/hcd/etc/schema.hcd.ldif

**Note:** To issue the ldapmodify command, a user must have administrator authority for the IBM TDS LDAP server.

Application programs that use the LDAP API do not need to be changed.

**Reference information:** For more information, see

- [z/OS HCD User’s Guide](#)
- [IBM Tivoli Directory Server Administration and Use for z/OS](#)
- [IBM Tivoli Directory Server Client Programming for z/OS](#)
- [z/OS UNIX System Services Planning](#)

---

**HCD actions to perform after the first IPL of z/OS V1R11**

None.
Chapter 13. HCM migration actions

This topic describes migration actions for optional feature Hardware Configuration Manager (HCM).

HCM actions to perform before installing z/OS V1R11

None.

HCM actions to perform before the first IPL of z/OS V1R11

This topic describes HCM migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Install the new HCM

Description: In z/OS V1R11, the installation process for HCM is new. The code is delivered as an MSI package and is installed using the Windows® Installer. If you have an older version of HCM installed, it is strongly recommended that you uninstall it before you install the new HCM, which uses the Windows Installer. An upgrade of your older level is not possible.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>HCM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Uninstall your previous HCM using the Windows uninstall facility or use the Uninstall function provided by HCM from the following path: All Programs->IBM Hardware Configuration Manager->Uninstall. Do this before installing z/OS V1R11 HCM.

Note: With z/OS V1R11, the location of the EEQHCM.INI file changes from C:\WINDOWS to the user-specific application data directory. This does not affect your migration because the first invocation of HCM automatically copies the old INI file to the new location or creates a new one if no INI file is found.
The default name of the user-specific directory, for example, for Windows XP, is `C:\Documents and Settings\<user>\Application Data\IBM\Hardware Configuration Manager`. Due to changes in the user authorization methods for Windows XP and later versions, the change of the location is necessary to allow users who are not administrators to update this file.

**Reference information:** For more information about uninstalling and installing HCM, see *z/OS and z/VM HCM User's Guide*.

---

**HCM actions to perform after the first IPL of z/OS V1R11**

None.
Chapter 14. IBM TDS

IBM TDS actions to perform before installing z/OS V1R11
None.

IBM TDS actions to perform before the first IPL of z/OS V1R11
This topic describes IBM TDS migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Reconfigure the IBM TDS for ICTX extended operations
Description: z/OS V1R8 introduced the z/OS Identity Cache, which enables an application to maintain identity information across security domains. The primary interface to the z/OS Identity Cache is the ICTX Java API, which enables applications to store identity context information in the Identity Cache on the local or a remote z/OS system. Remote access to the z/OS Identity Cache is provided by an IBM TDS server configured for ICTX extended operations. Remote authorization and audit functions are provided by the same ICTX extended operations component. To enable these functions, the IBM TDS configuration file must have a section that identifies the ICTX extended operations support.

Before z/OS V1R10, the interface between IBM TDS and ICTX was defined through an IBM TDS database configuration statement. Starting in z/OS V1R10, the interface between IBM TDS and ICTX is an IBM TDS plug-in. If you have been using ICTX remote services and are migrating the IBM TDS server to z/OS V1R11, you should modify the ICTX configuration statement in the IBM TDS configuration file. If this configuration statement is not updated, the ICTX plug-in will initialize but IBM TDS issues a warning message to remind you to correct the configuration statement.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>IBM TDS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>
Is the migration action required? | No, but recommended if you have been using remote services and have previously added a section to the IBM TDS configuration file for ICTX extended operations support.
---|---
Target system hardware requirements: | None.
Target system software requirements: | None.
Other system (coexistence or fallback) requirements: | None.
Restrictions: | None.
System impacts: | None.

**Steps to take:** Modify the ICTX extended operations support section of the IBM TDS ds.conf configuration file to define the ICTX component as a plug-in. Replace the prior configuration statement:
```
database ictx ITYBIC31
suffix "cn=ICTX"
```
with the new configuration statement:
```
plugin clientOperation ITYBIC31 ICTX_INIT "CN=ICTX"
```
This statement must appear prior to any database definitions within the file.

**Reference information:** For more information about remote services and ICTX extended operations, see [z/OS Integrated Security Services EIM Guide and Reference](https://www.ibm.com/support/knowledgecenter/SSEKQH_1.11.0/com.ibm.kc_eim.base.doc/GUID-6B46C048-56EE-448F-8187-1C60F187B587).

---

**Accommodate changed native authentication bind behavior**

**Description:** Before z/OS V1R10, SDBM operations were rejected for a user who bound using an LDBM or TDBM native authentication. Beginning with z/OS V1R10, SDBM operations are accepted using an LDBM or TDBM native authentication bind. Therefore, you might have to update the RACF authorizations of the RACF user IDs used during native authentication.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>IBM TDS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use native authentication and SDBM.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

**Steps to take:** Review the RACF authorizations of the RACF user IDs used during native authentication to ensure that they can only perform SDBM operations that you want performed, and make any necessary changes.
Update programs that use SMF record type 83

**Description:** Because the SMF type 83 audit records created by the LDAP server are changed to include the security server user ID (if any) associated with the bound user, the format has changed for these records. Two fields, LDAP_MAPCERT_OPT (111) and LDAP_MAPPED_SAFID (112), have been added to the common relocates section, and field LDAP_RESERVED_04 (110) has been shortened. The sample programs (LDAPDBTB, LDAPDBLD, and GLDLDPSC) that are used to process the audit records have been updated because of these changes.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>IBM TDS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have any programs that process the SMF 83 records created by the IBM TDS LDAP server.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you created a procedure to process the SMF records created by the LDAP server, update the procedure to take into account the changed format of these records.

**Reference information:** For more information about the added fields, see “SMF 83 audit records” and “SMF records” in IBM Tivoli Directory Server Administration and Use for z/OS.

---

IBM TDS actions to perform after the first IPL of z/OS V1R11

This topic describes IBM TDS migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

**Determine if you will be using IBM TDS WLM support**

**Description:** Before z/OS V1R11, the IBM TDS did not support using Workload Manager (WLM) to allow an installation to set performance goals for work within the LDAP server. Beginning with z/OS V1R11, the IBM TDS is enhanced to use WLM performance goals for work within the LDAP server, based on the client IP address or the bound user’s distinguished name (DN) associated with LDAP requests. If a client application is spamming the LDAP server with numerous LDAP requests, a lower priority can be assigned to those requests. This support can prevent the LDAP server’s resources from being consumed by spamming LDAP client applications.

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<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>IBM TDS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to use the IBM TDS WLM support, which is the default.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you want to use the IBM TDS WLM support, which is the default:

1. Set the srvStartUpError option to terminate in the LDAP server configuration file. This is the default setting for this configuration option.

2. Issue the following RACF commands before starting IBM TDS:

   ```sh
   RDEFINE FACILITY BPX.WLMSERVER UACC(NONE)
   PERMIT BPX.WLMSERVER CLASS(FACILITY) ID (userid) ACCESS(READ)
   SETROPTS RACLIST(FACILITY) REFRESH
   ```

   where `userid` is the user ID of the LDAP server.

3. a. In the WLM ISPF panels, define a new classification rule using the subsystem type of LDAP. If you had a subsystem type of LDAP defined previously (for the Integrated Security Services LDAP Server), it will now be used for the IBM TDS. Review any classification rules that you had for the Integrated Security Services LDAP Server, and ensure that they are desirable for the IBM TDS.

   b. Define classification rules for the LDAP subsystem type, using a transaction name of GENERAL (for LDAP work), and any other user-defined WLM transaction names used for the IBM TDS. Refer to [z/OS MVS Planning: Workload Management](#) for all the workload qualifiers that the LDAP subsystem type supports. If a default service class for the LDAP subsystem is not configured in WLM, all LDAP server operations will run under the discretionary goal and receive a low priority.

If you do not want to use the IBM TDS WLM support, set the srvStartUpError option to ignore in the LDAP server configuration file.

**Reference information:** For more information, see [z/OS MVS Planning: Workload Management](#) and [IBM Tivoli Directory Server Administration and Use for z/OS](#).
Chapter 15. ICKDSF migration actions

ICKDSF actions to perform before installing z/OS V1R11

None.

ICKDSF actions to perform before the first IPL of z/OS V1R11

This topic describes ICKDSF migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Use the new default for the INDEX parameter

**Description:** APAR PK56092 for ICKDSF R17 (which is the ICKDSF level in z/OS V1R11 down to V1R4) provides support for the extended address volume (EAV) function in z/OS V1R10 and later. As part of this support, there is a change to the default size of a VTOC index when the INDEX parameter of the ICKDSF INIT command is defaulted. This default change occurs after you install the PTF for the APAR, regardless of whether you exploit EAV function.

Without the APAR, when the INDEX parameter is defaulted, the index is generated starting at the track following the end of the VTOC, with a size equal to the number of tracks per cylinder. However, if you specify VTOC(END), the default index is located in the previous cylinder that precedes the VTOC and uses the whole cylinder.

With the APAR, when the INDEX parameter is defaulted, the index is generated starting at the track following the end of the VTOC. However, if you specify VTOC(END), the default index is located in the cylinder that precedes the VTOC. In both instances, the default size of the index is based on the required index records for a given volume size and the size of the VTOC.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>ICKDSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>APAR PK56092 for R17.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 without the PTF for APAR PK56092 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended if you install the PTF for APAR PK56092 because if you use the new default, the index size is built with a value that is based on the size of the VTOC. Therefore, you do not have to calculate the size needed for the index, as it is done automatically.</td>
</tr>
</tbody>
</table>
**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:** To use the new default, install the PTF for APAR PK56092 and then do not specify the INDEX parameter with the ICKDSF INIT command.

**Note:** After applying the PTF for APAR PK56092 for ICKDSF V1R17, the default size of the VTOC index is changed to be based on the required index records for a given volume size and the size of the VTOC. When the index size defined is smaller than 15 tracks (old default size), the number of VIRs obtained within the index will be decreased, which is reported by the PGM=IEHLIST LISTVTOC command:

```
THERE ARE nnnnn UNALLOCATED VIRS IN THE INDEX
```

**Reference information:** For more information about the INDEX parameter, see [Device Support Facilities (ICKDSF) User's Guide and Reference](#).

**ICKDSF actions to perform after the first IPL of z/OS V1R11**

None.
Chapter 16. InfoPrint Server migration actions

This topic describes migration actions for optional feature InfoPrint Server.

InfoPrint Server actions to perform before installing z/OS V1R11

- Change the line-termination value for InfoPrint Server
- Upgrade XML for InfoPrint Central
- InfoPrint Server actions to perform before the first IPL of z/OS V1R11
- Remount the Printer Inventory and copy other files that were customized
- Migrate from InfoPrint basic mode to extended mode

This topic describes InfoPrint Server migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

InfoPrint Server actions to perform after the first IPL of z/OS V1R11

- Run aopsetup

InfoPrint Server actions to perform after the first IPL of z/OS V1R11

- Set the AOPMAILER environment variable
- Infoprint Server actions to perform after the first IPL of z/OS V1R11

Upgrade XML for InfoPrint Central

**Description:** In z/OS V1R11, the InfoPrint Central component of InfoPrint Server, which you can use to work with InfoPrint extended mode print jobs and printers, requires the IBM XML Toolkit V1.9 product.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>InfoPrint Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>APAR OA29385 for z/OS V1R8, V1R9, V1R10, and V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9, both without APAR OA29385.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use InfoPrint Central. You are using InfoPrint Central if the <code>start-daemons={ssid}</code> attribute is specified in the InfoPrint Server configuration file. The file's default location is <code>/etc/Printsrv/aopd.conf</code>. However, you might have specified a different location in environment variable AOPCONF.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>IBM XML Toolkit for z/OS V1.9.0, and the PTF for APAR OA29385.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

1. Install IBM XML Toolkit V1.9 (5655-J51).
2. Specify the XML V1.9 libraries in the LIBPATH environment variable in your 
z/OS IBM HTTP Server environment variables file (default location is 
/etc/httpd.envvars). After the PTF for APAR OA29385 is installed, Infoprint 
Central requires the XML V1.9 libraries:

- LIBPATH: change /usr/lpp/ixm/IBM/xml4c-5_5/lib to /usr/lpp/ixm/IBM/
xm4c-5_6/lib
- LIBPATH: change /usr/lpp/ixm/IBM/xslt4c-1_9/lib to /usr/lpp/ixm/IBM/
xslt4c-1_10/lib
- ICU_DATA: You can remove this variable because XML no longer uses this 
  variable.

3. Restart the z/OS IBM HTTP Server to pick up the changes to the environment 
variables file.

Reference information: For information about how to customize Infoprint Central, 
see [z/OS Infoprint Server Customization](#).

### Infoprint Server actions to perform before the first IPL of z/OS V1R11

This topic describes Infoprint Server migration actions that you can perform after 
you have installed z/OS V1R11 but before the first time you IPL. These actions 
might require the z/OS V1R11 level of code to be installed but do not require it to 
be active.

#### Remount the Printer Inventory and copy other files that were 
customized

**Description:** When migrating to z/OS V1R11 Infoprint Server, you must bring 
forward the Printer Inventory and customized data from your previous system.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Infoprint Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:**

- **Printer Inventory:** Remount the /var/Printsrv directory from the z/OS V1R10 or 
  V1R9 system on the z/OS V1R11 system. The /var/Printsrv directory contains 
  the Printer Inventory as well as other Infoprint Server files. Because the format 
  of the Printer Inventory has not changed, you can continue to use the same 
  Printer Inventory that you used in z/OS V1R10 and V1R9. The default directory 
  is /var/Printsrv. However, you might have changed the directory name in the 
  base-directory attribute in the aopd.conf configuration file.
Notes:

1. After you start Infoprint Server on the z/OS system, you should use the Infoprint Server **pidu** command to export the Printer Inventory on the z/OS V1R11 system so that you have a backup of the Printer Inventory.

2. If /var/Printsrv is not mounted at a separate mount point, use the Infoprint Server **pidu** command to export the Printer Inventory on the original system and restore it on the z/OS V1R11 system. Do not use other copy commands to copy the Printer Inventory. (Mounting /var/Printsrv at a separate mount point can result in better management of disk space and easier migration.)

- **Configuration file**: If you modified the Infoprint Server configuration file, copy the file to the z/OS V1R11 system. Its default location is /etc/Printsrv/aopd.conf. However, you might have specified a different location in environment variable AOPCONF.

- **aopstart EXEC**: If you modified the aopstart EXEC, copy it to the z/OS V1R11 system.

- **IP PrintWay™**: If you currently use the IP PrintWay component of Infoprint Server, copy to the z/OS V1R11 system any IP PrintWay exit routines and data stream filters you have written. You do not need to recompile them.

- **NetSpool**: If you currently use the NetSpool component of Infoprint Server, copy to the z/OS V1R11 system any NetSpool exit routines you have written. You do not need to recompile them.

- **Print Interface**: If you currently use the Print Interface component of Infoprint Server, take these actions:
  - If you have written any data stream filters, copy them to the z/OS V1R11 system. You do not need to recompile them.
  - If you run the SAP R/3 application server on the z/OS system, copy the SAP callback daemon configuration file to the z/OS V1R11 system. Its default location is /etc/Printsrv/aopsapd.conf. However, you might have specified a different location in environment variable AOPSAPD_CONF.

- **Infoprint Central**: If you currently use Infoprint Central, copy the z/OS HTTP Server configuration and environment variables files to the z/OS V1R11 system. The default locations of these files are /etc/httpd.conf and /etc/httpd.envvars.

Reference information: [z/OS Infoprint Server Customization](#)

### Migrate from IP PrintWay basic mode to extended mode

**Description**: Since z/OS V1R5, the IP PrintWay component of Infoprint Server can operate in a mode called **IP PrintWay extended mode**. IP PrintWay extended mode uses the SYSOUT Application Programming Interface (SAPI) to obtain output data sets from the JES spool. IP PrintWay extended mode provides better performance, improved usability, and additional functions. For information about the enhancements and limitations in extended mode, see [z/OS Infoprint Server Customization](#).

**IP PrintWay basic mode** is the name used for the original IP PrintWay mode of operation. You can continue to run IP PrintWay basic mode in z/OS V1R11. In future releases, IBM will make enhancements only to IP PrintWay extended mode.

You can run IP PrintWay basic mode and IP PrintWay extended mode at the same time only if you make sure that IP PrintWay basic mode and IP PrintWay extended mode select different print jobs from the JES spool to print. Otherwise, unpredictable results can occur.
Element or feature: Infoprint Server.

When change was introduced: Basic mode was stabilized in z/OS V1R5. Extended mode was introduced in z/OS V1R5.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? No, but recommended because it will become a requirement in a future release.

Target system hardware requirements: None.

Target system software requirements: If you use Infoprint Central to work with IP PrintWay extended mode print jobs and printers:
- An operating IBM HTTP Server base element of z/OS
- XML Toolkit for z/OS V1R8 (5655-J51)
- One of these:
  - IBM SDK for z/OS, Java 2 Technology Edition, V5 (5655-N98) at the third release (SR3) or later
- Microsoft® Internet Explorer 5.5, Netscape Navigator 7.0, or IBM Home Page Reader 4.0
- To use IP PrintWay extended mode to print to VTAM-controlled printers, Infoprint Coaxial Printer Support for z/OS (5655-N62) is required.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: See Migrating from IP PrintWay basic mode to extended mode in z/OS Infoprint Server Customization.

Tip: Use IBM Health Checker for z/OS check PRINTWAY_BASIC_STARTED to determine whether you are currently using IP PrintWay basic mode. Note that you must install PTF UA44271 (for APAR OA26583) and PTF UA44270 (for APAR OA26577) before you can use this check.

Reference information:
- [z/OS Infoprint Server Customization](#) describes the features and limitations of IP PrintWay extended mode and how to customize IP PrintWay extended mode. It also describes how to customize the common message log and Infoprint Central.
- [z/OS Infoprint Server Operation and Administration](#) describes how to log in to Infoprint Central and how to view messages in the common message log. It also describes how to modify printer definitions for IP PrintWay extended mode.
- [z/OS Infoprint Server User's Guide](#) describes considerations for submitting print jobs when you use IP PrintWay extended mode.
Change the line-termination value for IP PrintWay extended mode

**Description:** With APAR OA18217, IP PrintWay extended mode uses the line-termination value specified in the **Line termination** field of a printer definition. Without the APAR, IP PrintWay extended mode ignores this line-termination value and uses a hard-coded default line-termination value.

With this change, if the line-termination value specified in the printer definition is 0D25 and the printer code page specified in the printer definition is ISO8859-1, output that previously printed correctly might now print incorrectly. This is because code page ISO8859-1 translates EBCDIC X'25' to ASCII X'85' (instead of to ASCII X'0A').

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Infoprint Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>APAR OA18217 on z/OS V1R5 and later.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA18217 installed.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use IP PrintWay extended mode.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you run IP PrintWay extended mode and the **Line termination** field (line-termination attribute) in any printer definition contains 0D25 or 25 and the **Printer code page** field (printer-codepage attribute) contains ISO8859-1, take one of these actions:

- Blank out the value in the **Line termination** field. This causes IP PrintWay extended mode to use its default line-termination value.
- Change the code page in the **Printer code page** field to a code page that translates EBCDIC X'0D25' to ASCII X'0D0A'. For example, you can specify code page IBM-850. Take this action if IP PrintWay basic mode also uses this printer definition.

**Reference information:** [z/OS Infoprint Server Operation and Administration](#)

Set the AOPMAILER environment variable

**Description:** With APAR OA22885, the default for the AOPMAILER environment variable has changed from /usr/sbin/sendmail to /bin/sendmail. This change was made because the z/OS UNIX sendmail command in most z/OS systems is located in the /bin directory.

| Element or feature:          | Infoprint Server.                        |
Infoprint Server actions to perform after the first IPL of z/OS V1R11

This topic describes Infoprint Server migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Run aopsetup

**Description:** When migrating to z/OS V1R11 Infoprint Server, you must run the aopsetup shell script to establish the correct file permissions for Infoprint Server directories and files.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Infoprint Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take: Run the aopsetup shell script from an rlogin shell, from an OMVS session, or with the BPXBATCH command. Specify the names of the RACF groups that you defined for Infoprint Server operators and administrators as arguments to aopsetup. For example, if you defined group AOPOPER for operators and group AOPADMIN for administrators, enter:

```
/usr/lpp/Printsrv/bin/aopsetup AOPOPER AOPADMIN
```

Rule: You must run aopsetup from a user ID with a UID of 0. You can use the su command to switch to an effective UID of 0 if you have READ access to the BPX.SUPERUSER profile in the RACF FACILITY class.

Tip: You can run aopsetup from the driving system (instead of the target system) if all of these are true:
- You have the target system’s /var/Printsrv directory accessible.
- You reference the target system’s /usr/lpp/Printsrv directory mounted under a /service directory as described in the comments at the beginning of the aopsetup shell script.
- The RACF database groups for operators and administrators are the same on the driving and target system.

Reference information: For details about running aopsetup, see z/OS Infoprint Server Customization.
Chapter 17. Integrated Security Services migration actions

Integrated Security Services actions to perform before installing z/OS V1R11 .......................... 263
Integrated Security Services actions to perform before the first IPL of z/OS V1R11........ 263
Integrated Security Services actions to perform after the first IPL of z/OS V1R11 .................. 263

This topic describes migration actions for base element Integrated Security Services. Integrated Security Services is made up of the following components: DCE Security Server, Enterprise Identity Mapping (EIM), LDAP Server, Network Authentication Service, and Open Cryptographic Enhanced Plug-ins (OCEP).

Integrated Security Services actions to perform before installing z/OS V1R11

None.

Integrated Security Services actions to perform before the first IPL of z/OS V1R11

None.

Integrated Security Services actions to perform after the first IPL of z/OS V1R11

This topic describes Integrated Security Services migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Migrate from LDAP Server to IBM TDS

Description: z/OS V1R10 was the last release of z/OS that supported the Integrated Security Services LDAP Server. A new optimized LDAP server, a component of IBM Tivoli Directory Server for z/OS (IBM TDS), was delivered by PTF for z/OS V1R8 and is integrated in z/OS V1R9 and later. If you are currently using the Integrated Security Services LDAP Server, you must migrate to IBM TDS. IBM TDS is designed to allow greater consolidation of LDAP directories on z/OS to help simplify enterprise management and disaster recovery.

IBM TDS is a base element of z/OS and consists of:
- A rewritten LDAP server
- An LDAP client
- LDAP client utilities

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Integrated Security Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>IBM TDS was introduced by PTF UA32981 (APAR OA19286) on z/OS V1R8. Removal of the Integrated Security Services LDAP Server following z/OS V1R10 was announced on 26 February 2008 in the z/OS V1R10 preview announcement. Removal of support did occur in z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have been using Integrated Security Services LDAP Server and have not already migrated to IBM TDS.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** For instructions about migrating from the LDAP server in Integrated Security Services to the LDAP server in IBM TDS, see [IBM Tivoli Directory Server Administration and Use for z/OS](#).

**Tip:** Use IBM Health Checker for z/OS check LDAP_USE_TDS to verify whether the Integrated Security Services LDAP server is in use. Note that you must install the PTF for APAR OA27843 before you can use this check.

**Reference information:**
- For information about IBM TDS, see [IBM Tivoli Directory Server Administration and Use for z/OS](#).
- For information about the LDAP client, see [IBM Tivoli Directory Server Client Programming for z/OS](#).
- For information about the Integrated Security Services LDAP Server, see [z/OS Integrated Security Services LDAP Server Administration and Use](#).
Chapter 18. ISPF migration actions

ISPF actions to perform before installing z/OS V1R11

None.

ISPF actions to perform before the first IPL of z/OS V1R11

This topic describes ISPF migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Accommodate the removal of the DFSORT option from the z/OS User Application Menu panel

Description: Beginning with z/OS V1R10, the DFSORT ISPF panels are no longer supported. Consequently, the z/OS User Application Menu panel ISR@390U supplied with ISPF was changed to remove option 6 DFSORT.

Element or feature: ISPF.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you use the ISPF-provided z/OS User Application Menu panel ISR@390U.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Tell users that option 6 DFSORT of the ISPF-provided z/OS User Application Menu panel ISR@390U is no longer available. If users try to select this option, the following warning message is displayed: ISPD241 Invalid option - The option that was entered was not valid.

Reference information:
- For more information about the z/OS User Application Menu panel ISR@390U, see z/OS ISPF Planning and Customizing.
ISPF actions to perform after the first IPL of z/OS V1R11

This topic describes ISPF migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Accommodate the change to the behavior of the Data Set List utility SRCHFOR command

Description: Before z/OS V1R11, the DSLIST SRCHFOR Options panel was always displayed when the SRCHFOR command was entered, whether or not a search string was specified with the command. Beginning with z/OS V1R11, the panel is only displayed if the SRCHFOR command is entered without a search string specified.

Element or feature: ISPF.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you expect the DSLIST SRCHFOR Options panel to be displayed after entering the SRCHFOR command.

Steps to take: If you require the DSLIST SRCHFOR Options panel to be displayed when entering the SRCHFOR command, do not specify a search string with the SRCHFOR command. The search string can be specified on the DSLIST SRCHFOR Options panel.

Reference information: For more information about the DSLIST SRCHFOR Options panel, see z/OS ISPF Planning and Customizing.
Chapter 19. JES2 migration actions

JES2 actions to perform before installing z/OS V1R11

None.

JES2 actions to perform before the first IPL of z/OS V1R11

This topic describes JES2 migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Update JES2 macros and exit routines

Description: With z/OS V1R11 enhanced transaction SYSOUT selection for the SYSOUT API and extended status SSIs, a variable extension is added to the JOE data area. This extension is stored in the BERT data area in the JES2 checkpoint. To manage this data area in a release independent manner, a check out and check in service ($DOGJOE) is available to manage JOE data areas. This service must be used when JOE data areas are being modified. It is also recommended that this service be used to examine fields in a JOE data area.

Installation exits that update JOE data areas need to be updated to use the $DOGJOE service to check out (fetch) an update mode JOA. The checked out JOA (also referred to as an artificial JOE) is a composite of the work JOE, the characteristics (char) JOE, and the JOE extension in the BERTs. The $DOGJOE service also insulates the exit code from the current $ACTIVATE level of JES2.

Various z/OS V1R11 JES2 macros changed as a result of the $DOGJOE service. Certain macro interfaces now require a JOA instead of a work JOE or characteristics JOE. In other scenarios, the rules for using these macros have changed.

Element or feature: JES2.

When change was introduced: z/OS V1R11 JES2.

Applies to migration from: z/OS V1R10 JES2 and z/OS V1R9 JES2.

Timing: Before the first IPL of z/OS R11.

Is the migration action required? Yes, if using various JES2 macro or exits mentioned below.

Target system hardware requirements: None.

Target system software requirements: None.

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Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

**Steps to take:** Before upgrading to z/OS V1R11 JES2, certain conditions must be met if your installation is using any of the following JES2 exits and/or macros. The actions described below must be considered regardless of checkpoint activation level.

- Be aware of the $DOGJOE macro if you reference JOE fields in any of your exits. This new macro enables creation of read and update mode artificial JOEs termed JOAs.

- Determine which fields need to be replaced for specific exits. Before z/OS V1R11 JES2, a real work and sometimes a characteristics JOE were passed to JES2 exits 1, 15, 38, 46, or 56. Starting with z/OS V1R11 JES2, an artificial JOE (JOA) will be passed to each of these exits. Table 12 explains which fields need to be replaced for specific exits.

*Table 12. Replace fields for exits 1, 15, 38, 46, and 56*

<table>
<thead>
<tr>
<th>Exit</th>
<th>Previous Fields</th>
<th>Replacement Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X001WJOE Address of the Work-JOE. X001CJOE Address of the characteristics-JOE.</td>
<td>X001JOA Address of the artificial JOE (JOA). The JOA contains both the Work-JOE and the Characteristics-JOE.</td>
</tr>
<tr>
<td>15</td>
<td>X015WJOE Address of the Work-JOE. X015CJOE Address of the characteristics-JOE.</td>
<td>X015JOA Address of the artificial JOE (JOA). The JOA contains both the Work-JOE and the Characteristics-JOE.</td>
</tr>
<tr>
<td>38</td>
<td>X038JOE Address of the Work-JOE.</td>
<td>X038JOA Address of the artificial JOE (JOA). The JOA contains both the Work-JOE and the Characteristics-JOE.</td>
</tr>
</tbody>
</table>
### Table 12. Replace fields for exits 1, 15, 38, 46, and 56 (continued)

<table>
<thead>
<tr>
<th>Exit</th>
<th>Previous Fields</th>
<th>Replacement Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>X046JOE Address of the Work-JOE.</td>
<td>X046JOA • Address of the artificial JOE (JOA) if Exit 46 is processing an NJE data set header. • A value of zero is passed as the address if Exit 46 is processing an NJE job header or trailer.</td>
</tr>
<tr>
<td>56</td>
<td>X056JOE Address of the Work-JOE.</td>
<td>X056JOA • Address of the artificial JOE (JOA) if Exit 56 is processing an NJE data set header. • A value of zero is passed as the address if Exit 56 is processing an NJE job header or trailer.</td>
</tr>
</tbody>
</table>

- Make required code updates if you use JES2 macros $#ADD, $#ALCHK, $#BLD and $#BUSY. In many cases, the interface has changed to require that a JOA be passed into the macro instead of a work JOE or the work/characteristics JOE combination. In the case of $#BUSY and $#ALCHK, additional rules must be followed.
- Be aware that the default for $#JOE has been changed to return a read mode JOA. It is the responsibility of the user to return a JOA upon early exit from the $#JOE processing loop. The $#JOE macro returns a real JOE or a read mode JOA. Before z/OS V1R11 JES2, this macro only returned a real JOE.
- Change exit routines that examine field CBMTTR to examine field CBMQTR, which is now a 6-byte MQTR. Prior to z/OS V1R11 JES2, $CBIO used 4-byte MTTRs internally to determine what record is being read or written. Starting with z/OS V1R11 JES2, $CBIO uses 6-byte MQTRs internally. Though not formally passed to exit 7 ($CBIO exit), some exits are known to locate the track address being processed.

**Reference information:**
- For a description of $DOGJOE, and information about the requirements for all JES 2 macros mentioned in this migration action, see [z/OS JES2 Macros](#).
- For a description of JOAs, see Appendix C (Checkpoint Control Blocks) in [z/OS JES2 Installation Exits](#).
- For information about JES2 exits 1, 15, 38, 46, or 56, and to determine which fields need to be replaced for these exits, see [z/OS JES2 Installation Exits](#).
Accommodate JES2 dynamic exits function

**Description:** The dynamic exits function of JES2, integrated in z/OS V1R10 and rolled back to prior releases by APARs, makes the following possible:

- Installation load modules (exit modules) can be dynamically loaded, refreshed, or deleted. Note that this function does not apply to modules that are part of the base JES2 product, meaning that you cannot use this function to apply IBM service.
- The list of routines associated with an exit can be dynamically altered.

Because of this new function, you should review and change (if necessary) any JES2 exit routines that use the following data areas and macros:

- The $XRT and $XIT data areas. The structure of the $XRT has been significantly altered. In addition, some fields in the $XIT have been moved to the $XRT. Reassembly of your installation code will, in general, fail if it references any fields in the $XRT or $XIT that have changed.
- The $LMT data area. Before z/OS V1R10, a $LMT can be active (LMT1INVD bit off) or invalid/free (LMT1INVD bit on). Beginning with z/OS V1R10, a $LMT can be in two new states: it can represent a module that has been logically deleted (LMT2DELT bit on) or a module whose storage has been freed (LMT3FREE bit on). Code that examines $LMTs might need to take these two new states into consideration.
- The $MODLOAD and $MODCHK macros. Message processing for these macros has changed. Beginning with z/OS V1R10, if MESSAGE=NO is coded or defaulted on the macro invocation, the message area returned in register 1 must be freed by the caller (using $FREMAIN with SP=0, KEY=1, and LV=128). If the caller does not require the message to be returned, a new MESSAGE=SUPPRESS option can be used.

In addition, not all exit routines can tolerate the fact that installation load modules (ones loaded using the JES2 LOADMOD initialization statement) can now be deleted and refreshed (a new copy loaded and the old copy deleted) using an operator command. You can use the new DYNAMIC=NO option on the $MODULE macro to prevent unwanted processing.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES2.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>Integrated in z/OS V1R10 JES2 and rolled back by APARs to z/OS V1R9 JES2 and z/OS V1R8 JES2. The APARs are OA23561 and OA21346.</td>
</tr>
<tr>
<td><strong>Applies to migration from:</strong></td>
<td>z/OS V1R9 JES2 without the PTFs for APARs OA23561 and OA21346 installed.</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>Yes, if you use JES2 exit routines or load installation load modules using the JES2 LOADMOD (or LOAD) initialization statement.</td>
</tr>
<tr>
<td><strong>Target system hardware requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Target system software requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Other system (coexistence or fallback) requirements:</strong></td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take:

1. **Update exit routines that refer to the JES2 $XRT and $XIT data areas, if necessary.**

   The $XIT is a 256-element array that represents all possible JES2 exits. $XRTs are pointed to by the $XIT. Each $XRT is an array in which each entry represents a routine associated with a JES2 exit. Before z/OS V1R10, the $XRT was a simple array of elements, each one representing a routine. With the dynamic exits function in z/OS V1R10 (and later), the $XRT starts with a header that describes the list, followed by an array of XRTEs in which each entry represents a routine.

   The change was needed to ensure predictability when routines are invoked by the JES2 $EXIT facility. When the $EXIT facility is invoked, it selects the appropriate $XRT and increments the use count in that $XRT. The list of routines in that instance of the $XRT are used by the $EXIT facility. Operator changes to the list of routines while the $EXIT facility is in control do not affect the currently active exit environments. When the list of routines for an exit is altered, a new $XRT is built and, if the existing one is in use, the new one is chained in ahead of the existing $XRT and the old $XRT is marked as logically deleted. When the old $XRT is no longer in use, it is deleted.

   Note that the first $XRT associated with an exit (pointed to by XITXRTAD) can be logically deleted (XRTFDEL bit on) if there are no longer any routines associated with the exit. If there is a chain of $XRTs, the second and beyond are always logically deleted. (Only the first $XRT pointed to by XITXRTAD can be active.)

   One consequence of this change is that some fields that were in the $XIT had to be moved to the $XRT header. In particular, the fields XITBSPL (SPLEVEL check bypassed), XIT#RTNS (number of routines associated with this exit), and XITUSCNT (exit use count) have been moved to the $XRT.

2. **Update exit routines that refer to the JES2 $LMT data area, if necessary.**

   The $LMT is used to track modules loaded by the JES2 $MODLOAD service, including modules loaded by the LOADMOD initialization statement and the new $ADD LOADMOD command. Code that searches $LMTs needs to consider the state of the $LMT before examining fields (such as the module address) in the $LMT. Before z/OS V1R10, the only state needing examination was invalid/free (bit LMT1INVD on). However, the dynamic exits function in z/OS V1R10 (and later) introduces two new states that need to be considered: logically deleted $LMTs and force freed $LMTs.

   Logically deleted $LMTs (bit LMT2DELT on) represent modules that are not being used for new requests (they are logically deleted) but are in use by existing processing. These $LMTs should not be examined when looking for the current version of a module but can be used if trying to resolve what module a particular address is located in.

   Force freed $LMTs (bit LMT3FREE on) represent load modules where the actual module is freed before JES2 is done using it. This can only occur if dynamic LPA services is used to delete the module from LPA (something IBM does not recommend doing). Code cannot access the actual load module because the storage is no longer valid. Force freed $LMTs will eventually be logically deleted (LMT2DELT set on), although the LMT3FREE bit will always be on.
If an exit routine examines $LMTs to find a particular routine address by name or to find the load module name associated with an address, there are JES2 services to do this that isolate the code from the internal JES2 data structures. In the JES2 environment, the LOCLMOD service obtains the module name associated with an address (including searching for MVS module names). Outside the JES2 environment, FINDLMOD performs the same function. To locate the address of a routine within a JES2 load module, you can use the LOCENTRY service. However, this is only available within the JES2 environment.

3. **Update exit routines that use the $MODLOAD and $MODCHK macros, if necessary.**

   Message processing for the $MODLOAD and $MODCHK macros has changed. Before z/OS V1R10, if MESSAGE=NO was coded or defaulted on the macro invocation, an error message could be returned to the caller in a data area pointed to by register 1. The caller could choose to use or ignore the returned message. The message text was in a work area chained off the HCT and did not need to be freed. However, with the introduction of the dynamic exits function, the data area is obtained by the service and must be freed by the caller using $FREMAIN with SP=0, KEY=1, and LV=128. If the caller does not need the message text, change the macro invocation to specify MESSAGE=YES (message is issued via WTO) or MESSAGE=SUPPRESS (no message is issued or returned).

4. **Enable load modules to support dynamic processing, if necessary.**

   With the dynamic exits function in z/OS V1R10 (and later), JES2 supports loading, refreshing, and deleting installation load modules using an operator command. JES2 will process all dynamic tables (TYPE=DYNAMIC) that exist in the module just as they were processed before z/OS V1R10 by initialization. Exit routine addresses are cleared when a module is deleted and replaced when a module is refreshed. ($ADD LOAD will not affect any exit routine address.) However, even with this support, not all load modules will function properly if loaded, deleted, or refreshed after initialization. You must review all your installation load modules (ones loaded with the LOADMOD initialization statements) to determine whether they can be dynamically loaded or deleted and, if they cannot be dynamically loaded or dynamically deleted, decide what needs to be done.

   Examples of code that cannot be dynamically loaded or deleted without changes are:

   - Modules that have assembled tables that are pointed to by JES2 data areas, for example, a $UCT data area pointed to by the $UCT field in the $HCT. Other tables can be pointed to by other user pointers in JES2 data areas, or the tables can be pointed to by a named token (created using the $TOKENSR macro).
   - Modules that front-end JES2 services.
   - Modules that implement their own $PCE or $DTE.
   - Modules with $BERTTABs that were not loaded at initialization.
   - Modules that define installation $WSTABs.

   Many of these modules will have an exit 24 (post initialization) associated with them. The module was loaded as part of normal initialization processing and then hooked to JES2 data structures using exit 24. Alternatively, they might have code that tests a user field for zero and, if it is zero, they do one-time initialization processing. However, if the initialization code involves obtaining storage and saving that storage address in a JES2 data area, it might not have a problem.
These exit routines might not function properly if they are processed with an operator command. In some cases there will be residual pointers in JES2 data areas that do not get updated. In other cases (such as user defined PCEs or DTEs) there might be no way to stop code that is running in the module.

Modules with $BERTTABs need special considerations. At JES2 initialization, the $BERTTABs are processed into a table that is used while JES2 is running. Updating this table while JES2 is active could result in unexpected side effects. As a result, JES2 does not process new $BERTTABs when a module is dynamically loaded. Only $BERTTABs in modules that were loaded at JES2 initialization (including hot starts) are used. There is no restriction on refreshing modules with $BERTTABs except that new $BERTTABs will not be processed. Be careful with any module that contains $WSTABs. For performance reasons, the address of the $WSTAB is stored in various JES2 data areas. These addresses are only updated when the WS= parameter associated with a device is updated. New $WSTAB entries are not processed until the WS= values on any device that use the new work selection criteria are updated (in general by operator command).

There are two ways to address modules that cannot be dynamically updated:

- Prohibit all dynamic processes for these modules. This can be done by setting the DYNAMIC=NO parameter on the $MODULE macro in the modules.

- Use the new $$$$LOAD and $$$$DEL service to perform the initialization processing normally done by exit 24. This generally eliminates the need for exit 24 even for the case when the module is loaded by initialization processing. The $$$$LOAD and $$$$DEL routines can also be used to dynamically create and detach PCEs and DTEs. Furthermore, for the case where you want new code loaded but you also want the table that exists in the old module to remain, a function in $$$$DEL prevents JES2 from ever deleting the load module.

Reference information:

- For additional information about how JES2 loads and deletes installation modules dynamically (including descriptions of the $$$$LOAD and $$$$DEL routines), see [z/OS JES2 Installation Exits](https://www.ibm.com/redbooks/).

- For additional information about how the routines for a JES2 exit can be dynamically changed, see [z/OS JES2 Commands](https://www.ibm.com/redbooks/).

### Update automation that handles the $D NODE command response

**Description:** Before z/OS V1R10, the command response to $D NODE would return all parameters. Beginning with z/OS V1R10, the command response is changed to display only an abbreviated list of parameters. For the complete list, you can issue the $D NODE, LONG command. For more details about the parameters in the abbreviated list, see the description of the LONG parameter on the $D NODE command.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES2</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10 JES2</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 JES2</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have automation that examines the $D NODE command response.</td>
</tr>
</tbody>
</table>
Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Review and update automation that examines the $D NODE command response.

Note: As of z/OS V1R10, output message $HASP826 from the $DNODE,LONG command contains the CONNECT= option.

Reference information: For more information about the parameters that are now returned on the $D NODE command, see [z/OS JES2 Commands](#).

**Accommodate the removal of message $HASP301**

JES2 is designed to prohibit the execution of multiple jobs with the same name, except in the case of started task (STC) jobs or time-sharing user (TSU) classes. A callable routine can be used to determine if the name of a candidate job duplicates the name of an already executing job. Prior to z/OS V1R8, when a job was being considered for selection, a scan of the entire queue was made to see if the jobname matched that of any already executing jobs. If so, the job was rejected and a flag was set in the JQE (JQE1HLD2).

JES2 processing for duplicate job name detection and blocking was changed in z/OS V1R8. Starting in z/OS V1R8, jobs with the same name are linked together. The linked group is called a duplicate job name family. The family is controlled by a structure called the DJB (duplicate job block). When a job is being considered for selection, an examination of the DJB is made to see if a member of the family is already executing. In this background, the flag JQE1HLD2 is no longer set on or off, which affects the Exit 14 code.

Note: The new duplicate job name processing is in effect as soon as all the JES2s sharing SPOOL are at system level z/OS V1R8 or later. If one or more members of the MAS are on z/OS V1R7 or earlier, the duplicate job processing is done the way it was done prior to the changes made in z/OS V1R8.

Beginning with z/OS V1R10 (and z/OS V1R9 and z/OS V1R8 with OA22291), when the default specification of DUPL_JOB=DELAY in JES2PARM JOBDEF statement is in effect, you no longer receive the message $HASP301, even if a job is delayed for processing because a job with the same name is already running.

$HASP301 jobname – DUPLICATE JOB NAME – JOB DELAYED

Element or feature: JES2.

When change was introduced: z/OS V1R10 JES2. Also in z/OS V1R9 JES2 and z/OS V1R8 JES2 with APAR OA22291.

Applies to migration from: z/OS V1R9 JES2 without the PTF for APAR OA22291 applied.

Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? | Yes, if you depend on the message $HASP301.

Target system hardware requirements: | None.

Target system software requirements: | None.

Other system (coexistence or fallback) requirements: | None.

Restrictions: | None.

System impacts: | None.

Steps to take:
- Review the impact of the message automation processing.
- Determine the impact by displaying the Status "DUP" on the SDSF I (INPUT QUEUE) panel and ST (STATUS) panel.
- Also, the command $DJ(*),HOLD=DUP is useful for this purpose. It displays the message $HASP890 to show the STATUS=(AWAITING EXECUTION) and HOLD=(DUP) for the affected job.

Reference information:
- For information about JES2 messages, see \textit{z/OS JES2 Messages}.
- For information about JES2PARM statements, see \textit{z/OS JES2 Initialization and Tuning Reference}.
- For information about JES2 commands, see \textit{z/OS JES2 Commands}.

**Update automation that handles the $D LOADmod command response**

**Description:** Before z/OS V1R10 (and APAR OA21346 on z/OS V1R9 and z/OS V1R8), the command response to $D LOADmod would return all parameters. Beginning with z/OS V1R10, the command response is changed to display only an abbreviated list of parameters. For the complete list, you can issue the $D LOADmod,LONG command. For more details about the parameters in the abbreviated list of $D LOADmod command parameters, see the description of the LONG parameter on the $D LOADmod command.

**Element or feature:** JES2.

**When change was introduced:** z/OS V1R10 JES2, z/OS V1R9 JES2 by APAR OA21346, and z/OS V1R8 JES2 by APAR OA21346.

**Applies to migration from:** z/OS V1R9 JES2 without the PTF for APAR OA21346 installed.

**Timing:** Before the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you have automation that examines the $D LOADmod command response.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.
Steps to take: Review and update automation that examines the $D LOADmod command response.

Reference information: For more information about the parameters that are now returned on the $D LOADmod command, see [z/OS JES2 Commands](#).

---

**JES2 actions to perform after the first IPL of z/OS V1R11**

This topic describes JES2 migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

### Activate z11 mode

**Description:** If you wish to take advantage of the full-function level of z/OS V1R11 JES2, you must be in z11 mode. Activating z11 mode upgrades the JES2 checkpoint and enables JES2 functionality that is introduced in z/OS V1R11, including JOE data area extensions supported by BERTs. For more information on the JES2 functionality introduced in z/OS V1R11, see the reference links below.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES2.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 JES2.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 JES2 and z/OS V1R9 JES2.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to activate the full-function level of z/OS V1R11 JES2 processing.</td>
</tr>
</tbody>
</table>

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** In order to activate z11 mode, all systems in the JES2 MAS must be at z/OS V1R11. You may fall back to z2 mode, if necessary.

**System impacts:** None.

**Steps to take:**

- After migrating to z/OS V1R11 JES2 on all systems in your MAS, determine your z11 checkpoint activation readiness:
  1. Use the $D ACTIVATE command. This command indicates if activation to z11 mode will succeed.
  2. Review your current utilization of BERT data to determine if there are sufficient BERTS, as detailed in “Check BERT utilization” on page 277.
- Run the JES2 $ACTIVATE command to activate z11 mode following the considerations for this command found in [z/OS JES2 Commands](#).

By default, JES2 restarts in the same mode (z2 or z11) as other members of the MAS (if any are active) or the mode the last active JES2 member was in when it came down. To restart JES2 in z2 mode, specify UNACT on PARM=. On a cold start JES2 starts in z11 mode unless overridden by OPTSDEF COLD_START_MODE.
Tip: Use IBM Health Checker for z/OS health check JES2_Z11_Upgrade_CK_JES2. This check determines if the system is ready to upgrade the JES2 checkpoint to z11 mode; see IBM Health Checker for z/OS: User’s Guide.

Check BERT utilization

Before issuing the $ACTIVATE,LEVEL=z11 command, review the current utilization of BERT data to determine whether there are sufficient BERTs. Additional BERTs are needed for each SYSOUT data set that has transaction data associated with it. These SYSOUT data sets can be seen using SDSF by setting APPC ON and examining SYSOUT data sets on the H and O panels; SYSOUT data sets with transaction data have nontraditional JES2 job IDs. Consider increasing the number of BERTs to correspond to two times the maximum number of transaction SYSOUT data sets on the system. BERT utilization should be monitored after the $ACTIVATE to z11 mode to ensure there are sufficient BERTs for the jobs and SYSOUT in the MAS. There are several ways to determine your current BERT usage:

- The $D CKPTSPACE,BERTUSE command displays a table of the types of control blocks in BERTs and how many BERTs are used by each control block type. The example below shows the output of the command:

```
$HASP852 CKPTSPACE CURRENT BERT UTILIZATION
$HASP852 TYPE COUNT CB COUNT
$HASP852 INTERNAL 11 1,
$HASP852 JQE 211 108,
$HASP852 CAT 114 38,
$HASP852 WSCQ 1 1,
$HASP852 DJBQ 0 0,
$HASP852 JOE 0 0,
$HASP852 FREE 763 0
```

In the example, there are 108 JQEs that have a total of 211 BERTs associated with them. This example is for a system in z2 mode and does not have any BERTs associated with JOEs.

- The $D ACTIVATE command displays the number of BERTs that are needed for activation to z11 mode. This is the number of BERTs that will be associated with JOEs after the $ACTIVATE. The example below shows the output of the $D ACTIVATE command:

```
$HASP895 $DACTIVATE
$HASP895 JES2 CHECKPOINT MODE IS CURRENTLY Z2
$HASP895 THE CURRENT CHECKPOINT:
$HASP895 -- CONTAINS 1100 BERTS AND BERT UTILIZATION IS 30 PERCENT.
$HASP895 -- CONTAINS 150 4K RECORDS.
$HASP895 z11 CHECKPOINT MODE ACTIVATION WILL:
$HASP895 -- EXPAND CHECKPOINT SIZE TO 165 4K RECORDS.
$HASP895 -- REQUIRE 22 ADDITIONAL BERTS AND UTILIZATION WOULD REACH 32 PERCENT.
$HASP895 z11 ACTIVATION WILL SUCCEED IF ISSUED FROM THIS MEMBER.
```

In the example, there are 22 additional BERTs that will be used after the $ACTIVATE to z11 mode, for transaction data associated with JOEs.

- A general history of BERT usage can be obtained by using the $JD HISTORY(BERT) command or by using the SDSF RM panel. This displays the usage of BERTs after the system was IPLed. The example below shows the output of the $JD HISTORY(BERT) command:

```
$HASP9130 D HISTORY
$HASP9131 JES2 BERT USAGE HISTORY
DATE TIME LIMIT USAGE LOW HIGH AVERAGE
```
Reference information:

For a list of the enhancements introduced in z/OS V1R11 for z11 mode, see z/OS Introduction and Release Guide.

For $ACTIVATE, $D ACTIVATE, $D CKPTSPACE and $JDHISTORY command details, see z/OS JES2 Commands.
Chapter 20. JES3 migration actions

JES3 actions to perform before installing z/OS V1R11

Modifying code that depends on the value of STVSTOD returned by extended status

Description: Extended status includes a timestamp, STVSTOD, for each dataset returned. Prior to z/OS V1R11, the timestamp value represented when that output dataset became available. Beginning with z/OS V1R11, the value is changed to represent when the dataset is created. This new value reflects when a dataset is available for spool browse.

Element or feature:

JES3.

When change was introduced:

z/OS V1R11 JES3.

Applies to migration from:

z/OS V1R10 JES3 and z/OS V1R9 JES3.

Timing:

Before installing z/OS V1R11.

Is the migration action required?

Yes, if the installation has a code dependency on the value of STVSTOD corresponding to the time that output is available and not before. It is expected that this dependency is unlikely.

Target system hardware requirements:

None.

Target system software requirements:

None.

Other system (coexistence or fallback) requirements:

None.

Restrictions:

None.

System impacts:

None.

Steps to take: Ensure that any dependency on STVSTOD will tolerate a timestamp corresponding to when the dataset is created instead of when output is available.

Reference information: None.
JES3 actions to perform before the first IPL of z/OS V1R11

This topic describes JES3 migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Identify the JES3 auxiliary address space to your security product

**Description:** The JES3 auxiliary address space provides critical functional support for JES3 and is started during JES3 initialization. Before z/OS V1R11, a limited-function address space for JES3AUX was created by using a link to IEEMB881. Beginning with z/OS JES3 V1R11, the ASCRE macro is used to create the JES3 auxiliary address space. Therefore, you need to identify this address space to your security product (for example, RACF) if it is configured to monitor started tasks.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 JES3.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 JES3 and z/OS V1R9 JES3.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your security product is configured to monitor started tasks.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>JES3 will not start unless this action is taken.</td>
</tr>
</tbody>
</table>

**Steps to take:**

1. Determine the JES3 auxiliary address space name. This name consists of the primary subsystem name combined with AUX. The primary subsystem name is defined in the IEFSSNxx member of SYS1.PARMLIB. For example, if the primary subsystem name is JES3, then the address space will be JES3AUX.

2. Verify that the JES3AUX address space is identified to your security product. For RACF, check for a profile defined in the STARTED class that covers the name of the JES3AUX address space. If none is defined, create a profile for JES3AUX. Make sure JES3AUX has the trusted attribute. For example:

   ```
   RDEFINE STARTED JES3AUX.*
   STDATA( USER(JES3ID) GROUP(SYS1) TRUSTED(YES) )
   ```


Update JES3 exit IATUX63

**Description:** Before z/OS V1R10, information strings returned by SSI 54, also known as the “Who-Am-I” SSI, were built during JES3 initialization. Beginning with z/OS V1R10, the information strings are also built during CONNECT processing. This allows information to be updated when information about the global changes without the local having been restarted. The global information can
change in two ways: (1) the global is IPLed and the JES3 release is changed during this IPL, and (2) a Dynamic System Interchange (DSI) is performed, which changes the name of the global and possibly the release. IATUX63, the exit that builds the installation-defined SSI 54 string, is likewise called during CONNECT processing.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10 JES3.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 JES3.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use exit IATUX63.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Update your IATUX63 code to test the flag YUX63CON. This flag is set during connect processing. When this bit is set, you have the following options:
- Return without changing anything.
- Free the storage for the old installation-defined string and create a new one.
- Update your existing installation-defined string without changing its location or length.

**Reference information:** For details about the functions and interfaces of the changed exit, see [z/OS JES3 Customization](#).

**Update JES3 exit IATUX72**

**Description:** Beginning with z/OS V1R11, you can use SSI 70 to change the characteristics of a SYSOUT data set. If your changes are to move a data set from the hold queue to the TCP or BDT queues, SSI 70 calls exit 72 (IATUX72). Because SSI 70 is a new caller of exit 72, the parameter list of the exit, IATYUX72, is changed. This change consists of a new bit, YUX73SJF, which identifies SSI 70 as the caller, and a new pointer, UX72SMW, which addresses a work area, IATYSMW, that is used by SSI 70.

<table>
<thead>
<tr>
<th>Element or feature:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 JES3.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 JES3 and z/OS V1R9 JES3.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use exit IATUX72.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Steps to take: Reassemble your IATUX72 exit against the new IATYUX72 parameter list. In addition, if your IATUX72 exit bases its actions either on its caller or on the caller specific data that is provided in the IATYU72 parameter list, update your exit to handle the possibility of SSI 70 calling the exit.

Reference information: For details about the functions and interfaces of the changed exit, see z/OS JES3 Customization.

Check extended status applications for the need for testing STSTHTCP and STSTHBDT

Description: Before z/OS V1R10 JES3, terse and verbose output information returned by SSI 80 (extended status) included output on the HOLD and WTR queues. Beginning with z/OS V1R10, output on the BDT and WTR queues is returned in addition to output on the HOLD and WTR queues. The flags that JES3 sets to indicate the TCP and BDT queues are STSTHTCP and STSTHBDT, respectively, in the flag byte STSTHSTA.

Element or feature: JES3.
When change was introduced: z/OS V1R10 JES3.
Applies to migration from: z/OS V1R9 JES3.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you have an application that looks specifically at the existing STSTHSTA flags.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Look at your application code that uses the extended status interface (SSOBFUNC=SSOBESTA) and answer the following questions to determine what to do:
1. Do you use the STATTYPE of STATOUTT or STATOUTV?
   - No: No action needed.
   - Yes: Proceed to the next question.
2. Do you examine flag byte STSTHSTA?
   - No: No action needed.
   - Yes: Proceed to the next question.
3. Do you test the hold type flags STSTHOPR, STSTHUSR, STSTHSYS, STSTHTSO, and STSTHXWT within STSTHSTA and take some actions if none of them are set?
   - No: No action needed.
   - Yes: Determine what action your code takes in this case and evaluate the need for adding code to test STSTHTCP and STSTHBDT.

Reference information: For more information about the fields and flags returned by SSI 80, see z/OS MVS Using the Subsystem Interface.
Delete the EDIT keyword from the CONSTD statement

Description: In z/OS V1R10 (and later) JES3, the CONSTD EDIT= keyword is no longer supported. Message IAT3256 EDIT KEYWORD IGNORED, NO LONGER SUPPORTED is issued. JES3 initialization continues.

The characters previously defined as backspace, line delete, and escape are no longer special characters and are now treated by JES3 console services as literal characters. The MVS command delimiter from the INIT CMDDELIM() parameter in SYS1.PARMLIB(CONSOLxx) continues to be honored by JES3.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>JES3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10 JES3.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9 JES3.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have any automated procedures or disk readers that specify the backspace, line delete, or escape character.</td>
</tr>
</tbody>
</table>

| Target system hardware requirements: | None. |
| Target system software requirements: | None. |
| Other system (coexistence or fallback) requirements: | None. |
| Restrictions: | None. |
| System impacts: | None. |

Steps to take:
1. Remove the EDIT= keyword from the CONSTD statement to clean up the warning messages.
2. Remove automation or disk reader commands if they are using the backspace, line delete, or escape character. For example, before z/OS V1R10 JES3, if you had the pound sign defined as the backspace character and an automation routine performing an action on a job with a pound sign as part of its name, you had to enter the escape character before the pound sign. Otherwise, the command would treat the pound sign as a backspace and change the command to a job name that you did not want the command to operate on. With z/OS V1R10 (and later) JES3, because the pound sign is interpreted literally, you can remove the escape character.

Reference information: z/OS JES3 Initialization and Tuning Reference

JES3 actions to perform after the first IPL of z/OS V1R11

None.
Chapter 21. Language Environment migration actions

This topic describes migration actions for base element Language Environment.

Language Environment actions to perform before installing z/OS V1R11

None.

Language Environment actions to perform before the first IPL of z/OS V1R11

This topic describes Language Environment migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Update the CSD based on the newest CEECCSD

**Description:** Each release, Language Environment adds or deletes load modules in the CICS system definition (CSD) file. Thus, you should update the file each release using the program definitions found in member CEECCSD and, if using CICS Transaction Server (TS) for z/OS V3 (5655-M15), in member CEECCSDX.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Language Environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>CICS.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Update the CSD file using the program definitions in member CEECCSD (and member CEECCSDX if using CICS TS V3) found in the *hlq.SCEESAMP* data set.
Note: The group containing the Language Environment runtime routines must be in the group list used during CICS startup.

Reference information: z/OS Language Environment Run-Time Application Migration Guide

Update Language Environment load modules in the LPA

Description: Each release you must update the Language Environment load modules that you make accessible through the link pack area (LPA). In addition, each release you should review your list of Language Environment load modules in the LPA to determine if it’s still suitable.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Language Environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you need to make modules accessible through the link pack area (LPA).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements:</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Review Language Environment load modules in the LPA.

To move load modules into the LPA, use the following sample members in the CEE.SCEESAMP data set:

- **AFHWMLP2**: This is a sample of all Language Environment Fortran component modules eligible for the LPA.
- **CEEWLPA**: This is a sample of a PROGxx member of SYS1.PARMLIB that includes all Language Environment CEE-prefixed runtime modules eligible for the LPA (that is, all Language Environment base modules) except the callable services stubs.
- **CELQWLPA**: This is a sample for AMODE 64 runtime support.
- **EDCWLPA**: This is a sample of a PROGxx member of SYS1.PARMLIB that includes all Language Environment EDC-prefixed and CEH-prefixed runtime modules eligible for the LPA (that is, all XL C/C++ component modules) except locales and code page converters.
- **IBMALLP2** (or **IBMPLPA1 for Enterprise PL/I for z/OS**): This is a sample of all Language Environment PL/I component modules eligible for the LPA.
- **IGZWMLP4**: This is a sample of all Language Environment COBOL component modules eligible for the LPA.

To see which modules are eligible for the LPA, refer to z/OS Language Environment Customization. The modules listed there can be put in the LPA or extended LPA (ELPA) depending on their RMODE value:
• If the RMODE is ANY, the module can reside in the LPA or in the ELPA (above or below the 16 MB line).

• If the RMODE is 24, the module can reside only in the LPA (below the 16 MB line).

If you are considering placing the modules listed in `z/OS Language Environment Customization` in the LPA or the ELPA, then IBM recommends that you place the SCEELPA data set in the LPA list (LPALSTxx). SCEELPA contains Language Environment load modules that are reentrant, that reside above the 16 MB line, and that are heavily used by z/OS.

In `z/OS Language Environment Customization` you will also see tables of modules eligible for the LPA and the ELPA above and beyond what is found in the SCEELPA data set. You will need to use the dynamic LPA or MLPA approach to move these modules into the LPA or ELPA. You do not need to include recommended modules if they contain functions your installation does not use. Language Environment modules not listed in these tables can be moved into the LPA or ELPA at your discretion.

Reference information: See the table “Language Environment sample IEALPAnn or PROGxx members in hlq.SCEESAMP” for the list of sample members and their changed content in `z/OS Language Environment Customization`. The table contains a list of eligible load modules for:

- Language Environment base modules
- Language Environment XL C/C++ component modules
- Language Environment COBOL component modules
- Language Environment Fortran component modules
- Language Environment PL/1 component modules

Determine the impact of added and changed runtime options

Description: Periodically, Language Environment introduces new runtime options, adds new suboptions to existing runtime options, and changes the defaults of runtime options.

In z/OS V1R11:

• No options were added.

• Four suboptions were added to HEAPCHK to enhance the serviceability of heap pools. The suboptions allow you to specify a heap pools trace table size that is greater or less than the current hardcoded size of 1024, and to limit heap pools tracing to a single pool instead of always tracing all pools. The suboptions apply to the main user heap in an application and the 31-bit heap (__malloc31()) in a 64-bit environment:

  – Number of Entries: Specifies the number of entries to be recorded in one heap pool trace table for the main user heap in the application. Each pool has its own trace table. If the number of entries is 0, the heap pool trace table is not generated.

  – Pool Number: Specifies which pools are traced for the main user heap in the application. You can either trace one pool or all pools. The value should be a valid pool number from 1 to 12. If the pool number is 0, all pools will be traced.

  – Number of Entries 31: Specifies the number of entries to be recorded in one heap pool trace table when an AMODE 64 application is using heap storage from 31-bit addressable storage (__malloc31()). Each pool has its own trace...
table. If the number of entries is 0, the heap pool trace table is not generated. This value is only supported in an AMODE64 environment.

- Pool Number 31: Specifies which pools are traced when an AMODE 64 application is using heap storage from 31-bit addressable storage (_malloc31). You can trace either one pool or all pools. The value should be a valid pool number from 1 to 12. If the pool number is 0, all pools will be traced. This value is only supported in an AMODE64 environment.

In z/OS V1R10:
- One runtime option, HEAPPOOLS, was added to the CELQDOPT options group. (HEAPPOOLS was already valid in both CEEDOPT and CEECOPT.) This support is integrated in z/OS V1R10; it was initially made available on z/OS V1R9 by APAR PK49427 and on z/OS V1R8 and V1R7 by APAR PK57579.
- No suboptions were added and no default changes were made to existing runtime options.

Because of these changes, you might have to perform migration actions.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Language Environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11 and z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you are using assembler modules to specify your installation-wide runtime options (CEEDOPT, CEECOPT, or CELQDOPT). If you are using CEEPRMxx (introduced in z/OS V1R7) and the default specification for the newly added options is acceptable to you, then no migration action is required.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- If you are using CEEPRMxx to specify your installation-wide runtime options:
  - The four suboptions added to HEAPCHK in z/OS V1R11 do not change the default behavior. You have no migration action.
  - The HEAPPOOLS runtime option, which was added to CELQDOPT in z/OS V1R10, does not change the default behavior. You have no migration action.

  **Tip:** Use IBM Health Checker for z/OS to check that default Language Environment runtime options are set within a CEEPRMxx parmlib member. The check is named CEE_USING_LE_PARMLIB.

- If you are using the assembler modules to specify your installation-wide runtime options, compare your existing source for the installation-wide runtime options CSECT, CEEDOPT (non-CICS environment), CEECOPT (CICS environment), or CELQDOPT (AMODE 64) with the new samples in hlq.SCEESAMP to determine
whether you need to change the defaults. Then, update (and reinstall) your
usermods with the following new options:

- The four suboptions added to HEAPCHK in z/OS V1R11.
- The HEAPPOLS runtime option, which was added to CELQDOPT in z/OS
  V1R10. But note that this function, which is integrated in z/OS V1R10, was
  rolled back to prior releases (APAR PK49427 on z/OS V1R9 and APAR
  PK57579 on z/OS V1R8 and V1R7), so you might have already updated this
  usermod.

Reference information:

- For details about changing CEEDOPT, CEECOPT, or CELQDOPT, and specifying
  CEEPRMxx, see z/OS Language Environment Customization
- For CEEDOPT, CEECOPT, and CELQDOPT samples, see the hlq.SCEESAMP
  data set.

Use CEEPRMxx’s CEEROPT instead of making copies of
Language Environment initialization modules

**Description:** Many installations have made copies of Language Environment’s
initialization modules CEEBINIT, CEEBINSS, CEEPIPI, and CEEBPICI (updating
each copy with specific runtime options specified in the CEEDOPT CSECT), and
then used STEPLIB to access those modules for different applications. This method
allows applications to individually have their own runtime options while not
requiring any updates to the applications themselves. However, this method has
the disadvantages of being difficult to manage when service updates are made in
Language Environment, having many copies of Language Environment modules to
keep track of, and creating synchronization problems between the initialization
modules and other Language Environment modules, which are hard to debug.
This method of customizing Language Environment’s initialization modules no
longer works as of z/OS V1R10.

As of z/OS V1R10, the CEEDOPT CSECT is no longer part of the Language
Environment’s initialization modules CEEBINIT, CEEBINSS, CEEPIPI, and
CEEBPICI. Therefore, any customization for runtime options added to these
initialization modules will not be used by Language Environment for the
application’s runtime environment.

To easily allow applications to continue to use customized runtime options, and to
eliminate the need to make separate copies with updates to the initialization
modules, support was added to the CEEPRMxx parmlib member. The CEEPRMxx
CEEROPT statement (for non-AMODE 64 applications and CELQROPT for
AMODE 64 applications) controls this support and CEEROPT(ALL) indicates to
Language Environment that CEEROPT should be loaded for all application
execution environments, and that the options found in that module should be
used. Using CEEPRMxx’s CEEROPT statement does not require any updates to the
applications themselves.

Because of these changes, you might have to perform migration actions.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Language Environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>
Is the migration action required? Yes, if you have copied any Language Environment initialization module (CEEBINIT, CEEBINSS, CEEPIPI, or CEEBPICI) for the purpose of manually linking in a separate installation-wide runtime option CSECT, CEEDOPT, for use by a specific set of applications.

Note: If you have used only SMP/E to maintain a customized CEEDOPT CSECT (by using a sample usermod CEEWD01), this migration action does not apply to you. Using the CEEWD01 usermod to specify your runtime options in CEEDOPT will still result in Language Environment correctly using your specified runtime options. This migration action is applicable only if you have linked CEEDOPT outside of SMP/E into separate libraries that were not SMP/E-controlled (and were STEPLIBed to by the applications).

Steps to take:
1. CEEROPT processing can only be specified in your CEEPRMxx parmlib member (as CEEROPT is not an option in the CEEDOPT assembler language module). Turn on CEEROPT processing for all non-AMODE 64 environments by setting the keyword CEEROPT(ALL) in your active CEEPRMxx member. (CEEROPT(COMPAT) is the default, which indicates CEEROPT is to be loaded and used only for CICS and LRR environments. This is the behavior prior to z/OS V1R10.)

2. Create a separate CEEROPT module with runtime option overrides similar to those you are currently manually linking into a copy of one of the Language Environment initialization modules. You can use sample CEE.SCEESAMP(CEEWROPT) for the assembly and link-edit. Place each CEEROPT module in a separate data set.

   Note: You only need to set those runtime options that are different from the ones set in your installation defaults or system-wide defaults.

3. Place this CEEROPT data set into the STEPLIB concatenation for the application.

4. Review the other modules you have in the STEPLIB concatenation. If you had any Language Environment initialization modules in the concatenation for the sole purpose of customizing the CEEDOPT CSECT, you must remove those modules from the concatenation.

Reference information: [z/OS Language Environment Customization]
Language Environment actions to perform after the first IPL of z/OS V1R11

None.
Chapter 22. Library Server migration actions

Library Server actions to perform before installing z/OS V1R11

None.

Library Server actions to perform before the first IPL of z/OS V1R11

This topic describes Library Server migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Copy Library Server configuration files

Description: The Library Server configuration files (bookmgr.80, booksrv.80) contain information about your environment and preferences. The information in bookmgr.80 includes the names of bookshelf lists for bookshelves in MVS data sets and the names of the HFS directories that Library Server reads and writes during execution. The information in booksrv.80 includes the HFS directory names of book collections, shelves, and bookcases. There are default values but normally you would customize them. In order to bring the customized values over to your new system, you have to copy them. (Note that port number suffix .80, used in bookmgr.80 and booksrv.80, is an example. Your port number suffix might be different.)

Steps to take: Copy your current (customized) configuration files, usually bookmgr.80 and booksrv.80, to your new system and add any configuration parameters that are new since the z/OS release from which you are migrating. Otherwise Library Server will run with default values, not the values you’re used to.

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to. A suggested (but not required) place for these configuration files is /etc/booksrv. Library Server will also search /etc and the original cgi-bin for them. If you place the files in any other directory, use the EPHConfigPath environment variable to tell Library Server where to find them.

Reference information: For a complete description of each parameter of the Library Server configuration files, see [Z/OS Program Directory](#).

Copy Library Server notes files

Description: Users can make comments in book topics by creating notes that are appended to the end of each topic. If you do not copy these notes to the new system, they will be lost.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Library Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you intend to preserve notes from release to release.</td>
</tr>
<tr>
<td>Target system hardware requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Copy all the files from your existing notes directory to the new one. The default directory for saving book notes is /usr/lpp/booksrv/public/bookmgr/notes. You can override this default by specifying a directory on the NOTEDIR parameter of the bookmgr.80 configuration file.

Reference information: For a complete description of each parameter of the Library Server configuration files, see [Z/OS Program Directory](#).

Library Server actions to perform after the first IPL of z/OS V1R11

None.
Chapter 23. NFS migration actions

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NFS actions to perform after the first IPL of z/OS V1R11 ............................................ 296

Remove mixcase and upcase site attributes ................................................................. 296

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This topic describes migration actions for base element Network File System (NFS).

NFS actions to perform before installing z/OS V1R11

This topic describes NFS migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Discontinue use of the DEBUGn parameter in NFS server startup procedures

**Description:** Before z/OS V1R11, you could use the DEBUGn parameter in the z/OS NFS server startup procedure to record NFS server debug trace diagnostic information in the log data sets and CTRACE buffer. For example:

```
//MVSNFS PROC MODULE=GFSAMAIN,PARMS='DEBUG9',
```

Beginning with z/OS V1R11, as part of the CTRACE performance enhancement, DEBUGn is no longer supported on the startup procedure. Instead, you can use INFO, ERROR, or WARN. For example:

```
//MVSNFS PROC MODULE=GFSAMAIN,PARMS='INFO',
```

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>NFS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you currently use the DEBUGn parameter in NFS server startup procedures.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** On your z/OS NFS server startup procedure, change PARMS=’DEBUGn’ to one of the following:

- PARMS=’INFO’ – causes recording of NFS informational, warning and error messages, and is the default.
- PARMS=’WARN’ – causes recording of NFS warning and error messages only.
NFS actions to perform before the first IPL of z/OS V1R11

None.

NFS actions to perform after the first IPL of z/OS V1R11

This topic describes NFS migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Remove mixcase and upcase site attributes

Description: Before z/OS V1R10, the NFS site attributes mixcase and upcase could be used to specify that NFS messages display in mixed case or uppercase, respectively. Beginning with z/OS V1R10, with the implementation of national language support for NFS server messages, the mixcase and upcase attributes are no longer supported. All NFS messages are now displayed in mixed case. Therefore, you can remove any mixcase and upcase keywords from your NFS site attributes file.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>NFS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to avoid possible confusion in the future by anyone who sees a mixcase or upcase site attribute and is unaware that it is no longer functional.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Remove any mixcase or upcase keywords from your NFS site attributes file. If you do not remove them, they will not harm your system; they will be ignored, but they could confuse someone in the future who does not know that they are obsolete.

Reference information: For information about NFS site attributes, see z/OS Network File System Guide and Reference.
Chapter 24. RMF migration actions

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This topic describes migration actions for optional feature Resource Measurement Facility (RMF).

RMF actions to perform before installing z/OS V1R11

This topic describes RMF migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Use CIM monitoring instead of the RMF LDAP backend

Description: Before z/OS V1R10, the RMF LDAP backend, ERB6LBCK, allowed access to RMF performance data from application programs. Effective with z/OS V1R10, this interface has been removed from z/OS. In its place you can use the Common Information Model (CIM) monitoring interface, which has been provided since z/OS V1R7. CIM allows system programmers to write applications (CIM monitoring clients) that retrieve system resource measurements. If a CIM client asks the CIM server to obtain z/OS metrics, the CIM server invokes the appropriate z/OS RMF monitoring provider to retrieve these metrics. The z/OS RMF monitoring providers use RMF Monitor III performance data.

Element or feature: RMF

When change was introduced: Future removal of the RMF LDAP backend was announced on 28 February 2006 in the z/OS V1R8 preview announcement. Removal did occur in z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: Before installing z/OS V1R11.

Is the migration action required? Yes, if you used the RMF LDAP backend to access performance data and you now want to continue to provide systems management with the help of CIM monitoring applications.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.
System impacts: None.

Steps to take:
1. Remove the specification for ERB6LBCK from SLAPD.CONF, the z/OS LDAP server configuration file.
2. From the GPMSRVxx parmlib member for the RMF DDS server, remove the HTTP NOAUTH statement that specifies the host running the RMF LDAP backend.
3. Stop using any LDAP access methods and applications that you coded to obtain RMF performance data.
4. Set up CIM.
5. Provide the CIM monitoring applications (CIM clients) that retrieve the required RMF performance data.
6. Start to use these new applications for continued systems management using RMF data.

Reference information:
- For information about CIM monitoring, see z/OS Common Information Model User's Guide.
- For information about configuring an RMF LDAP backend, see z/OS RMF Programmer's Guide.

RMF actions to perform before the first IPL of z/OS V1R11

None.

RMF actions to perform after the first IPL of z/OS V1R11

This topic describes RMF migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Migrate Working Sets to the new Spreadsheet Reporter format

Description: With z/OS V1R11 RMF, a new version of the Spreadsheet Reporter is implemented in Java. You can migrate Working Sets produced with previous Spreadsheet Reporter versions using a batch procedure that is delivered with the z/OS V1R11 RMF Spreadsheet Reporter.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>RMF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to process Working Sets produced with Spreadsheet Reporter versions prior to z/OS V1R11.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
</tbody>
</table>
**System impacts:** None.

**Steps to take:** To migrate Working Sets from pre-z/OS V1R11 releases, the Spreadsheet Reporter provides the `MigrateWSetsToXLS.bat` procedure to perform the migration in batch mode. The procedure is located in the installation directory. The following invocation example uses the default installation directory.

**Invocation:**
```
C:\Program Files\RMF\RMF Spreadsheet Reporter\MigrateWSetsToXLS
```

**Reference information:** For more information about Working Sets and the Spreadsheet Reporter, see [z/OS RMF User’s Guide](#).

---

**Use an RMF Monitor III reporter version equal to or later than your RMF Monitor III gatherer version**

**Description:** To avoid problems when reporting Monitor III data, use an RMF reporter version that is equal to or later than the latest RMF gatherer version used to collect the data to be reported. For example, it is safe to use an RMF reporter version from z/OS V1R11 for data collected with an RMF gatherer from z/OS V1R10, but not vice versa.

Mixed (and therefore problematic) levels of collected data can occur in the following scenarios:

- **Single system:** You install and test a new release, then fall back to an earlier one; your data sets might contain data collected with different versions of the RMF gatherer.
- **Sysplex:** You migrate to a new release on one system in a sysplex but try to use an earlier reporter version from another system to report on the migrated system’s data.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>RMF:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td><strong>Applies to migration from:</strong></td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td><strong>Timing:</strong></td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>Yes, if you had planned to use an earlier-level RMF reporter on data that was collected with a later-level RMF gatherer.</td>
</tr>
<tr>
<td><strong>Target system hardware requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Target system software requirements:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Other system (coexistence or fallback) requirements:</strong></td>
<td>See “Steps to take” below.</td>
</tr>
<tr>
<td><strong>Restrictions:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>System impacts:</strong></td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Always use an RMF Monitor III reporter version that is equal to or later than the gatherer version used to collect the data from which you want to produce a report.
Note: With z/OS V1R10 (as well as z/OS V1R9 APAR OA21066 and z/OS V1R5-V1R8 APAR OA17070), Monitor III notifies users by issuing information message ERB948I when a reporter session is started on a system in a sysplex that is not running with the highest RMF level available in the sysplex. The message helps users to avoid reporting problems.

Reference information: For more information about Monitor III commands, see z/OS RMF User’s Guide.

Replace the Postprocessor Plot report with an RMF Spreadsheet Reporter macro

Description: Before z/OS V1R11, RMF provided the Postprocessor Plot report. Beginning with z/OS V1R11, this report is no longer provided. You can replace each type of plot report by a corresponding Overview control statement.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>RMF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you still want to get a graphic summary of system activity.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: To achieve a replacement for each type of Postprocessor Plot report, you can use a corresponding Overview control statement. After creating Overview records, you can use the Spreadsheet Reporter with the Open RMF Overview Spreadsheets macro for a graphical presentation of Postprocessor data. The steps to create a graphical Spreadsheet Reporter output of the desired system activity, as well as a list of the appropriate overview control statements, are provided in the topic Migrating from previous releases in z/OS RMF User’s Guide.

If you continue to specify any of the control statements associated with plot reporting, RMF displays message ERB246I indicating the control statements for PLOT reporting are ignored, and continues with the next input.

Reference information: For details about how to use the Open RMF Overview Spreadsheets macro, see z/OS RMF User’s Guide.

Redisplay fields for HiperSockets in the Monitor III CHANNEL report

Description: Before z/OS V1R11 (and without APAR OA21140 on z/OS V1R10), the Monitor III CHANNEL report showed HiperSocket measurement data when available. With z/OS V1R11 (and APAR OA21140 on z/OS V1R10), this report is enhanced to display the extended channel path measurement data (High Performance FICON for System z [zHPF] data). Because of the limited space on the ISPF screens for Monitor III reports, the HiperSocket fields are removed from the
Monitor III report.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>RMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>APAR OA21140 on z/OS V1R10 and integrated in z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 without the PTF for APAR OA21140 installed, and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you still want to see HiperSocket measurement data in the Monitor III CHANNEL report.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** The removed fields for HiperSocket measurements (MSG Rate, MSG Size, Send Fail, Recv Fail) are still available in the underlying report table. You can have them displayed by modifying the CHANNEL report by means of the Monitor III Utility.

**Reference information:** For details about how to use the Monitor III Utility, see [z/OS RMF Programmer’s Guide](#).
Chapter 25. SDSF migration actions

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This topic describes migration actions for optional feature SDSF.

SDSF actions to perform before installing z/OS V1R11

This topic describes SDSF migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Use an alternative to modifying SDSF source modules and macros

Description: Although modifying SDSF source modules and macros is not supported, some installations might have made such modifications. (The supported method to modify SDSF is to implement a user exit routine.) Beginning with z/OS V1R9, many SDSF source modules and macros that were distributed previously are no longer distributed. You should review any user modifications you have and assess alternatives.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SDSF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have source modifications.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Review your modifications for possible alternatives:
- The new PROPLIST and PROPERTY statements in ISFPARMS
- User exit routines
If you cannot use either of these to replace your modifications, you may want to submit a requirement through your IBM representative.

Reference information: For details about the PROPLIST and PROPERTY statements in ISFPARMS and the user exit routines, see z/OS SDSF Operation and Customization.

SDSF actions to perform before the first IPL of z/OS V1R11

This topic describes SDSF migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Reassemble user exit routines

Description: If you have written user exit routines, review them to ensure they are still appropriate for the current environment. All user exit routines must be reassembled with the z/OS V1R11 level of the SDSF macro library.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SDSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if user exit routines are in use.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Reassemble user exit routines with the z/OS V1R11 level of the SDSF macro library.

Note: In z/OS V1R9 SDSF, a new target data set, ISF.SISFMAC, was introduced to hold macro parts that were moved from ISF.SISFSRC.

Reference information: z/OS SDSF Operation and Customization

Use dynamic statements for ISFPARMS to avoid reassembly

Description: ISFPARMS in SDSF is used for specifying global options, the format of panels, and security for SDSF functions. SDSF provides two alternatives for ISFPARMS:

- Assembler macros that you define, assemble, and then link into the SDSF load library. This is the original format for defining ISFPARMS and it continues to be supported for compatibility.
- Dynamic statements, which are in parmlib member ISFPRMxx. Dynamic statements are the recommended format. They are easier to code and are more dynamic than the assembler macros; they can be updated without reassembling or link-editing. The statements are processed by an SDSF server, which is controlled by MVS operator commands.
Element or feature: SDSF.

When change was introduced: General migration action not tied to a specific release.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: Before the first IPL of z/OS V1R11.

Is the migration action required? No, but recommended to avoid the migration action of reassembling your customized ISFPARMS for each z/OS release. (If you do not use dynamic statements for ISFPARMS, reassembly of your customized ISFPARMS is required on each release.)

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: If you are already using dynamic statements for ISFPARMS, there is no migration action to perform.

If you are using assembler macros for ISFPARMS, do one of the following:
- Convert your existing ISFPARMS to dynamic statements by using a conversion utility that you invoke with the ISFACP command.
- Reassemble your customized ISFPARMS for use with z/OS V1R11. Reassembly must be done whenever you change your z/OS release. Before reassembling ISFPARMS, you might want to update it for new function. The assembler ISFPARMS cannot be shared with any other release of SDSF. Only use ISFPARMS for the release on which it is assembled.

Note: Sample job ISFPARME has been removed from the samples supplied with SDSF. This job contained SMP/E control statements to receive the sample assembler macro ISFPARMS as a user modification (USERMOD).

Tip: Use check SDSF_ISFPARMS_IN_USE with IBM Health Checker for z/OS to verify that SDSF dynamic statements in ISFPRMxx are being used rather than the assembler macros. If the check determines that the assembler macro ISFPARMS is in use instead, and that it has been modified, the check generates an exception. If the assembler macro ISFPARMS is in use but it has not been modified, so that all defaults are in effect, the check does not generate an exception.

SDSF registers this check with the IBM Health Checker for z/OS infrastructure when the SDSF server address space is initialized. However, one of the items this check verifies is that the SDSF server itself is in use, so you have to manually add this check (particularly if you do not use the SDSF server) so that the IBM Health Checker for z/OS infrastructure will invoke the check. To add the check, put the following statement in your PROGxx parmlib member: EXIT ADD EXITNAME(HZSADDCHECK) MODNAME(ISFHCADC).

Reference information: For details about invoking the conversion utility with the ISFACP command, see z/OS SDSF Operation and Customization.
SDSF actions to perform after the first IPL of z/OS V1R11

This topic describes SDSF migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Delete unnecessary HASPINDX data sets

**Description:** Beginning with z/OS V1R11, SDSF does not use the HASPINDX data set when displaying a SYSLOG that was created by a z/OS V1R11 JES2 or JES3. If you have only z/OS V1R11 systems in a MAS, you can delete any existing HASPINDX data sets.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SDSF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to avoid having unused data sets.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If you have only z/OS V1R11 systems in your MAS:

- Delete any HASPINDX data sets. Retain any HASPINDX data sets that will be needed to display the SYSLOG for lower-level systems, and during fallback.
- Remove the parameters in the OPTIONS statement or ISFPMAC macro that control the HASPINDX data set. These parameters are INDEX, INDXVOL, and NIDBUF. If you do not remove them they will be ignored; however, leaving them could confuse someone who does not know they are no longer effective.

**Reference information:** For details about the role of the HASPINDX data set with the SYSLOG, see [z/OS SDSF Operation and Customization](#).

Define a new SAF profile that controls access to the SYSLOG

**Description:** With the introduction of a logical SYSLOG in z/OS V1R11 SDSF, SDSF requires a new SAF profile. To access the SYSLOG, users must now have READ access to resource `nodeid +MASTER+.SYSLOG.SYSTEM.sysid` in the JESSPOOL class. This is required even if you use ISFPARMS, rather than SAF, for SDSF security.

Prior to z/OS V1R11, the only SAF resource checked for access to the SYSLOG panel was a resource in the SDSF class that protects use of the LOG command. If SAF was not active, ISFPARMS was used to grant access to the LOG command. With z/OS V1R11, a second SAF resource, in the JESSPOOL class, is checked for access to the SYSLOG data set itself. There is no ISFPARMS equivalent because this check is done by JES, not SDSF. To ease the migration, SDSF has added the `Security.Syslog.UseSAFRecvr` custom property in ISFPRMxx. If an installation defines a value of TRUE for the property, the check of the JESSPOOL resource...
always succeeds, so that users with authority to the LOG command can use the
z/OS V1R11 SYSLOG panel without the need for the additional SAF profile.

Element or feature: SDSF.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if users access the SYSLOG panel.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Add the new profile and permit users to it as required. As a
temporary step during migration, before defining the new profile, you might want
to define a value of TRUE for the Security.Syslog.UseSAFRecvr property on the
PROPERTY statement in ISFPROMxx.

Note: If you do not activate the JESSPOOL class, no action is required.

Tip: Use IBM Health Checker for z/OS check SDSF_CLASS_SDSF_ACTIVE to help
with this migration action. SDSF checks access to the LOG command in the SDSF
class, and SDSF_CLASS_SDSF_ACTIVE checks to see if the SDSF class is active.

Reference information: For details about SAF profiles needed to protect SDSF, see
z/OS SDSF Operation and Customization.

Update batch scripts for changes to the format of the
SYSLOG panel

Description: The format of the SYSLOG panel has changed slightly with the new
logical log. Lines in the SYSLOG are displayed beginning in column two rather
than column one, and the placement and format of the current line and column
range on the title line have changed. In addition, the results of the AFD
LOGSTAMP command, which generates a log stamp prefix for each record printed
with the PRINT command, have changed.

Batch scripts that rely on the format of the SYSLOG or the log stamp prefix might
need to be changed.

Element or feature: SDSF.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if your batch scripts rely on the format
of the SYSLOG or the log stamp prefix.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Review your batch jobs for dependencies on the format of the SYSLOG or log stamp prefix and make updates as necessary.

Reference information: For information about the format of the SYSLOG, see the online help for SDSF. For information about using SDSF in batch, including the AFD LOGSTAMP command, see [z/OS SDSF Operation and Customization](#).

Update REXX execs for changes to fields on H, O and SP

Description: The number of lines shown on the title line of the Held Output Queue (H) and Output Queue (O) panels has changed to use 64-bit numbers. The values no longer have commas and they are scaled when they do not fit in the available space. For example, 1,000,000,000 is presented as 1G. The contents of the title line are contained in REXX special variable ISFTLINE.

The title of the fixed field, that is, the first column, on the Spool Volumes (SP) panel, has changed from VOLUME to NAME. The title is contained in REXX special variable ISFTITLES. Note that the column name, DEVNAME, is unchanged.

REXX execs that use the number of lines on the H and O panels, or the title of the fixed field on the SP panel, might need to be changed.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>SDSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>z/OS V1R11</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9</td>
</tr>
<tr>
<td>Timing</td>
<td>After the first IPL of z/OS V1R11</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if your REXX execs use the number of lines on the H and O panels or the title of the fixed field on the SP panel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements</th>
<th>None.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target system software requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Review your REXX execs for use of the number of lines on the H and O panels or the title of the fixed field on the SP panel, and make updates as necessary.

Reference information:
- For information about the title line on the H and O panels, see the SDSF online help.
- For information about columns on the SP panel, use the SDSF command COLSHELP.
Update the widths of columns on SP

Description: The maximum length of data displayed in the LoTrk and HiTrk columns on the Spool Volumes (SP) panel has increased from 5 characters to 16. Although the default width of these columns has changed to 16, you might need to take steps to ensure that these columns are wide enough to display complete data.

Element or feature: SDSF.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if users have saved Arrange criteria, or if you have customized field lists for the SP panel that specify a width for LoTrk or HiTrk.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Users with saved Arrange criteria, that is, users who have used the ARRANGE command to change column orders or widths, should either update the widths for the LoTrk and HiTrk columns or issue the ARRANGE DEFAULT command to pick up the new default column widths. System programmers should review ISFPARMS for customized field lists for the SP panel and make updates as necessary.

Reference information: For information about the Arrange function, see the online help. For information about using ISFPARMS to customize field lists, see the discussion of the FLD statement or ISFFLD macro in z/OS SDSF Operation and Customization, SA22-7670.

Update post-SAF user exits

Description: Beginning with z/OS V1R10, the S, SB and SE action characters use the JES spool data set browse (SDSB) interface to gather data. As a result of these changes, SDSF user exit routines that use the post-SAF user exit may not produce the same results as in prior releases. The post-SAF user exit is invoked after the SAF calls are done by SDSF. However, because the JES SDSB interface is being used, JES may also do a SAF call, for the JESSPOOL resource associated with the data set, after the post-SAF routine has been called. As a result, if you are using the SDSF post-SAF exit, you might need to review the post-SAF exit code and SAF security for the JESSPOOL class.

Element or feature: SDSF.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you have user exit routines using the post-SAF user exit.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Review user exit routines that use the post-SAF user exit and make changes as necessary to the post-SAF exit. These changes might include adding new rules related to the JESSPOOL class.

Reference information: For details about the SDSF user exit routines, see z/OS SDSF Operation and Customization, SA22-7670. For details about the JES SDSB interface, see z/OS JES Application Programming, SA23-2240.

Use the new default for column options in REXX execs

Description: Before z/OS V1R10, when an SDSF panel was accessed in a REXX exec, the default was to include only the columns from the primary field list. Beginning with z/OS V1R10, the default is to include columns from both the primary and alternate field lists.

Element or feature: SDSF.

When change was introduced: z/OS V1R10.

Applies to migration from: z/OS V1R9.

Timing: After the first IPL of z/OS V1R11.

Is the migration action required? No, but recommended because the new default eliminates the need to be aware of which field list a column is in and the need to specify the ALTERNATE option to include columns that are in the alternate list.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:

- If you want the panels accessed in your execs to include columns from both the primary and alternate field lists, which is the new behavior, do nothing. (This assumes you are not currently using the ALTERNATE or ALTERNATE2 options, which continue to limit the columns to those in the alternate field lists.)

- If you want the panels accessed in your execs to include only the columns in the primary field lists, which is the prior behavior, update the ISFEXEC or ISFACT commands to use the new PRIMARY and PRIMARY2 options. If you want only the columns that are in the primary field list, add a PRIMARY option to the
command that accesses the panel. If the panel is a secondary panel (accessed from another panel), use the PRIMARY2 option.

- If you want the panels accessed in your execs to include only the columns in the alternate field lists, and the ISFEXEC or ISFACT commands already have the ALTERNATE and ALTERNATE2 options, do nothing.

**Reference information:** For details on using REXX with SDSF, see the online help for SDSF or [z/OS SDSF Operation and Customization](#).

## Update customized field lists and REXX execs for a column name change on the Enclaves panel

**Description:** The column on the Enclaves panel that was previously named SCOPE is now named ESCOPE. (The name is how the column is known to SDSF; it is different from the column title that is displayed on the panel.) If you have a customized field list in ISFPARMS for the Enclaves panel that includes the column name SCOPE, update the field list by changing the column name to ESCOPE. Similarly, if you have REXX execs that use the column name SCOPE, update them to use ESCOPE.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SDSF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have customized field lists or REXX execs that use the old column name.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** Update the field lists and REXX execs to use the new column name.

**Reference information:** For details on customized field lists in ISFPARMS, and using REXX with SDSF, see [z/OS SDSF Operation and Customization](#).

## Find samples in the new JES2 feature FMID

**Description:** Three samples supplied with SDSF are now shipped with SDSF’s JES2 feature FMID (JJE775S) and are located in new data sets. See Table 13.

**Table 13. SDSF samples in the JES2 feature FMID**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Description</th>
<th>Data set in z/OS V1R10 and later</th>
<th>Data set in prior releases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISFISUCL</td>
<td>Reassemble SDSF automatically when JES2 macros change</td>
<td>ISF.SISFJCL1</td>
<td>ISF.SISFJCL</td>
</tr>
<tr>
<td>ISFASMP</td>
<td>Reassemble SDSF</td>
<td>ISF.SISFJCL1</td>
<td>ISF.SISFJCL</td>
</tr>
</tbody>
</table>
### Table 13. SDSF samples in the JES2 feature FMID (continued)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Description</th>
<th>Data set in z/OS V1R10 and later</th>
<th>Data set in prior releases</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISFPARMS</td>
<td>Provides sample assembler macro for customization and security for SDSF in the JES2 environment</td>
<td>ISF.SISFSRC1</td>
<td>ISF.SISFSRC</td>
</tr>
</tbody>
</table>

**Element or feature:** SDSF.

**When change was introduced:** z/OS V1R10.

**Applies to migration from:** z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if you use sample job ISFISUCL or ISFASMP, or have SMP/E sysmods that modify ISFPARMS.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** None.

**Restrictions:** None.

**System impacts:** None.

**Steps to take:**
- Use the samples, if needed, from their new locations.
- If you have an SMP/E usermod that specifies modifications to assembler macro ISFPARMS, change the usermod to indicate that module ISFPARMS is now owned by the SDSF JES2 feature FMID (JJE776S) and not the base SDSF FMID (HQX7760). The correct SMP/E syntax is `++VER(Z038) FMID(JJE776S)`, not `++VER(Z038) FMID(HQX7760)`. Note that you can eliminate such a usermod; see “Use dynamic statements for ISFPARMS to avoid reassembly” on page 304.

**Reference information:** For details about the sample jobs and ISFPARMS, see [z/OS SDSF Operation and Customization](https://www.ibm.com/docs/en/zos/1.11?topic=sample-sdsf-usermods).

### Use SAF instead of sample usermods ISFUM01 and ISFUM08

**Description:** Sample user modifications ISFUM01 and ISFUM08 have been removed from the samples supplied with SDSF. The security provided by these samples is available through the system authorization facility (SAF). There is no change to the function of SDSF security with the removal of these samples. However, if you had previously evaluated the samples and planned to implement one, you should consider using SAF instead. Using SAF for SDSF security provides better granularity and auditability, and is more dynamic than using ISFPARMS.

**Element or feature:** SDSF.

**When change was introduced:** z/OS V1R10.

**Applies to migration from:** z/OS V1R9.

**Timing:** After the first IPL of z/OS V1R11.
Is the migration action required?  No, but recommended if you had previously evaluated the samples and planned to implement one because SAF provides better granularity and auditability, and is more dynamic, than using ISFPARMS for SDSF security.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Use SAF to implement the function in ISFUM01 and ISFUM08.

Tip: Use IBM Health Checker for z/OS check SDSF_CLASS_SDSF_ACTIVE to determine whether you are using SAF security for SDSF.

Reference information: For details on SAF security, including converting ISFPARMS security to SAF security, see z/OS SDSF Operation and Customization.
Chapter 26. Security Server migration actions

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  Modify exit routine ICHPWX11 for a parameter change ......................................................... 316
  Modify RACROUTE REQUEST=VERIFY/X applications because of changed keyword behavior ................................................................. 317

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  Check for duplicate class names .................................................................................. 318
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  Accommodate the change of authorization for the help desk function ......................... 321

This topic describes migration actions for optional feature Security Server.

Security Server actions to perform before installing z/OS V1R11

This topic describes Security Server migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Modify programs and JCL that use the LRECL of the IRRADU00 output data sets

Description: The RACF system management facilities (SMF) data unload utility (IRRADU00) enables installations to create a sequential file from the security relevant audit data. The sequential file can be used in several ways: viewed directly, used as input for installation-written programs, manipulated with sort or merge utilities, used as output to an XML-formatted file for viewing on a Web browser, or uploaded to a database manager (for example, DB2) to process complex inquiries and create installation-tailored reports.

Beginning with z/OS V1R11 (and z/OS V1R10, V1R9, and V1R8 with the PTF for APAR OA26653 applied), the LRECL length of output data sets created by the RACF SMF data unload utility (IRRADU00) is changed to 12288 from 8192. If a shorter LRECL is supplied, IRRADU00 automatically changes the LRECL to 12288.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Security Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10, z/OS V1R9, and z/OS V1R8, all with APAR OA26653, integrated into z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9 without the PTF for APAR OA26653 applied.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have programs to read the outputs generated by IRRADU00 utility and your program cannot handle the longer LRECL.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
</tbody>
</table>
Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take:
- Verify that the JCL to run RACF SMF data unload and programs that accept output from RACF SMF data unload can handle the longer record length.
- Remove the hardcoded LRECL value and instead use the value from the DSCB in your programs.
- If you make use of the IEBGENER utility to mark an EOF in the output data sets of IRRADU00 utility with SYSUT1 specifying DUMMY and SYSUT2 specifying the output data set, use the new DCB LRECL value of 12288 on SYSUT1. Otherwise, you will receive the error message IEB311I CONFLICTING DCB PARAMETERS (RC=12).

Tip: By removing any dependency your application programs have on the LRECL, you can position these programs for any future LRECL changes.

Reference information: For information about the IRRADU00 utility program, see z/OS Security Server RACF Auditor’s Guide.

Modify exit routine ICHPWX11 for a parameter change

Description: Before z/OS V1R10, the ICHPWX11 (new password phrase exit) parameter list would always point to a valid old (current) password phrase when invoked for RACROUTE REQUEST=VERIFY/X. NEWPHRASE was ignored unless PHRASE= was also specified.

Starting in z/OS V1R10, it is allowable to specify PASSWRD= and NEWPHRASE= when PASSWRD= specifies a PassTicket instead of a password. In this case, ICHPWX11 is invoked with a null old password phrase. This keyword combination can be specified by Network Authentication Service when a password is being changed with the kpasswd command. If you have an active ICHPWX11 exit and if your ICHPWX11 code assumes the existence of an old password phrase for RACROUTE REQUEST=VERIFY/X, you must change the code to account for the difference.

IBM ships a sample ICHPWX11. Also, starting in z/OS V1R9, IBM ships a sample REXX exec IRRPHREX, which ICHPWX11 calls. IRRPHREX has been modified in z/OS V1R10 to accommodate the change in behavior. If you are using the z/OS V1R9 version of IRRPHREX, you might need to take action.

Element or feature: Security Server.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before installing z/OS V1R11.
Is the migration action required? Yes, if you have an ICHPWX11 exit routine installed and it assumes the presence of an old password phrase when invoked by RACROUTE=VERIFY/X.

Target system hardware requirements: None.
Steps to take: If the ICHPWX11 exit is inactive, there is no further action required. To see if the exit is active, look in the system log for message ICH508I, which identifies the active RACF exits at IPL time. If the exit is active, do the following:

- If you are using the z/OS V1R9 version of the sample exit shipped by IBM, IRRPHREX (but not ICHPWX11), changes are required. You should either rebase your IRRPHREX exec on the z/OS V1R11 version (if you have not made significant changes to it) or make sure you update your own version to remove the vulnerability. Make sure that the length of the “oldPhrase” parameter is greater than zero before using it.
- If you have written your own version of ICHPWX11, ensure that it checks that both the address and the length of the old password phrase parameter are greater than zero before using them. The old password phrase address is passed at offset 24 (decimal) in the exit parameter list, mapped by the ICHPWX2 mapping macro.

Modify RACROUTE REQUEST=VERIFY/X applications because of changed keyword behavior

Description: Before z/OS V1R10, if RACROUTE REQUEST=VERIFY/X was coded with PASSWRD= /NEWPHRASE= or PHRASE= /NEWPASS=, the “new” keyword was ignored because it did not match the authenticator that was specified on the “old” keyword. Starting in z/OS V1R10, these combinations now result in a RACROUTE failure (with the exception of the case where PASSWRD= specifies a PassTicket instead of a password). If you have an application coded this way, it will no longer work on z/OS V1R10 and later.

Reference information:
- z/OS Security Server RACROUTE Macro Reference
- z/OS Security Server RACF System Programmer’s Guide
Steps to take: Change your applications to remove the keyword that was previously ignored. An alternative is to have your applications point to a length byte of zero, in which case the keyword will still be ignored.

Reference information: [z/OS Security Server RACROUTE Macro Reference](#)

Security Server actions to perform before the first IPL of z/OS V1R11

This topic describes Security Server migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Check for duplicate class names

Description: When new classes are shipped with RACF, you should verify that any installation-defined class names that have been added to the router table and class descriptor table (CDT) do not conflict with the new classes. For a list of new classes shipped with RACF, see [z/OS Summary of Message and Interface Changes](#).

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Security Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you have user-defined classes.</td>
</tr>
<tr>
<td>Target system hardware requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: If you have duplicate class names, you will receive the following error messages when the system is IPLed:

- For a duplicate router table entry, RACF issues the following message and continues processing:
  
  ICH527I RACF DETECTED AN ERROR IN THE INSTALLATION ROUTER TABLE, ENTRY class_name, ERROR CODE 1

- For a duplicate CDT entry, RACF issues the following message and enters failsoft mode:
  
  ICH564A RACF DETECTED AN ERROR IN THE INSTALLATION CLASS DESCRIPTOR TABLE, ENTRY class_name, ERROR CODE 7

If a conflict in class names occurs, resolve it as follows:

1. Delete the profiles in the installation-defined class with the conflicting name.
2. Delete the CDT entry for the class.
3. Add a CDT entry with a different name.
4. Redefine the profiles.

Reference information: [z/OS Security Server RACF System Programmer's Guide](#)
Ensure access to HMC for WTOR reply

Description: New RACF function may issue WTOs during the IPL process, which might require access to the HMC for clients with LOGON=REQUIRED consoles. Before z/OS V1R10, a client could corrupt their database if the client improperly shared their RACF database. For example, if the RACF database was shared among systems and some of the systems were in RACF data sharing mode, corruption of the RACF database could occur.

With z/OS V1R10, RACF detects the possible improper sharing of the database and issues WTOs during RACF initialization or during RVARY processing to confirm that the client is using a correct RACF database configuration. If the z/OS consoles are LOGON=REQUIRED, then it might be necessary to reply to the WTOR using the HMC.

Element or feature: Security Server.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: Before the first IPL of z/OS V1R10.
Is the migration action required? Yes, if a client uses a RACF database in data sharing mode.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Review operations procedures and ensure you have access to an HMC during the IPL process or during RVARY processing to ensure the client can respond to the WTOR.

Reference information: For more information, see z/OS Security Server RACF System Programmer’s Guide.

Security Server actions to perform after the first IPL of z/OS V1R11

This topic describes Security Server migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Update database templates

Description: To ensure that the RACF utilities function properly, use the IRRMIN00 utility to update the test and production RACF databases with the database templates for the current release level.

Element or feature: Security Server.
When change was introduced: General migration action not tied to a specific release.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: To install the database template updates, run the IRRMIN00 utility with PARM=UPDATE.

Note: If IRRMIN00 produces a return code of 4 and message IRR8025 PARM=UPDATE specified, but template update not required, you do not necessarily have a problem. Check that your JCL points to the new level of IRRMIN00. If it does, ignore the return code and warning message. A PTF might have already brought your templates up to the current level for the new release. If your JCL accidentally points to an old copy of IRRMIN00, correct the JCL and run IRRMIN00 again.

Reference information:
- z/OS Program Directory
- ServerPac: Installing Your Order
- z/OS Security Server RACF System Programmer’s Guide

Remove trusted and privileged started task user IDs from RACF profile access lists

Description: Trusted and privileged started tasks are granted access to resources without the requirement of having access granted by a RACF profile. If you have trusted and privileged started task user IDs in the access lists of RACF profiles, you can remove them.

Previously, the trusted and privileged attributes only granted access if the resource access was requested with RACROUTE REQUEST=AUTH. Starting in z/OS V1R11, RACROUTE REQUEST=FASTAUTH also grants resource access to a user (generally a started task) running with the RACF trusted or privileged attribute. So if you have any RACF profile access lists that contain a trusted or privileged started task user ID, the access list entries will no longer be used. Remove the unnecessary access list entries so they do not mislead someone to believe they are providing access to any resource.

Element or feature: Security Server.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10 and z/OS V1R9.

Timing: After the first IPL of z/OS V1R11, and only after:
- All systems that share the RACF database are running z/OS V1R11 or later.
- All systems that use RACF Remote Sharing Facility (RRSF) to synchronize RACF profiles are running z/OS V1R11 or later.
Is the migration action required? No, but recommended if you have trusted or privileged started task user IDs in access lists of RACF profiles, so that unnecessary access list entries do not remain in the RACF database.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: This action should only be performed after:
- All systems that share the RACF database are running z/OS V1R11 or later.
- All systems that use RACF Remote Sharing Facility (RRSF) to synchronize RACF profiles are running z/OS V1R11 or later.

System impacts: None.

Steps to take: If you have RACF profiles with access list entries that contain user IDs of trusted or privileged started tasks, remove the started task user IDs from those access lists:
- Use the RACF remove ID utility (IRRRID00) to find all occurrences of a user ID in profile access lists.
- Specify the list of trusted and privileged started tasks as input to the utility, and it creates a list of commands to remove the started task user IDs from those access lists.

Reference information: For more information about IRRRID00, see z/OS Security Server RACF Security Administrator's Guide.

Accommodate the change of authorization for the help desk function

Description: To authorize a general user or group to use the ALTUSER command to resume a revoked user or reset a user’s password or password phrase (other than for a protected user or a user with the SPECIAL, OPERATIONS, or AUDITOR attribute), you can define a profile to protect the IRR.PASSWORD.RESET resource in the FACILITY class. However, users who are authorized to resume user IDs by using the IRR.PASSWORD.RESET profile or IRR.PWRESET types of profiles have been allowed to resume a protected user ID. This ability should be restricted to security administrators.

With APAR OA27225 on z/OS V1R10, z/OS V1R9, and z/OS V1R8, RACF has been corrected to treat authorization to resume protected user IDs the same as other privileged users (SPECIAL, OPERATIONS, and AUDITOR) and not allow changes made with IRR.PASSWORD.RESET profiles or IRR.PWRESET types of profiles.

Element or feature: Security Server.

When change was introduced: z/OS V1R11; z/OS V1R10, z/OS V1R9, and z/OS V1R8 with APAR OA27225.

Applies to migration from: z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA27225 installed.
Timing: After the first IPL of z/OS V1R11.

Is the migration action required? Yes, if you use the help desk function.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: To resume protected user IDs, assign standard ALTUSER authority, such as with the SPECIAL attribute.

Reference information: For details about authorizing help desk functions, see z/OS Security Server RACF Security Administrator's Guide.
Chapter 27. SMP/E migration actions

| SMP/E actions to perform before installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E) | Accept the new, lower message and return code severity for APPLY and ACCEPT processing |
| SMP/E actions to perform after installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E) but before starting to use it | Accommodate the changes to the Bypassed HOLD Reason Report |
| SMP/E actions to perform after starting to use SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E) | Support the longer length of the Utility Input entry name |

This topic describes migration actions for base element SMP/E.

**Note:** SMP/E is a driving system element and, as such, is fully usable from your driving system by accessing the installed SMP/E target libraries before an IPL. For this reason, SMP/E migration actions are presented in two categories rather than the three categories normally used for migration information. The two categories are:

- SMP/E actions to perform before installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E)
- SMP/E actions to perform after installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E) but before starting to use it
- SMP/E actions to perform after starting to use SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E)

### SMP/E actions to perform before installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E)

This topic describes SMP/E migration actions that you can perform before installing SMP/E V3R5 (which is in z/OS V1R10).

None.

### SMP/E actions to perform after installing SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E) but before starting to use it

None.

### SMP/E actions to perform after starting to use SMP/E V3R5 (z/OS V1R10-V1R11 SMP/E)

This section describes SMP/E migration actions that you can perform after you have started to use SMP/E V3R5 (which is in z/OS V1R10 and V1R11).

**Accept the new, lower message and return code severity for APPLY and ACCEPT processing**

**Description:** During APPLY and ACCEPT command processing, SMP/E writes messages to identify SYSTEM HOLD conditions that have been bypassed. In prior SMP/E releases, these messages have a severity of Warning and the minimum return code is 4, which makes it more difficult to determine the success or failure of SMP/E processing. To make evaluation of SMP/E processing results simpler, in SMP/E V3R5 (which is in z/OS V1R10 and V1R11) the severity of these messages...

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is changed to Informational and the minimum return code is changed to 0. However, you can revert to the prior severity and minimum return code if you like.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SMP/E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>SMP/E V3R5 (which is in z/OS V1R10 and V1R11).</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>SMP/E V3R4 in z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After starting to use SMP/E V3R5 (which is in z/OS V1R10 and V1R11).</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended to simplify the evaluation of SMP/E processing results.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take:
- If you want to accept the new behavior and take advantage of simpler processing evaluation (having Informational messages instead of Warning messages and a minimum return code of 0 instead of 4), do nothing.
- If you want to obtain the prior behavior, which is for APPLY and ACCEPT command processing to write Warning messages for bypassed SYSTEM HOLD conditions, use the COMPAT(WARNBYPASS) parameter for program GIMSMP.

Reference information: For more information about the COMPAT parameter, see [SMP/E Reference](#).

Accommodate the changes to the Bypassed HOLD Reason Report

Description: In prior SMP/E releases, the Bypassed HOLD Reason Report for the APPLY and ACCEPT commands includes HOLDDATA for SYSMODs whether they succeed or fail command processing. In SMP/E V3R5 (which is in z/OS V1R10 and V1R11), the Bypassed HOLD Reason Report includes only bypassed HOLDDATA for SYSMODs that are successfully applied or accepted. You can still display the bypassed HOLD reasons for the SYSMODs that are not successfully applied or accepted. However, you need to run the LIST SYSMODS HOLDDATA command to perform the task.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>SMP/E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>SMP/E V3R5 (which is in z/OS V1R10 and V1R11).</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>SMP/E V3R4 in z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After starting to use SMP/E V3R5 (which is in z/OS V1R10 and V1R11).</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you want to display the bypassed HOLD reasons for the SYSMODs that are not successfully applied or accepted.</td>
</tr>
</tbody>
</table>
Steps to take: To display all HOLD reasons for the SYSMODs that are not applied or accepted, use a LIST SYSMODS HOLDDATA command.

Reference information: For more information about the LIST command, see SMP/E Commands.

Support the longer length of the Utility Input entry name

Description: Starting with SMP/E V3R5 (which is in z/OS V1R10 and V1R11), a Utility Input subentry can describe a file in the z/OS UNIX file system. Therefore, the allowable length of the utility input name increases from 8 characters to 1023 characters. If you have an application program that uses the GIMAPI program to query the UTIN subentries of LMOD entries, you might have to update the program to support longer length UTIN values. Additionally, because the filename in the UTIN value may now contain a comma, the last comma in the string is the separator between the ddname and the filename of the UTIN value. Therefore, an application program might have to change the manner in which it extracts the ddname from the value.

Element or feature: SMP/E.

When change was introduced: SMP/E V3R5 (which is in z/OS V1R10 and V1R11).

Applies to migration from: SMP/E V3R4 in z/OS V1R9.

Timing: After starting to use SMP/E V3R5 (which is in z/OS V1R10 and V1R11).

Is the migration action required? Yes, if you have an application program that uses GIMAPI to query UTIN subentry values.

Steps to take: If you have any programs that use GIMAPI to extract Utility Input subentries from SMPCSI data sets, ensure that those programs will operate properly in the presence of a Utility Input subentry with a long name and a comma.

Reference information: For more information about the enhanced utility input, see SMP/E Reference.
Chapter 28. TSO/E migration actions

TSO/E actions to perform before installing z/OS V1R11
None.

TSO/E actions to perform before the first IPL of z/OS V1R11
This topic describes TSO/E migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Use the default of ON for the LOGONHERE parameter

Description: With z/OS V1R11, LOGON processing has been improved to allow users to unconditionally reconnect to the system if they specify the existing RECONNECT option. This allows users to more easily switch to a new workstation or recover after a dropped internet connection or renewed IP address. To control this, a new PARMLIB option LOGONHERE(ON/OFF) has been added under the LOGON statement in IKJTSOxx. The default is ON, which should reduce the number of times that operators have to cancel TSO/E user IDs. However, the old behavior can be restored by setting the value to OFF.

Before z/OS V1R11, TSO/E LOGON RECONNECT would not always work. If the system could not detect that a TSO/E user ID was disconnected, it would tell users their ID was already in use.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>TSO/E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because accepting the default of LOGONHERE(ON) improves user productivity and reduces the need for operator intervention to cancel TSO/E sessions.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>
**Steps to take:** To accept the new bahavior, which is recommended, do nothing. To get the old behavior back, specify LOGONHERE(OFF) on the LOGON statement in the IKJTSOxx parmlib member.

**Reference information:** For more details about the LOGONHERE parameter, see [z/OS TSO/E Customization](http://www.ibm.com/support/docview.wss?uid=swg27025344) or [z/OS MVS Initialization and Tuning Guide](http://www.ibm.com/support/docview.wss?uid=swg27025344).

---

**TSO/E actions to perform after the first IPL of z/OS V1R11**

This topic describes TSO/E migration actions that you can perform only after you have IPLed z/OS V1R9. You need a running z/OS V1R9 system to perform these actions.

**Accommodate changes for data sets allocated by the RECEIVE command**

**Description:** New data set allocation during RECEIVE command processing has changed as follows:

- Before z/OS V1R9, TSO/E would allocate a data set during RECEIVE command processing without using the AVGREC option. As a result, the ISPF data set information panel would display the size of the data set in blocks or tracks.
- In z/OS V1R9, z/OS V1R10, and V1R11, without the PTF for APAR OA27537 applied, TSO/E will allocate a data set during RECEIVE command processing using the AVGREC option. As a result, the ISPF data set information panel would display the size of the data set in bytes.
- In z/OS V1R9, z/OS V1R10, and V1R11, with the PTF for APAR OA27537 applied, the behavior is changed back to what it was before z/OS V1R9.

Regardless of the release, the following has been, and continues to be, true: the LISTDSI function in REXX or CLIST returns the size in blocks or tracks, and data sets that are preallocated (that is, not allocated by RECEIVE command processing) are not affected by the changes.

**Element or feature:** TSO/E.

**When change was introduced:**

- z/OS V1R8 and earlier had the original behavior.
- z/OS V1R9, V1R10 and V1R11 without the PTF for APAR OA27537 applied have the new behavior.
- z/OS V1R9, V1R10 and V1R11 with the PTF for APAR OA27537 applied return to the original behavior.

**Applies to migration from:** z/OS V1R11, z/OS V1R10, and z/OS V1R9 without the PTF for APAR OA27537.

**Timing:** After the first IPL of z/OS V1R11.

**Is the migration action required?** Yes, if users expect to see data set allocation information in bytes in ISPF for data sets allocated during TSO/E RECEIVE processing.

**Target system hardware requirements:** None.

**Target system software requirements:** None.
Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Steps to take: Notify users that ISPF displays the size of data sets in blocks or tracks, instead of bytes, if the data sets are allocated by TSO/E RECEIVE command processing.

Reference information: None.
Chapter 29. XL C/C++ migration actions

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Review the XL C/C++ Migration Guide for the Application Programmer .................................. 331
XL C/C++ actions to perform before the first IPL of z/OS V1R11 ............................................. 332
Adjust inlining settings for changes to the INLINE option ......................................................... 332
Use the XL C/C++ compiler -qmakedep option instead of the stand-alone makedepend utility . 332

This topic describes migration actions for optional feature C/C++ without Debug Tool.

Note: As of z/OS V1R7, the C/C++ compiler has been rebranded to XL C/C++. However, the name of the optional feature that contains the XL C/C++ compiler remains C/C++ without Debug Tool.

XL C/C++ actions to perform before installing z/OS V1R11

This topic describes XL C/C++ migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

Review the XL C/C++ Migration Guide for the Application Programmer

Description: The publication z/OS XL C/C++ Compiler and Run-Time Migration Guide for the Application Programmer is written for application programmers, whereas this publication (z/OS Migration) is written for system programmers. However, in some customer locations, job scope could overlap such that system programmers might find information in the XL C/C++ publication that is relevant to their responsibilities. For example, migration information related to the c89 utility in the XL C/C++ publication could be of interest. Therefore, you ought to review the XL C/C++ publication if you use XL C/C++.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>C/C++ without Debug Tool.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>General migration action not tied to a specific release.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended if you use XL C/C++.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Look through z/OS XL C/C++ Compiler and Run-Time Migration Guide for the Application Programmer for migration information that is relevant to your installation.
XL C/C++ actions to perform before the first IPL of z/OS V1R11

None.

XL C/C++ actions to perform after the first IPL of z/OS V1R11

This topic describes XL C/C++ migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Adjust inlining settings for changes to the INLINE option

Description: Starting with z/OS V1R11, the INLINE XL C/C++ compiler option might behave differently than in prior releases because of the implementation of a new inliner. You might see the following differences:

- The functions that get inlined might be different.
- The inline report might look different.

The runtime performance of your application might change as a result of the new inline behavior. You can adjust the setting of the INLINE option to tune the runtime performance of your application.

Element or feature: C/C++ without Debug Tool.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you depend on the layout of the previous inline report, or if you have strict runtime performance target for your application.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Adjust your inlining settings at high optimization levels if your applications run slower than they used to. For example, you might adjust the INLINE suboptions threshold and limit, and the #pragma inline/noinline directives.

Reference information: For details about the changes to the INLINE option, see z/OS XL C/C++ Compiler and Run-Time Migration Guide for the Application Programmer.

Use the XL C/C++ compiler -qmakedep option instead of the stand-alone makedepend utility

Description: Before z/OS V1R11, the stand-alone makedepend utility was used to analyze source files and determine source dependencies. In z/OS V1R11, the XL
C/C++ compiler -qmakedep option and the related options -M and -MF are introduced and can be used to obtain similar information. The use of the compiler -qmakedep option is recommended.

The -qmakedep option is used to generate a make description file as a side effect of the compilation process. The description file contains a rule or rules suitable for make that describes the dependencies of the main compilation source file. The -MF option is used in conjunction with the -qmakedep option and specifies the name of the file where the dependency information is generated, or the location of the file, or both. The -MF option has no effect unless make dependency information is generated.

On z/OS systems, the XL C/C++ -qmakedep compiler option resolves a number of complexities that are not properly managed by the compiler-independent makedepend utility, thereby improving the accuracy of the dependency information. The benefits of using the XL C/C++ compiler-generated dependencies file instead of using the stand-alone makedepend utility are:

- The XL C/C++ compiler achieves more accuracy in resolving header file locations than the stand-alone makedepend utility. The improved accuracy results in more reliable dependencies, thus minimizing a chance that a target will not be rebuilt when a header file it depends on is changed.
- The time to emit the dependencies is small relative to the time required to compile a source file, so dependencies are practically a free by-product of doing a build.
- The stand-alone makedepend utility requires a significant portion of the compile process to be repeated while generating dependencies. Because the utility can only be run as a separate step, extra effort is required to ensure that the same options and macros are specified as when compiling a source file for which dependencies are computed.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>C/C++ without Debug Tool.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because, in the future, makedepend behavior will diverge from that of the compiler, causing makedepend to possibly generate inaccurate dependency information.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Use the options -qmakedep, -M, and -MF to generate dependency information.

Reference information: For more information about the -qmakedep, -M, and -MF options, see z/OS XL C/C++ User’s Guide.
Chapter 30. z/OS UNIX migration actions

This topic describes migration actions for base element z/OS UNIX System Services (z/OS UNIX).

**z/OS UNIX actions to perform before installing z/OS V1R11**

This topic describes z/OS UNIX migration actions that you can perform on your current (old) system. You do not need the z/OS V1R11 level of code to make these changes, and the changes do not require the z/OS V1R11 level of code to run once they are made.

**Migrate from HFS file systems to zFS file systems**

**Description:** Before z/OS V1R7, the HFS file system was the primary hierarchical file system. As of z/OS V1R7, you can use any combination of HFS and zFS file systems. Because zFS has higher performance characteristics than HFS and is the strategic file system, you should migrate your HFS file systems to zFS.

The HFS and zFS file system types in mount statements and command operands are now generic file system types that can mean either HFS or zFS. Based on the data set type, the system will determine which is appropriate. But note that you must still specify a type (HFS or zFS and it cannot be defaulted), and if the type you specify is not correct for the file system being mounted, any associated parameter string setting in the mount statement or command is ignored, even though the system sets the type correctly and processes the mount.

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>z/OS UNIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>zFS became the strategic file system in z/OS V1R7.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>Before installing z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>No, but recommended because the action is planned to become a requirement in a future release. zFS is the strategic file system for z/OS UNIX and continues to be enhanced to provide superior performance, reliability, and data integrity.</td>
</tr>
</tbody>
</table>
**Steps to take:**

1. Before beginning the migration, do the following:
   - Establish backout procedures.
   - Decide on naming conventions.
   - Decide on unavailability.
   - Understand any cloning or deployment changes required by zFS systems being linear data sets. Considerations would include any copy utility invocations, BPXPRMxx specifications for symbolics, and placement of zFS file systems on system volumes.

2. Perform the conversion from an HFS to zFS file system.

   **Tip:** Use the BPXWH2Z tool to perform the conversion. It is an ISPF-based tool that migrates HFS file systems to zFS file systems. Using its panel interface, you can alter the space allocation, placement, SMS classes, and data set names. A HELP panel is provided. With this tool, you can:
   - Migrate HFS file systems (both mounted and unmounted) to zFS file systems. If the HFS being migrated is mounted, the tool automatically unmounts it and then mounts the new zFS file system on its current mount point.
   - Define zFS aggregates by default to be approximately the same size as the HFS. The new allocation size can also be increased or decreased.
   - Have the migration run in TSO foreground or UNIX background.

   You can use the JCL sample ISPBTCH in SYS1.SAMPLIB to invoke BPXWH2Z as an ISPF batch job. Before you run the job, be sure to read the Notes section. When you run BPXWH2Z on your z/OS V1R11 system, it uses the z/OS V1R11 level of the **pax** command. This level was enhanced in z/OS V1R7 for sparse file support and other characteristics that are of concern when migrating from an HFS to zFS file system. You can manually migrate from an HFS to zFS file system without using the tool. However, you would need to allocate and format the target zFS file systems.

   **Requirement:** The BPXWH2Z tool requires the zFS address space to be operational. Therefore, before attempting to migrate existing HFS to zFS file systems using BPXWH2Z, make sure that the zFS address space has been successfully configured and initialized.

   **Tip:** Consider migrating the sysplex root file system to zFS after you IPL z/OS V1R11. You can now dynamically migrate the HFS sysplex root in a shared file system configuration to zFS while the root is in use, without disrupting workloads. Before z/OS V1R10, you could not migrate without disrupting active workloads. Although the shared file system configuration is required, the sysplex can be a single system. For the steps involved in migrating the sysplex root file system from HFS to zFS, see below.
3. Change policies and scripts, and so forth, to reflect the change from the HFS file system to zFS file system.
   **Tip:** Use the RMF Monitor III option to report on zFS activity.

**Migrating the sysplex root file system from HFS to zFS after IPLing z/OS V1R11:**

Before you begin the migration:

- Ensure that the following requirements have been met:
  - All systems in the sysplex are at the V1R11 level.
  - The current sysplex root file system PFS, and the new sysplex root file system PFS, are up in all the systems in shared file system configuration.

- Be aware of the following restrictions:
  - The current sysplex root file system must be mounted as a read-only file system.
  - The systems that do not meet the requirements for this migration action cannot join the sysplex during the sysplex root file system migration processing, but they can join the sysplex after the sysplex root migration has completed.
  - The current sysplex root and the new sysplex root must be either HFS or zFS in any combination. If the new sysplex root is zFS, then it must be HFS-compatible.
  - The sysplex root or any directories on it cannot have been exported by the DFS or SMB server.

- Note the following:
  - Remote NFS mounts of the sysplex root or any directories on it are considered active use of the current sysplex root file system.
  - During the migration, the new zFS sysplex root file system must not be HSM-migrated, mounted, or in use.
  - Mount parameters are preserved during the migration or replacement of the sysplex root file system of the same file system type (PFS). They are dropped if the file system type is different.
  - Directories, data, files, and links are not copied from one file system to another.

Perform the migration as follows:

1. Ensure that a file system has been mounted read-only as the current sysplex root file system. When the root is mounted read-only, there are no function-shipping clients as long as physical paths to the DASD are available to each system. To verify that there are no function-shipping clients, issue:
   ```
   D OMVS,F,NAME=root_file_system_name
   ```
   You should see CLIENT=N on each system.

2. Allocate and set up the new zFS sysplex root file system:
   a. Create a new zFS file system to be used as the new sysplex root file system. [z/OS Distributed File Service zSeries File System Administration](#) discusses creating and managing zFS file systems.

   **Rules:**
   - The UID, GID and the permission bits of the root directory in the new sysplex root file system must be same as the root directory in the current sysplex root file system.
If the SECLABEL class is active and the MLFSOBJ option is active, the
security label for the new zFS file system must match the assumed
security label of the current sysplex root file system.

b. On the new sysplex root file system, set up the active mount points and the
symbolic links. The mount points and symbolic links must be the same as
the ones on the current sysplex root file system. You can set them up either
(1) manually or (2) by using the pax shell command to populate the new
sysplex root file system using the existing sysplex root as a source. To do it
manually, create a mount point in the existing sysplex root (for example,
/newroot) and mount the new sysplex root file system in the
MODE(RDWR) on that mount point. After mounting the new sysplex root
file system, manually issue MKDIRs and ln -s to create the mount point
directories and symbolic links similar to the existing sysplex root file
system. Note that the new sysplex root file system must contain all active
mount points and symbolic links exactly as on the existing sysplex root file
system.

c. Use the pax shell command to populate the new file system, using the
existing sysplex root as a source.

Example:

```
cd /
pax -wr -pe -XM ./ /newroot
```

For more information about using pax to copy data from an HFS file system
to a zFS file system, see [z/OS Distributed File Service zSeries File System Administration](#).

d. Unmount the new zFS file system.

3. Before proceeding with this step, ensure PTF UA49782 for APAR OA29567 is
installed on your z/OS V1R10 systems. Then, on any system in the shared file
system configuration, issue:

```
F OMVS,NEWROOT=new.root.file.system.name,COND=<Yes|No>
```

YES  Proceed conditionally. The system checks for active usage in the current
sysplex root file system and reports the active usage in a BPXF245I
message. If file activity is found, the command fails with EBUSY return
code and JrActivityFound reason code. If file activity is not found, the
command continues processing to replace the sysplex root. YES is the
default.

NO   Proceed unconditionally. The system checks for active usage in the
current sysplex root file system and reports the active usage in a
BPXF245I message. Replacement of the sysplex root file system will
continue.

The migration of the sysplex root file system will begin. During the migration,
active connections to files and directories in the current sysplex root file system
are broken.

After the migration completes:

- The root CWD(‘/’) is updated on all systems in the sysplex to point to the
  new sysplex root file system.
- New opens go to the new sysplex root file system. The current sysplex root
  for the root directory is replaced for all processes in all systems. The current
directory for root directory is replaced for any processes using it
- Old connections in the previous sysplex root file system might get EIO
  errors.
4. Update the TYPE parameter and name of the sysplex root file system in the BPXPRMxx member of SYS1.PARMLIB.

Reference information:
- For more information about the HFS and zFS file systems, see z/OS UNIX System Services Planning.
- To read about setting up zFS, see z/OS Distributed File Service zSeries File System Administration.
- For information about the pax command, see z/OS UNIX System Services Command Reference.

z/OS UNIX actions to perform before the first IPL of z/OS V1R11

This topic describes z/OS UNIX migration actions that you can perform after you have installed z/OS V1R11 but before the first time you IPL. These actions might require the z/OS V1R11 level of code to be installed but do not require it to be active.

Update z/OS UNIX configuration files changed by IBM

Description: Some utilities provided by z/OS UNIX require the use of certain configuration files. You are responsible for providing these files if you expect to use the utilities. IBM provides default configuration files as samples in the /samples directory. Before the first use of any of these utilities, you must copy these IBM-provided samples to the /etc directory (in most cases). You can further customize these files to include installation-dependent information. An example is setting up the /etc/rc file by copying the sample file from /samples/rc to /etc/rc and then customizing it for the installation.

Whenever IBM ships a changed sample configuration file, you must copy the changed sample to its target location and, if you customized the previous version of the sample, incorporate the customization into the new version.

Element or feature: z/OS UNIX.
When change was introduced: Various releases. See Table 14 on page 340.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: For each of the files listed in Table 14 on page 340, copy the IBM-provided sample file to the listed target location. If you added installation-dependent customization to any of the IBM-provided files, make the same changes in the new versions of the files.
Table 14. Changed z/OS UNIX configuration files

<table>
<thead>
<tr>
<th>Utility</th>
<th>IBM-provided sample file</th>
<th>Target location</th>
<th>What changed and when</th>
</tr>
</thead>
<tbody>
<tr>
<td>initialization</td>
<td>/samples/rc</td>
<td>/etc/rc</td>
<td>In z/OS V1R10, the initialization script was changed to clear out the man page cache. This eliminates the migration action “Update the date and time of book files used for man pages”.</td>
</tr>
<tr>
<td>OHELP</td>
<td>/samples/ohelp.ENU</td>
<td>/etc/ohelp.ENU</td>
<td>Every release, book data set names are updated. See “Use man instead of OHELP” on page 341.</td>
</tr>
</tbody>
</table>

Reference information:
- For more details about configuration files, see z/OS UNIX System Services Planning.
- For more information about utilities, see z/OS UNIX System Services Command Reference.

Update automated actions for message BPXO040I

Description: Before z/OS V1R11, message BPXO040I was issued in response to one of the following DISPLAY OMVS commands:
- D OMVS,A
- D OMVS,U
- D OMVS,PID=

Beginning with z/OS V1R11, message BPXO040I is issued instead.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: Before the first IPL of z/OS V1R11.
Is the migration action required? Yes, if any automated actions are issued for message BPXO040I.

Reference information: For information about message BPXO040I, see z/OS MVS System Messages, Vol 3 (ASB-BPX).
z/OS UNIX actions to perform after the first IPL of z/OS V1R11

This topic describes z/OS UNIX migration actions that you can perform only after you have IPLed z/OS V1R11. You need a running z/OS V1R11 system to perform these actions.

Use man instead of OHELP

Description: Previously, the TSO/E OHELP command was used to display online reference information for shell commands, TSO/E commands, C functions, callable services, and messages issued by the shell and dbx. It required the use of a bookshelf provided by the z/OS Collection Kit. In V1R11, the OHELP command is no longer available.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>z/OS UNIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you used the OHELP command.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Use the z/OS UNIX man command instead. You do not need to delete the IBM-supplied /samples/ohelp.ENU file or the local /etc/ohelp.ENU file.

Reference information: For more information about the man command, see z/OS UNIX System Services Command Reference.

Use the BPX.UNIQUE.USER profile instead of BPX.DEFAULT.USER

Description: Before z/OS V1R11, if the BPX.DEFAULT.USER profile in the FACILITY class was defined, users who accessed z/OS UNIX services who did not have an OMVS user or group segment were assigned the default OMVS segments for the length of the user session. All users of the default OMVS segments shared the same UID and GID. As of z/OS V1R11, if BPX.UNIQUE.USER has been defined, users who access z/OS UNIX services who do not have an OMVS user or group segment are automatically assigned an OMVS segment with a unique UID and GID. The new OMVS segments are added to the user and group profiles in the RACF database.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>z/OS UNIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R11.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>
Is the migration action required? No, but recommended because in the future, support for the BPX.DEFAULT.USER profile might be removed. The use of BPX.UNIQUE.USER increases security because shared IDs are not used.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Follow the steps in z/OS UNIX System Services Planning to setup the BPX.UNIQUE.USER profile. If BPX.DEFAULT.USER has not been deleted, BPX.UNIQUE.USER takes precedence when default OMVS segments are used.

To remove the BPX.DEFAULT.USER profile, use the following RACF commands:
RDELETE FACILITY BPX.DEFAULT.USER
SETROPTS RACLIST(FACILITY) REFRESH

Reference information:
- z/OS UNIX System Services Planning
- z/OS Security Server RACF Security Administrator’s Guide

Update automated actions for message BPXO046I

Description: Before z/OS V1R11, message BPXO046I was issued in response to the DISPLAY OMVS,PFS command. As of z/OS V1R11, message BPXO068I is issued.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if any automated actions are issued for message BPXO046I.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take: Modify automated actions for BPXO046I so they now work with message BPXO068I.

Reference information: For information about messages BPXO046I and BPXO068I, see z/OS MVS System Messages, Vol 3 (ASB-BPX).
Update automation that handles ISPF Edit and ISPF Browse

Description: Before z/OS V1R11, the TSO/E commands OEDIT and OBROWSE displayed panels that were different than the conventional ISPF Edit and ISPF Browse panels and used the ISPF EDIF and BRIF services. As of z/OS V1R11, OEDIT and OBROWSE will no longer display their unique panels and will directly invoke the ISPF EDIT and BROWSE commands.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R11.
Applies to migration from: z/OS V1R10 and z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if you have automation that depends on the display of OEDIT and OBROWSE panels.

Steps to take: Update any automation that depends on the display of panels by OEDIT and OBROWSE.

Reference information: None.

Use the Shell and Utilities version of the submit command

Description: Before z/OS V1R10, the submit command was available from the Tools and Toys section of the z/OS UNIX Web site. As of z/OS V1R10, Shell and Utilities support of the submit command has been added. The supported version differs from the Tools and Toys version in a number of ways:

- Multiple files can be used as input.
- After the submit command completes, a message that indicates success or failure is sent. If the command succeeds, the resulting message contains the job IDs of the submitted jobs.
- Formatting for submitting jobs from a partitioned data set (PDS) is different. Because the supported submit command is now consistent with the other subcommands, the // characters are required as a prefix to the PDS name. For example: 
  
  "//full.pds.name(member)"
- The Tools and Toys version of submit had the following conventions, which have been changed:
  - ? was used as a way to display usage but is now treated as a valid file name.
  - - was used as a file name but is now used to specify standard input.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? | No, but recommended because the new, supported version of the submit command is enhanced compared to the Tools and Toys version.
---|---
Target system hardware requirements: | None.
Target system software requirements: | None.
Other system (coexistence or fallback) requirements: | None.
Restrictions: | None.
System impacts: | None.

Steps to take:
1. If you are using the Tools and Toys version of the submit command, delete it or move it to a location that is not in the system's search path. If you leave it in the search path, it might be picked up instead of the supported version that is in the /bin directory.
2. Begin using the supported version in the /bin directory.

Reference information: For information about the submit command, see z/OS UNIX System Services Command Reference.

Update cksum and sum invocations

Description: Before z/OS V1R10, the cksum and sum commands exited if they could not turn off automatic conversion on a file stream. As of z/OS V1R10, if this error is encountered, the file stream (for example, stdin) is skipped and the remaining files are processed. The message associated with this error is FSUF182. This change should not affect most users.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if any automated tasks rely on cksum or sum exiting when an automatic conversion error occurs.
---|---
Target system hardware requirements: | None.
Target system software requirements: | None.
Other system (coexistence or fallback) requirements: | None.
Restrictions: | None.
System impacts: | None.

Steps to take: Modify any sum or cksum invocations (for example, in shell scripts) that rely on the command exiting when automatic conversion errors occur.

Reference information: For information about the cksum and sum commands, see z/OS UNIX System Services Command Reference.
Update ln invocations to accommodate changes made to the ln shell command

Description: Before z/OS V1R10, if you specified the -e option with the -s, -r, or R option when issuing the ln shell command, the results were not valid.

- If source was a directory containing symbolic links or external links and target was an existing directory, and you issued ln -e with -s, -r, or -R, one of the following events occurred:
  - Message FSUM6245 was issued.
  - One or more incorrect symbolic links was created.
  - One or more incorrect external links was created.
- If source was a file or a PDS or PDSE member, -e was specified with -s, and target was not a directory, ln created a symbolic link.
- If -e was specified with an existing target directory, ln created an incorrect external link.

As of z/OS V1R10, the -e option is mutually exclusive with the -s, -r, and -R options. You will receive an error message if you use -e in conjunction with -s, -r, or -R, or with an existing target directory.

Note: The command formats listed above are rarely used.

Element or feature: z/OS UNIX.
When change was introduced: z/OS V1R10.
Applies to migration from: z/OS V1R9.
Timing: After the first IPL of z/OS V1R11.
Is the migration action required? Yes, if ln -e is used in either of the following ways:
  - In conjunction with the -s, -r, or -R option.
  - With an existing target directory.

Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: None.

Steps to take:
- Modify any ln invocations (for example, in shell scripts) so that -e is not used in conjunction with the -s, -r, and -R options.

<table>
<thead>
<tr>
<th>If you want to create . . .</th>
<th>Use . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>A symbolic link</td>
<td>-s</td>
</tr>
<tr>
<td>An external link</td>
<td>-e</td>
</tr>
<tr>
<td>Symbolic links or external links recursively</td>
<td>-s with -r or -R</td>
</tr>
</tbody>
</table>

- Modify ln invocations so that -e is not used if the target specified on the command line is an existing directory.
Update ln -r and ln -R invocations to accommodate changes to the ln shell command

**Description:** Before z/OS V1R10, if you specified the -r or -R option without the -s option when issuing the ln shell command, and the source directory contained symbolic links or external links, one or more incorrect symbolic links or external links were created.

As of z/OS V1R10, hard links are created for symbolic links referring to files, character special files, and FIFOs that exist. You will receive an error message for any external links and for symbolic links that refer to directories, nonexistent objects, or objects in another file system.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>z/OS UNIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if the pre-z/OS V1R10 behavior of the ln -r or ln -R command is required.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**Steps to take:** If the old behavior of the ln -r or ln -R shell command is required, the pax shell command may be used as an alternative. Modify any ln -r or ln -R invocations (for example, in shell scripts) as shown in the following example.

Instead of using:
```
ln -r /mypath/dir1 /mypath/dir2
```

Use:
```
mkdir /mypath/dir2
cd /mypath/dir2
pax -rw -l . /mypath/dir2
```

**Reference information:** For information about the ln and pax shell commands, see z/OS UNIX System Services Command Reference.

Update scripts to accommodate changes made to the locale shell command

**Description:** Before z/OS V1R10, the locale shell command did not support the LC_TOD category and associated keywords. The default locale command (specified without any options or operands) did not display the LC_TOD environment variable, and using LC_TOD (or associated keywords) with or without options generated error message FSUM6701.
Beginning with z/OS V1R10, the default locale command displays LC_TOD information along with other LC_* environment variables. Also, using LC_TOD or associated LC_TOD keywords is honored.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>z/OS UNIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if automated scripts evaluate strings based on error message FSUM6701 or the default locale output.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Modify automated scripts if they evaluate strings based on error message FSUM6701 or the default locale output.

Reference information:

- For information about locale or supported LC_TOD keywords, see z/OS UNIX System Services Command Reference.
- For information about the LC_TOD category, see z/OS XL C/C++ Programming Guide.

**Update automation that handles message BPXF034I**

Description: Before z/OS V1R10, message BPXF034I was issued if a file system was quiesced for more than 10 minutes. As of z/OS V1R10, message BPXF083I is issued instead. The new message includes the file system name, quiescing system, job name, and process ID (PID).

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>z/OS UNIX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>z/OS V1R10.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R9.</td>
</tr>
<tr>
<td>Timing:</td>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if any automated actions are issued for message BPXF034I.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

Steps to take: Modify automated actions for message BPXF034I so they now work with message BPXF083I.
Reference information: For information about message BPXF083I, see z/OS MVS System Messages, Vol 3 (ASB-BPX).
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/systems/z/os/zos/bkserv/
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Various z/OS elements, such as DFSMS, HCD, JES2, JES3, and MVS, contain code that supports specific hardware servers or devices. In some cases, this device-related element support remains in the product even after the hardware devices pass their announced End of Service date. z/OS may continue to service element code; however, it will not provide service related to unsupported hardware devices. Software problems related to these devices will not be accepted for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.
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