Migration (from z/OS V1R10)

Version 1  Release 11

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

This document is customized for a migration from z/OS V1R10
(with JES at the z/OS V1R10 level). Migration actions that are not
relevant to a migration from z/OS V1R10 to z/OS V1R11 are not
shown.
Migration (from z/OS V1R10)

Version 1 Release 11
Seventeenth Edition, January 2010

This is a major revision of GA22-7499-15.

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 V1R10 system that has the z/OS V1R10 level of JES. Migration actions that are not relevant to a migration from z/OS V1R10 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 V1R10. This document is customized in that it shows only the migration actions that are relevant to a migration from z/OS V1R10 and not from the other release supported for migration to z/OS V1R11, which is z/OS V1R9. In addition, two levels of JES are supported but this document assumes a migration from the z/OS V1R10 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 25). 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
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.

**Related information**

See [z/OS Introduction and Release Guide](#) 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](#) 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 17.
  2. “Track CSVRTLS services” on page 75.
  3. “Update procedures for varying systems out of the sysplex” on page 77.
  4. “Ensure correct use of CIRB” on page 83.
  5. “Ensure your ESQA specification in IEASYSxx is adequate” on page 92.
  6. “Remove all unnamed console definitions” on page 93.
  7. “Keep the real frames included in GRS real storage consumption for use” on page 94.
  8. “ICSF: Modify ICSF startup procedure” on page 124.
  9. “ICSF: Ensure PKCS #11 applications call C_Finalize() prior to calling dlclose()” on page 117.
  10. “System SSL: Modify applications to address disablement of SSL V3 and TLS session renegotiation” on page 120.
  11. “DFSMsdfp: Specify a control interval size for the IDCAMS DEFINE DATA component” on page 129.
  12. “DFSMsdfp: Permit DEVMAN to call ICKDSF” on page 133.
  14. “DFSMsdfp: Evaluate applications for sensitivity to changes to IDCAMS LISTCAT command output” on page 146.
  15. “DFSMsds: Update the storage size for jobs that invoke ADRDSSU” on page 138.
  16. “DFSMsds: Enable or disable the Catalog Search Interface” on page 148.
  18. “Activate z11 mode” on page 175.
  19. “Identify the JES3 auxiliary address space to your security product” on page 180.
  20. “Update post-SAF user exits” on page 203.
  21. “Modify programs and JCL that use the LRECL of the IRRADU00 output data sets” on page 205.
  22. “Ensure access to HMC for WTOR reply” on page 207.
In “z/OS V1R10 coexistence and fallback PTFs” on page 10
- For BCP, an entry was added for PTF UA45081 (APAR OA27032).
- For BCP, the PTF for APAR OA26037 has been corrected. The correct PTF is UA47790.
- For BCP, an entry for APAR OA26085 was added.
- For Communications Server, an entry was added for PTF UA44023 (APAR OA26490).
- For DFMSdftp, PTF UA48144 was added to APAR OA29235.
- For DFMSHsm, PTF UA48183 was added to APAR OA29178.
- For JES3, an entry for APAR OA29420 was added.
- For z/OS UNIX, an entry for APAR OA29567 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 , changes have been made to reflect a new migration option available with APAR OA27917.
- Information about BPXBATCH has been added to “IP Services: Run the syslog daemon in the background when starting from the UNIX shell” on page 105.
- An IBM Health Check for z/OS Tip has been added to “IP Services: Migrate from BIND DNS 4.9.3 function” on page 101.
- A new Guideline has been added to “IP Services: Accept the new resolver behavior of saving the results of DNS queries” on page 106.
- A Note has been added to “OCSF: Migrate the directory structure” on page 118 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 76 has been updated.
- has been updated.
- “zFS: Ensure that sysplex_admin_level=2 is available on all systems in a shared file system environment” on page 152 has been updated.
- “IP Services: Run the syslog daemon in the background when starting from the UNIX shell” on page 105 has been updated.
- “DFSMSdftp: Add columns ODSTATF, ODRETDT, and ODINSTID to OAM object directory tables” on page 135 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 155 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 212 has been updated.
- “Migrate from HFS file systems to zFS file systems” on page 219 has been updated.

Deleted information:
The migration action, "Update CKPTSPACE BERTNUM=" has been removed and replaced by "Activate z11 mode" on page 175.

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.

   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.

3. 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).

4. Prepare the driving system. For driving system requirements, see the topic about preparing the driving system in z/OS Planning for Installation.

5. Order and install z/OS V1R11. If you use a ServerPac, refer to ServerPac: Installing Your Order. If you use a CBPDO, refer to z/OS Program Directory.

6. 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.)

7. 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).

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**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 ZOSMIGVvVer_r_component_program_name (or, for ICSF, ICSFMIGn_nnnn_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 ZOSMIGVvVrrrr). 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

Migration actions for everyone before installing z/OS V1R11

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) 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.
- For details about the SMP/E REPORT MISSINGFIX command, see SMP/E Commands.

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>- &quot;z/OS V1R10 coexistence and fallback PTFs&quot; 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.Coexistence.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 V1R10, use the list in "z/OS V1R10 coexistence and fallback PTFs" on page 10. Also check PSP bucket ZOSV1R10 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 V1R10 coexistence and fallback PTFs
Install, on z/OS V1R10, the coexistence and fallback PTFs listed in Table 2.

Table 2. Coexistence and fallback PTFs needed on z/OS V1R10 systems

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R10 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCP: 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>UA44705 (APAR OA26493)</td>
</tr>
<tr>
<td>BCP: The JCL EATTR parameter is new in z/OS V1R11 and indicates whether a data set can support extended attributes (format-8 and format-9 DSCBs). The PTF allows the parameter to be ignored on z/OS V1R10 systems, which do not have EATTR support.</td>
<td>UA46865 (APAR OA27441)</td>
</tr>
<tr>
<td>BCP: z/OS V1R11 provides GRS GQSCAN/ISQUERY 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 system 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>UA46864 (APAR OA24172)</td>
</tr>
<tr>
<td>BCP: 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>UA47790 (APAR OA26037)</td>
</tr>
<tr>
<td>BCP: Allows Optimized Schema Representations (OSRs) generated on z/OS V1R11 systems to be used by z/OS XML System Services on z/OS V1R10 systems.</td>
<td>UA46860 (APAR OA28153)</td>
</tr>
<tr>
<td>BCP: 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 V1R10 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>UA45081 (APAR OA27032)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R10 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R10 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<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>UA49200 and UA49202 (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>UA44023 (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>UK41038 (APAR PK72201)</td>
</tr>
<tr>
<td><strong>Cryptographic Services:</strong> Allows an earlier system to tolerate the new encrypted AES keys in a CKDS shared with z/OS V1R11 ICSF. Also, enhances the sharing of a PKDS on an earlier system with z/OS V1R11 sysplex support for the PKDS.</td>
<td>UA44731 for FMID HCR7750 (APAR OA26579)</td>
</tr>
<tr>
<td><strong>DFSMdfp:</strong> Allows z/OS V1R10 DFSMdfp OAM to tolerate enhancements made in z/OS V1R11 for 2 GB object support for tape and OAM archive retention.</td>
<td>UA46463 (APAR OA26334)</td>
</tr>
<tr>
<td><strong>DFSMdfp:</strong> 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>UA46068 (APAR OA25344)</td>
</tr>
<tr>
<td><strong>DFSMdfp:</strong> In z/OS V1R11, extended address volume support is enhanced to allow straddled extents to be created for VSAM data sets. The PTF allows a VSAM data set allocated in z/OS V1R11 with straddled extents to be processed from z/OS V1R10 such that the data set can be referenced, extended, partial released, and scratched. In addition, the DADSM conversion routines have been changed to tolerate and validate straddled extents.</td>
<td>UA46206 (APAR OA26623)</td>
</tr>
<tr>
<td><strong>DFSMdfp:</strong> In z/OS V1R11, support was added for the EATTR attribute, allowing specification of whether or not a data set can reside in Extended Addressable Storage (EAS) on an Extended Addressable Volume (EAV). This PTF allows a VSAM data set allocated on z/OS V1R11 to be accessed from z/OS V1R10 such that the data set’s EATTR attribute is recognized and handled appropriately. The PTF also allows both IDCAMS (using IMPORT and EXPORT) and DSS (using DSS COPY and RESTORE) to handle data sets created on z/OS V1R11 in terms of moving such data sets to z/OS V1R10, and retaining the original EATTR specification associated with the source VSAM data set.</td>
<td>UA46284 (APAR OA27069)</td>
</tr>
<tr>
<td>Element or feature, and function provided by PTFs</td>
<td>z/OS V1R10 PTFs (and corresponding APARs)</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> In z/OS V1R11, extended address volume support is enhanced, and as a result an allocation can span the track-managed or cylinder-managed boundary. The PTF allows a z/OS V1R10 system to do a partial space release of a VSAM data set spanning the track-managed or cylinder-managed boundary.</td>
<td>UA44892 (APAR OA26839)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> Tolerates extended address volume enhancements in z/OS V1R11 by detecting extended format sequential data sets (EFSAM) in the EAS and fails them with existing abend 313-0C because they are not supported in z/OS V1R10 (needs OA26623 and OA27577).</td>
<td>UA46221 (APAR OA27578)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> Tolerates extended address volume enhancements in z/OS V1R11 by providing new DFA fields that allow programs to learn which data set types can be opened with format-8 DSCBs. In z/OS V1R10, only the new VSAM bit, DFAVSAMFOREAS, will be on.</td>
<td>UA46205 (APAR OA27577)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> In z/OS V1R11, extended address volume enhancements support all EATTR values that are attached to a VSAM cluster allocated from a z/OS V1R11 system. The PTF allows an extension to a new volume to recognize the EATTR value and select space appropriately.</td>
<td>UA46431 (APAR OA27286), UA46703 (APAR OA27270)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> Tolerates extended address volume enhancements in z/OS V1R11 by accepting and ignoring the EATTR keyword.</td>
<td>UA46865 (APAR OA27441)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> Tolerates extended address volume enhancements in z/OS V1R11. Specifically, the PTF permits Access Method Services (AMS) to recognize the EATTR value on an import of a portable data set created from z/OS V1R11 and also supports passing the EATTR value on an z/OS V1R10 export. Having the EATTR value propagated to the portable data set will allow a subsequent import of this portable data set to an z/OS V1R10 (or higher) release to support the EATTR value. Releases prior to z/OS V1R10 will not support EATTR on an import or export; therefore, the EATTR value will not be specified for an imported data set and in the exported portable data set.</td>
<td>UA46322 (APAR OA27545)</td>
</tr>
<tr>
<td><strong>DFSMSdfp:</strong> Tolerates extended address volume enhancements in z/OS V1R11. Specifically, the PTF detects extended format sequential data sets (EFSAM) in the EAS and fails them because they are not supported in z/OS V1R10, restores EFSAMs properly, properly handles an extent that resides in both the non-EAS and EAS, and properly handles the updating and preservation of EATTR and F9DSCB fields.</td>
<td>UA00021 (APAR OA26996), UA48144 (APAR OA29235)</td>
</tr>
<tr>
<td><strong>DFSMSHsm:</strong> Causes z/OS V1R10 to ignore the ALL keyword on BDELETE, HBDELETE, and ARCBDEL commands, allowing these commands to function correctly on z/OS V1R10 when the ALL keyword is used.</td>
<td>UA48183 (APAR OA29178)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R10 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R10 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DFSMShsm:</strong> Tolerates extended address volume (EAV) enhancements in z/OS V1R11. Non-VSAM data sets that have format-8 or format-9 DSCBs will be visible to the system but will not be eligible for migration, backup, or ABACKUP processing. In z/OS V1R10, DFSMShsm can recall, recover, and perform aggregate recovery (ARECOVER) of both VSAM and non-VSAM data sets from a z/OS V1R11 migration or backup copy with format-8 and format-9 DSCBs. Recall/Recover/ARECOVER of non-VSAM data sets that have format-8 or format-9 DSCBs will be completed to the track managed space. Recover REPLACE of non-VSAM data sets, if a pre-allocated non-VSAM data set is found with a format-8 or format-9 DSCB will be failed. If a pre-allocated non-VSAM data set is found with a format-1 DSCB, the EATTR value is passed to DFSMSdss for processing.</td>
<td>UA00026 (APAR OA27146)</td>
</tr>
<tr>
<td><strong>DFSMShsm:</strong> 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 do 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>UA46357 (APAR OA26327)</td>
</tr>
<tr>
<td><strong>DFSMShsm:</strong> Allows a pre-z/OS V1R11 DFSMShsm to read the z/OS V1R11 SMS copy pool definitions without error. In earlier releases, DFSMShsm 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>UA46225 (APAR OA26328), UA46073 (APAR OA26497), UA46091 (APAR OA26498), UA47252 (APAR OA28743)</td>
</tr>
<tr>
<td><strong>DFSMShsm:</strong> Allows pre-z/OS V1R11 DFSMShsm systems to recall and recover data sets from a z/OS V1R11 DFSMShsm 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>UA46267 (APAR OA26330)</td>
</tr>
<tr>
<td><strong>DFSMSSrmm:</strong> 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>UA46197 (APAR OA25714)</td>
</tr>
<tr>
<td><strong>DFSORT:</strong> Allows z/OS V1R10 DFSORT to tolerate DFSMS extended address volume enhancements in z/OS V1R11.</td>
<td>UK45047 (APAR PK77146)</td>
</tr>
</tbody>
</table>
Table 2. Coexistence and fallback PTFs needed on z/OS V1R10 systems (continued)

<table>
<thead>
<tr>
<th>Element or feature, and function provided by PTFs</th>
<th>z/OS V1R10 PTFs (and corresponding APARs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Distributed File Service:</strong> 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 152.</td>
<td>UA45614 (APAR OA25026)</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>UA46323 (APAR OA26999)</td>
</tr>
<tr>
<td><strong>JES2:</strong> Allows members running z/OS V1R9 JES2 (FMID HJE7740) or z/OS V1R10 JES2 (FMID HJE7750) to coexist in a multi-access spool (MAS) with members running z/OS V1R11 JES2 (FMID HJE7760).</td>
<td>UA46531 (APAR OA25093)</td>
</tr>
<tr>
<td><strong>JES3:</strong> Allows members running z/OS V1R9 JES3 (FMID HJS7740) or z/OS V1R10 JES3 (FMID HJS7750) to coexist with z/OS V1R11 JES3 (FMID HJS7760).</td>
<td>UA48640 (APAR OA29420)</td>
</tr>
<tr>
<td><strong>NFS:</strong> Several new NFS server site attributes are added in z/OS V1R11 to expand the NFS file system type (z/OS UNIX versus MVS data set) specification capability. The new attributes provide the capability to specify an MVS data set prefix in addition to the z/OS UNIX prefix hfs, and the ability to specify the heuristic to be used for determining the file system type when no prefix is specified. Another new NFS server site attribute is added in z/OS V1R11 to detect and report excessive delays in NFS server z/OS UNIX field system and MVS data set access requests. The default attribute settings are such that the NFS server will work the same as in previous releases. Pre-z/OS V1R11 NFS servers must tolerate the existence of the new attributes. The PTF also allows pre-z/OS V1R11 NFS servers to read the z/OS V1R11 NFS mount handle database, resulting in the NFS server being able to start successfully.</td>
<td>UA46259 (APAR OA25864)</td>
</tr>
<tr>
<td><strong>SDSF:</strong> Allows z/OS V1R10 systems to use the SDSF z/OS V1R11 level of parmlib member ISFPRMxx.</td>
<td>UK90016 (APAR PK66761)</td>
</tr>
<tr>
<td><strong>z/OS UNIX:</strong> Provides tolerance for the FMVS,NEWROOT and ALTROOT console commands when the root is type zFS.</td>
<td>UA49782 (APAR OA29567)</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.

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.

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.
<table>
<thead>
<tr>
<th><strong>Timing:</strong></th>
<th>Before installing z/OS V1R11.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is the migration action required?</strong></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>
<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:** 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.

<table>
<thead>
<tr>
<th><strong>Element or feature:</strong></th>
<th>Multiple.</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>
</tbody>
</table>
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.
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.

Reference information: For more information, see SMP/E Commands and HLASM Installation and Customization Guide.

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.x.

Element or feature: Multiple.

When change was introduced: 13 August 2002 in the z/OS V1R4 availability announcement.

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 z/OS does not support service for client operating systems whose service is withdrawn by the operating system manufacturer.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Reference information: For client software supported with z/OS, see the software requirements topic in z/OS Planning for Installation.

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.

Element or feature: Not applicable.
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 use either of the IBM Virtualization Engine Enterprise Workload Manager for z/OS products.
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: 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 (stglsls@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.

<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>No, but recommended if you want to continue to use HFS data sets for your CustomPac order.</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. |

- 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.

<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>
</tbody>
</table>
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>SYS1.IATTBL0, 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>
</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>IPCSPARM</td>
<td>SYS1.PARMLIB</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>
</tbody>
</table>
| Note: This DD name is needed if one of the following is true:  
- 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.  
- You have not specified these data sets in your system’s parmlib concatenation. |
| SYS1.SHASPRM, if applicable | 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. |
| SYS1.SIATPRM, if applicable | 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. |
| ISPMLIB      | SYS1.SBLSMSG0   | 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. |
|               | SYS1.SIATMSG0, if applicable | 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. |
| ISPLIB       | SYS1.SBLSPNL0   | 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. |
|               | SYS1.SHASPNL0, if applicable | 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. |
|               | SYS1.SIATPNL0, if applicable | 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. |
| ISPSLIB      | SYS1.SBLSKEL0   |                                                                      |
| ISPTLIB      | SYS1.SBLSTBL0   |                                                                      |
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></td>
</tr>
<tr>
<td>Note:</td>
<td>This DD name is needed if</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the system on which the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>dump was taken has different</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BCP and JES levels than</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the system on which the</td>
<td></td>
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<tr>
<td></td>
<td>dump will be examined</td>
<td></td>
</tr>
<tr>
<td></td>
<td>using IPCS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYS1.SIEAMIGE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This data set was added in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>z/OS V1R7. It is a PDSE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>data set that complements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYS1.MIGLIB. This data set</td>
<td></td>
</tr>
<tr>
<td></td>
<td>is used along with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYS1.MIGLIB for IPCS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYS1.SHASMIG, if applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This is a JES2 data set. If</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you use JES2, ensure that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>this data set corresponds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to the level of JES2 that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you are running with z/OS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V1R11.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYS1.SIATMIG, if applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This is a JES3 data set. If</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you use JES3, ensure that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>this data set corresponds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to the level of JES3 that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you are running with z/OS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V1R11.</td>
<td></td>
</tr>
<tr>
<td>SYSEXEC</td>
<td>SYS1.SIATCLI0, if applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This is a JES3 data set. If</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you use JES3, ensure that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>this data set corresponds</td>
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</tr>
<tr>
<td></td>
<td>to the level of JES3 that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you are running with z/OS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V1R11.</td>
<td></td>
</tr>
<tr>
<td>SYSPROC</td>
<td>SYS1.SBLSCLI0</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>
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</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced</td>
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</tr>
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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>
</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:
- Communications Server (IP Services component). See “IP Services: Update /etc configuration files” on page 108.
- Cryptographic Services (PKI Services and System SSL components).
- DCE Base Services.
- DFSMShsm.
- 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 162.
- Library Server. See “Library Server actions to perform before the first IPL of z/OS V1R11” on page 189.
- z/OS UNIX. See “Update z/OS UNIX configuration files changed by IBM” on page 223.
The following elements and features use /var:

- Cryptographic Services (OCSF component). See “OCSF: Migrate the directory structure” on page 118.
- 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 162.

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.

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<tr>
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<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>None.</td>
</tr>
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<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
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 the 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>
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</thead>
<tbody>
<tr>
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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 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 89
- “IP Services: Make changes for Netstat enhancements” on page 108
- “Migrate from IP PrintWay basic mode to extended mode” on page 163
- “Update automated actions for message BPXO046I” on page 226

**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 NUCLSTxx 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 ICEPRMxx parmlib members, introduced in z/OS V1R10, to eliminate the assembler language installation option modules.
- HLAASM.
- 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 CEEPRMxx 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 185 for more information about CEEPRMxx.
- SDSF (ISFPARMS customization). See “Use dynamic statements for ISFPARMS to avoid reassembly” on page 198 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>
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<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, 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>
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</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 USRMRD 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](#).
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>
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</thead>
<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, if you use any ISV products and need to reconnect them after performing a ServerPac or SystemPac installation.</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: 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](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/](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](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>
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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 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.

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<td>System impacts:</td>
<td>None.</td>
</tr>
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</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 35.

• 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.

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<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

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 IXGBLF01 (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](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>
<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:** 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 [z/OS MVS Programming: Extended Addressability Guide](http://www.ibm.com/support/techdocs) and Washington Systems Center flash 10165 at [http://www.ibm.com/support/techdocs](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_LNKLIST_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

**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?
No, but recommended to ensure that your checks continue to work as you intend them to work.

### 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.

#### 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.

#### 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.

#### 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:
Using Table 4 on page 35 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
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>SICECLIB</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>
<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 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 5. Data sets and paths added to 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>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>SCBDETCH</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>
</tbody>
</table>
### Table 5. Data sets and paths added to 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>To element or feature</th>
<th>When added</th>
<th>Why added</th>
</tr>
</thead>
<tbody>
<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 REXXX libraries</td>
</tr>
<tr>
<td>SFOMBCPH</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>SFOMCEA</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/sdfs/IBM/</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFJCL1</td>
<td>ISF.ISISFJCL1</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFMI G</td>
<td>ISF.ISISFMIG</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFMOD1</td>
<td>ISF.ISISFMOD1</td>
<td>Target</td>
<td>SDSF</td>
<td>z/OS V1R10</td>
<td>Supports JES2</td>
</tr>
<tr>
<td>SISFRSC1</td>
<td>ISF.ISISFRSC1</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 z/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.

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 to ensure that your MAXUSER value in parmlib member IEASYSxx is adequate.

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 IEASYSxx” in 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

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This topic describes hardware migration actions. The information in this topic is not specifically related to migrating to z/OS V1R11; it only applies if you are changing hardware. Therefore, this topic does not categorize the actions in terms of when they should be performed (before installing, before the first IPL, or after the first IPL).

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>
<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 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/pso/cftable.html](http://www.ibm.com/systems/z/pso/cftable.html).

---

**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.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Multiple.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>When change was introduced:</strong></td>
<td>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.</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>Anytime.</td>
</tr>
<tr>
<td><strong>Is the migration action required?</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
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/os/zos/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>
<thead>
<tr>
<th>System z10 function</th>
<th>R9</th>
<th>R10</th>
<th>R11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic addition of logical CPs without preplanning</td>
<td>Included in base z/OS support</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>
<tr>
<td>System z10 function</td>
<td>R9</td>
<td>R10</td>
<td>R11</td>
</tr>
<tr>
<td>---------------------</td>
<td>----</td>
<td>-----</td>
<td>-----</td>
</tr>
<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, P</td>
<td>B</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 (HLASM support, Language Environment, DBX, CDA RTLE, and XL C/C++)</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>
</table>

Legend:
- Blank – not supported
- B – FMID in base product (assumes service identified in the hardware PSP bucket is installed)
- P – PTFs listed in the System z10 PSP bucket are required
- W – FMID shipped in a Web deliverable

Element or feature: Multiple.
When change was introduced: The System z10 EC server, which first shipped in February 2008.
Applies to migration from: z/OS V1R11, z/OS V1R10, and z/OS V1R9.
Timing: Anytime.
Is the migration action required? Yes, if you want to run z/OS on a System z10 server.
Target system hardware requirements: A System z10 server.
Target system software requirements: See the appropriate PSP buckets for required Web deliverables and PTFs for specific functions, as described in "Recommended migration steps" on page 51.
Other system (coexistence or fallback) requirements: See the appropriate PSP buckets for required PTFs for specific functions, as described in "Recommended migration steps" on page 51.
Restrictions: None.
System impacts: None.

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 56.

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 44 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 56.

4. **Install the necessary z/OS service, as indicated in PSP buckets.** The appropriate PSP buckets are listed in “Recommended migration steps” on page 51 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/spf/srchBroker](http://www14.software.ibm.com/webapp/set2/spf/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 51. 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 51 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](http://www.ibm.com/servers/resourcelink) 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(UNI,LIST)'` 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 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 (contains ICSF FMID HCR7750), Cryptographic Support for z/OS V1R8-R10 and z/OS.e V1R8 (contains ICSF FMID HCR7751), or z/OS Cryptographic Support for z/OS V1R9-V1R11 (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 (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 56 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 56 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 56 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
report will identify any missing 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 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](https://www.ibm.com/support/knowledgecenter/SSEPSM_11.3.0/com.ibm.zos.v1r3r2.doc/c_c__arch_8_tune_8.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](https://www.ibm.com/support/knowledgecenter/SSEPSM_11.3.0/com.ibm.zos.v1r3r2.doc/c_c__arch_8_tune_8.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 IEAOPXX, 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
   %\xxxxxxM\xxxxxxG 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..
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>

56 z/OS V1R11.0 Migration (from z/OS V1R10)
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 61.

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.
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 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 60 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/psp/srchBroker](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 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).

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 HCR7751 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 CHPIDs 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). 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](http://www-01.ibm.com/support/docview.ws/docid/1813867). 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. Also, 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>
<tr>
<td>Target system hardware requirements:</td>
<td>A z990 or z890 server and, for cryptography, the following hardware features: PCI X Cryptographic Coprocessor (PCIXCC), CP Assist for Cryptographic Functions (CPACF) DES/TDES, and PCI Cryptographic Accelerator (PCICA).</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>For shared DASD requirements, see item 4 on page 65. For CFCC coexistence requirements, see item 6 on page 66.</td>
</tr>
</tbody>
</table>
| Restrictions: | • Only LPAR mode (not basic mode) is supported on a z990 or z890 server.  
• Also, see the note on page 65. |
| 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 syplex 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/psp/srchBroker), 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.ServerTimeProtocol
   • IBM.Device.Server.z990-2084.zAAP
   • IBM.Device.Server.z890-2086.ServerTimeProtocol
   • 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 z990 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 66 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](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 workIODF (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.
  - Upload 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.
- PCICCC. 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 7. Summary of z990 CFCC coexistence support**

<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>Pre-G5, G5, or G6</td>
<td>CFCC Level 9 (or below)</td>
<td>Not supported</td>
<td>Not supported</td>
</tr>
<tr>
<td>G5 or G6</td>
<td>CFCC Level 11</td>
<td>Supported</td>
<td>Supported</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 CSNBPKG)
- 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: IOS431I, IXC101I, IXC105I, IXC360I, IXC362I, IXC500I, IXC505I, IXC506I, IXC507I, IXC515I, IXC517I, IXC518I, IXC519E, IXC551I, IXC579I, IXL008I, IXL010E, IXL141I, IXL150I, IXL157I, IXL158I, IXL160E, and IOX50xI. 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>41</td>
</tr>
<tr>
<td>Migrate from a Sysplex Timer to STP</td>
<td>42</td>
</tr>
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<td>Migrate from ICB-4 to Infiniband coupling links</td>
<td>43</td>
</tr>
<tr>
<td>Migrate to a System z10 server</td>
<td>44</td>
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<tr>
<td>Migrate to a System z9 server</td>
<td>56</td>
</tr>
<tr>
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<td>61</td>
</tr>
</tbody>
</table>

**Sysplex actions to perform before installing z/OS V1R11**

<table>
<thead>
<tr>
<th>Element or feature</th>
<th>Title of migration action</th>
<th>Page or topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple</td>
<td>Install coexistence and fallback PTFs</td>
<td>8</td>
</tr>
<tr>
<td>BCP</td>
<td>Use the new default for the system response to a status update missing condition</td>
<td>78</td>
</tr>
<tr>
<td>BCP</td>
<td>Modify applications that use the IXMLG service</td>
<td>88</td>
</tr>
<tr>
<td>BCP</td>
<td>Update automation that handles messages IXL141I and IXL150I</td>
<td>89</td>
</tr>
<tr>
<td>BCP</td>
<td>Use the new default for the system response to a status update missing condition</td>
<td>78</td>
</tr>
<tr>
<td>DFSMSdfp</td>
<td>DFSMSdfp: Back up SMS control data sets</td>
<td>125</td>
</tr>
</tbody>
</table>

**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

BCP actions to perform before installing z/OS V1R11

- Evaluate your stand-alone dump data set allocations and your IPCS processing of them
- Prepare for zAAP-eligible work to run on zIIPs
- Track CSVRTLS services
- Remove SYS1.SVCLIB, SYS1.NUCLEUS, and PASSWORD from global resource serialization RNLs
- Update procedures for varying systems out of the sysplex
- Use the new default for the system response to a status update missing condition
- Enable ENF 51 listeners to listen to conditional ENQ contention
- Discontinue use of IPCS problem management subcommands
- Migrate from the prelinker to the program management binder
- Create IPL text
- Reassemble the stand-alone dump program

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

BCP actions to perform before the first IPL of 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.

Element or feature: BCP
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 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.

<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:
- 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.

Reference information:
- For information about dump data set allocation, extended-format sequential data sets, large format sequential data sets, and multivolume dump data sets, see *z/OS MVS Diagnosis: Tools and Service Aids*.
- For stand-alone dump best practices see *z/OS Problem Management*.

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><strong>Is the migration action required?</strong></td>
<td>Yes, if using zIIPs with no zAAPs.</td>
</tr>
<tr>
<td><strong>Target system hardware requirements:</strong></td>
<td>System z9 or System z10 server.</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>Running zAAP workload on zIIPs is supported for z/OS LPARs when no zAAPs are installed on the same server.</td>
</tr>
<tr>
<td><strong>System impacts:</strong></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](https://www.ibm.com/support/knowledgecenter/S56JG6_11.1.0/com.ibm.zos.mvs.doc/using/ieasu01.htm).

**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](https://www.ibm.com/support/knowledgecenter/S56JG6_11.1.0/com.ibm.zos.mvs.doc/using/ieasu01.htm).
- For more information about the zIIPzAAP parameter in IEASYSxx, see [z/OS MVS Initialization and Tuning Reference](https://www.ibm.com/support/knowledgecenter/S56JG6_11.1.0/com.ibm.zos.mvs.doc/using/ieasu01.htm).

**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.

<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 with APAR OA29019.</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 CSVRTLS services.</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>
<tr>
<td>Related IBM Health Checker for z/OS check:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**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.

<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>
</tbody>
</table>

| 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.

**Reference information:**

- For information about using SAF rather than PASSWORD, see [z/OS DFSMSdfp Advanced Services](#).
- For more information about defining RNLs, see [z/OS MVS Planning: Global Resource Serialization](#).

**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.

<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>Yes, if your local procedures depend on explicit reaction to message IXC102A and the installation is not running z/OS as a VM guest.</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 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.

### 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 specifying or defaulting to ISOLATETIME(0) allows SFM to fence and partition a failed system without operator intervention and without undue delay.

### 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 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>When change was introduced:</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>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 IPCS problem management subcommands to report and track problems.</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 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.

**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.

| Element or feature: | BCP. |
When change was introduced: Stabilization of the prelinker was announced on 28 February 2006 in the z/OS V1R8 preview announcement.

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 prelinker is not planned to be enhanced. Enhancements will be made only to the program management binder.

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 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.

Element or feature: BCP.

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.

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 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.
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>
</tbody>
</table>
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: 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)* 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) * 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.

<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:

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,SYSSREXX 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>
<tr>
<td>'Ranger Guide'</td>
<td>RANGER GUIDE</td>
</tr>
<tr>
<td>''''Mossy Glenn Footpath''</td>
<td>''Mossy Glenn Footpath''</td>
</tr>
</tbody>
</table>

Reference information: [z/OS MVS System Commands](https://www.ibm.com/support/knowledgecenter/SSEQVD_zos502_112/)

**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](https://www.ibm.com/support/docview.wss?uid=swg27011942).

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:xxx0404 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, RSNxxxx0404 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 IXLAYMAREA_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.

Reference information: For a description of messages IXL141I and IXL150I, see z/OS MVS System Messages, Vol 10 (IXC-IZP).

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.

<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 OA25602.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA25602 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 message flood automation is 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>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.</td>
</tr>
</tbody>
</table>

### 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](https://www.ibm.com/support/knowledgecenter/SQAJQX_2.1.0/com.ibm.osa.doc/osa_zos_planning.html).

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**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>
</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:

- 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** and **z/OS MVS Diagnosis: Tools and Service Aids**.
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>
<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 ESQA specification in IEASYSxx is inadequate.</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>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.</td>
</tr>
</tbody>
</table>

**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](#).
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).

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

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 IEFACRT, whether the IBM sample or a routine that you wrote, make sure that it can handle the increased field lengths.

<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>After the first IPL of z/OS V1R11.</td>
</tr>
<tr>
<td>Is the migration action required?</td>
<td>Yes, if you use SMF exit routine IEFACRT.</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 IEFACRT 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.

**Reference information:** For more information about SMF exit IEFACRT, see [z/OS MVS Installation Exits](#).

**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.

<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 V1R19.</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 confusion caused by the expected change in the report GRS real storage usage.</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:
- 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
Chapter 6. Communications Server migration actions

Communications Server actions to perform before installing z/OS V1R11

- IP Services: Modify applications to no longer add IPv6 type 0 routing headers to outgoing packets
- IP Services: Update automation to accommodate volumes
- FTP output that is changed for extended address volumes
- IP Services: Update procedures that use the syslogd job name
- IP Services: Accept the new behavior of TCP receive buffer size
- IP Services: Migrate from NDB function
- IP Services: Migrate from BIND DNS 4.9.3 function
- IP Services: Migrate from BINL function
- IP Services: Migrate from DHCP server function
- IP Services: Remove customization of SNMP sysObjectID MIB object in OSNMPD.DATA file
- Communications Server actions to perform before the first IPL of 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.

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.

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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>
<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:

- 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)]
- For details about FTPD reply codes, see 200- Percent Free Free Largest Free and 200- Volume Free Cyls Trks Cyls-Trks Exts Use Attr in [z/OS Communications Server: IP and SNA Codes]
- For details about the LOCSITE and SITE subcommands, see LOCSite subcommand and SITE subcommand in [z/OS Communications Server: IP User's Guide and Commands]

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.

<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 have automation or procedures that use the syslogd job name, or if you reserve the syslogd UDP port using the job 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 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 TCPMAXRCVBUFSIZE value. The pre-V1R11 behavior is no longer possible; this is a performance enhancement.

<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 have inbound streaming TCP connections over networks with large bandwidth and high latency.</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: 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 TCPRCVBUFSIZE 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. |
### 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>
<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 BIND DNS 4.9.3 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>
</tbody>
</table>
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.

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 BINL function.
Target system hardware requirements: None.
**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>
</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 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.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Communications Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>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.</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 ability to customize the sysObjectID value is planned to be removed in a future 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:** 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.

---

**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.

<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 rolled back to V1R10 and V1R9 by APAR PK66387.</td>
</tr>
<tr>
<td>Applies to migration from:</td>
<td>z/OS V1R10 and z/OS V1R9, both without the PTF for APAR PK66387 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 have security definitions in your network that restrict ephemeral ports to various ranges.</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:
- 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

**Reference information:** For more information about the PORTRANGE statement, see [PORTRANGE statement](z/OS Communications Server: IP Configuration Reference).

---

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 in z/OS 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.

<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:** 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](z/OS Communications Server: IP Configuration Guide) for more information about the resolver caching function.
- See the following statements in [z/OS Communications Server: IP Configuration Reference](z/OS Communications Server: IP Configuration Reference):
  - `CACHE/NOCACHE` resolver setup statement
  - `NOCACHE` TCPIP.DATA statement
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>
</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: 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 Table 8 on page 109</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>
</tbody>
</table>
Is the migration action required? Yes, if you have customized a configuration file (listed in Table 8) that IBM has changed.

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 added installation-dependent customization to any of the IBM-provided configuration files listed in Table 8, 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 8. Changed Communications Server 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>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/</td>
<td>/etc/named.boot</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td></td>
<td>EZANSBOO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/</td>
<td>/etc/caching.boot</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td></td>
<td>EZANSCH4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/</td>
<td>/etc/slave.boot</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td></td>
<td>EZANSSL4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/</td>
<td>/etc/dhcpsd.cfg</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td></td>
<td>EZATDDSD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIND</td>
<td>/usr/lpp/tcpip/samples/IBM/</td>
<td>/etc/binlsd.cfg</td>
<td>In V1R11, BIND DNS 4.9.3 function was removed from z/OS.</td>
</tr>
<tr>
<td></td>
<td>EZATDLS5</td>
<td></td>
<td></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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>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>
</tbody>
</table>
### Table 8. 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>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>
<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 (otelnrd)</td>
<td>None</td>
<td>/etc/otelnrd.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 (otelnrd).</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](#).

### 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.

<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.</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>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.</td>
</tr>
</tbody>
</table>

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.

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 you have large numbers of HPR connections and VTAM is using a high percentage of its allocated region size.

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 (IKE) daemon (IKED) parameters were used to control the IKE daemon’s retransmission behavior:

- KeyWait
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](https://www.ibm.com/support/knowledgecenter/SSEPS8_11.1.0/com.ibm.zos.r111.ceps8.ceps8110.doc/guides/s_gbrscn1p136320140623.html)

**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
  proname,CHKPT,TYPETOPO.
  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 7. Cryptographic Services migration actions

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| Cryptographic Services actions to perform before the first IPL of z/OS V1R11 | System SSL: Modify applications that use x509_reason_removeFromCrl_byte and x509_reason_removeFromCrl_mask | 118 |
| OCSF: Migrate the directory structure | ICSF: Modify ICSF startup procedure | 118 |
| System SSL: Modify applications to address disablement of SSL V3 and TLS session renegotiation | Cryptographic Services actions to perform after the first IPL of z/OS V1R11 | 120 |

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

None.

**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(). Reinitialization, 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.

**Element or feature:** Cryptographic Services.

**When change was introduced:** ICSF FMID HCR7770, which was made available in Web deliverable Cryptographic Support for z/OS V1R9-R11.

**Applies to migration from:** 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).

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

**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.
### 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>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>-------------</td>
<td>-------</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 24. 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 `ocsf_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 `ocsf_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_issueing_dist_point) in the System SSL CMS header file (gskcms.h) has been modified to contain the new field.

```c
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.

**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 use the gsk_encode_certificate_extension API to encode an Issuing Distribution Point certificate extension.

**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 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](https://www.ibm.com/support/knowledgecenter/S585ZC_1.11.0/com.ibm.zos.v1r11.cics.doc/cicscconfw_cicscconfw1118.html).
- 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 Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile).

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 fields

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>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 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>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>Target system software requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Other system (coexistence or fallback)</td>
<td>None.</td>
</tr>
<tr>
<td>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:** 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](https://www.ibm.com/support/knowledgecenter/SSEPGG_1.3.1.0/com.ibm.zos.v1r11.doc/icsf/iqs_icsf_admin.html).

**Cryptographic Services actions to perform after the first IPL of z/OS V1R11**

None.
Chapter 8. DFSMS migration actions

DFSMS actions to perform before installing z/OS V1R11

This topic describes 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>
<tr>
<td>Other system (coexistence or fallback) requirements:</td>
<td>Install the PTFs in “Install coexistence and fallback PTFs” on page 8 if they are not already installed.</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 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.

**When change was introduced:**
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 DFSMShsm recall operations as announced in Software Announcement 207-175 4 (RFA45594), dated August 7, 2007.

**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 avoid degraded performance and wasted DASD space.

**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. 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 IMBDSHIPJCL.TRSD. Download the file in binary format and untarse 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:

```bash
//* 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  
//infilen(INDD)  
//outfilen(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  
//infilen(INDD)  
//outdataset(EXAMPLE.KSDS)
```

For ICF catalogs, see informational APAR III13354 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](https://www.ibm.com).  
- For more information about the AMATERSE service aid, see [z/OS MVS Diagnosis: Tools and Service Aids](https://www.ibm.com).
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 CONTROLINTERVALSIZE 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.

Element or feature: DFSMSdfp.

When change was introduced: z/OS V1R11.

Applies to migration from: z/OS V1R10, and z/OS V1R9 without PTF UA36500 (APAR OA21369) applied.

Timing: Before installing z/OS V1R11.

Is the migration action required? No, but recommended because specifying a control interval size other than 4096 (with the DEFINE command) can improve VSAM performance.

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 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:

```
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.

---

**Element or feature:** DFSMShsm.

**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 NOOVERFLOW 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:**
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”
```

**Element or feature:** DFSMSrmm.

**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 use the VRSEL(OLD) operand of the OPTION command in DFSMSrmm parmlib member EDGRMMxx.

**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 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.
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>
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<tbody>
<tr>
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<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 enabled RACF program control and you use it to protect the ICKDSF profile in the PROGRAM class.</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>

Reference information: For information about maintaining SYS1.IMAGELIB, see [z/OS DFSMSdfp Advanced Services](https://www.ibm.com).
**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 RACLST(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](https://www.ibm.com).  
- For information about using RACF commands to set up the security definitions, see [z/OS Security Server RACF Command Language Reference](https://www.ibm.com).

**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.

**Element or feature:** DFSMSdfp.

**When change was introduced:** z/OS V1R11, z/OS V1R10, z/OS V1R9, and z/OS V1R8, all with APAR OA29467.
Applies to migration from: z/OS V1R10 and z/OS V1R9, without the PTF for APAR OA29467 applied.

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

Is the migration action required? Yes, if you OPEN a temporary VSAM data set with RESET option.

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 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-EIE).
- For information about the OPEN macro, see z/OS DFSMS Macro Instructions for Data Sets.

**DFSMSdfp: 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: DFSMSdfp.

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.
### 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.

**Element or feature:** DFSMSdfp.

**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 have previously added trace points for the VSAM record management trace function.

#### 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)](z/OS DFSMSdfp Diagnosis) in **z/OS DFSMSdfp Diagnosis**.

**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>
</tbody>
</table>
| System impacts: | • 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.  
   • 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. |

**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(dname) BCDS and LIST LEVEL(hlg) 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>
### DFSMSshsm: 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.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>DFSMSshsm.</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 use the (H)BDELETE command or the ARCHBDEL macro.</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 coexistence and fallback PTF for APAR OA26327 on pre-z/OS V1R11 systems.</td>
</tr>
<tr>
<td>Restrictions:</td>
<td>None.</td>
</tr>
<tr>
<td>System impacts:</td>
<td>None.</td>
</tr>
</tbody>
</table>

**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 DFSMSshsm 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 DFSMSshsm Storage Administration and z/OS DFSMSshsm 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>
</tbody>
</table>

Target system hardware requirements: None.

Target system software requirements: None.
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.
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(GEN) 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 UA45968 (APAR OA26947) on z/OS V1R9 and PTF UA45967 (APAR OA26947) on z/OS V1R10. The check determines whether you have duplicate GDG processing defined.

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 (EDGUxx00) 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.

**Reference information:** To read more about the use of DFSMSrmm installation exits and dynamic exit services, see:

- [z/OS MVS Programming: Authorized Assembler Services Guide, SA22-7608](#) for information about the CSVDYNEX macro
- [z/OS MVS Initialization and Tuning Reference, SA22-7592](#) for information about the PROGxx parmlib member
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.
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 have written any REXX execs that
are used with any of the DFSMSrmm
SEARCH or LISTCONTROL subcommands.

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:
- To read more about the ISRSUPC module used in the EDGJSTM0 sample JCL,
see z/OS ISPF User's Guide Vol II
- For more information about the stem variables used by DFSMSrmm
subcommands, see z/OS DFSMSrmm Managing and Using Removable Media.
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.

**DFSMSdfp: 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>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>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).

**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.

**Element or feature:** DFSMSdpf.

**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 application depends on the output generated by the IDCAMS LISTCAT ALL command.

**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:** 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:

```
LISTCAT LEVEL(ZTAMS002) ALL
  NONVSAM ------ ZTAMS002.COMPRS.DATA01
  IN=CAT --- SYS1.MVSRES.MASTCAT
  HISTORY
    DATASET-OWNER----- (NULL) CREATION--------2004.297
    RELEASE----------------2 EXPIRATION------0000.000
    ACCOUNT-INFO------------------------(NULL)
    EATTR--------------(OPT)
  SMSDATA
    STORAGECLASS ---S1P03S12 MANAGEMENTCLASS---(NULL)
    DATACLASS ------SRX00001 LBACKUP ---0000.000.0000
    VOLUMES
      VOLSER----------1P0301 DEVTYPE-----X'3010200F'
```

**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>
</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:** 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: 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 ANTQFRVL macro; otherwise, a value of 'b will result in a version, release and level of 110 being assumed for ANTQFRVL.

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).
### DFSMSdss: Define facility class names to protect (H)BACKDS RETAINDAYS commands

**Description:** Starting in z/OS V1R11, new DFSMSshm 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 DFSMSshm (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>DFSMSshm.</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>---</td>
<td>---</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.

**Reference information:**
- For general information about the BACKDS command, see Part 1 in [z/OS DFSMShsm Storage Administration](#).
- For details about the BACKDS RETAINDAYS command, see Part 2 in [z/OS DFSMShsm Storage Administration](#).
Chapter 9. Distributed File Service migration actions

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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.

<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 are using zFS multi-file system aggregates.</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: 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 `IOEFSRPM` configuration options file or about copying data from one file system into another file system, see F/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 OAannnnn - HZFS3A0.
Created on Tue Jan 6 20:02:25 EST 2009.
syplex(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, syplex(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 [IOEFSRM](#) 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](#).

---

**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.

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 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: 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](https://www.ibm.com/support/knowledgecenter/SSLTBW_2.2.4/com.ibm.zos.v2r11.doc.cicg/hrm0175.html).

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:

```
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.
Chapter 10. HCM migration actions

<table>
<thead>
<tr>
<th>HCM actions to perform before installing z/OS V1R11</th>
<th>Install the new HCM</th>
<th>HCM actions to perform after the first IPL of z/OS V1R11</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td>157</td>
<td>158</td>
</tr>
</tbody>
</table>

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 **Unistall** 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.

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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 11. 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

None.

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.

Element or feature: IBM TDS.

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 want to use the IBM TDS WLM support, which is the default.

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 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:

   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 12. Infoprint Server migration actions

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This topic describes migration actions for optional feature Infoprint Server.

Infoprint Server actions to perform before installing z/OS V1R11

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.

Upgrade XML for Infoprint Central

**Description:** In z/OS V1R11, the Infoprint Central component of Infoprint Server, which you can use to work with IP PrintWay 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 start-daemons=[ssid] attribute is specified in the Infoprint Server configuration file. The file's default location is /etc/Printsrv/aopd.conf. 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/
  xml4c-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.
<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>Infoprint Server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>When change was introduced:</td>
<td>Basic mode was stabilized in z/OS V1R5. Extended mode was introduced in z/OS V1R5.</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 will become a requirement in a future release.</td>
</tr>
<tr>
<td>Target system hardware requirements:</td>
<td>None.</td>
</tr>
<tr>
<td>Target system software requirements:</td>
<td>If you use Infoprint Central to work with IP PrintWay extended mode print jobs and printers:</td>
</tr>
<tr>
<td></td>
<td>- An operating IBM HTTP Server base element of z/OS</td>
</tr>
<tr>
<td></td>
<td>- XML Toolkit for z/OS V1R8 (5655-J51)</td>
</tr>
<tr>
<td></td>
<td>One of these:</td>
</tr>
<tr>
<td></td>
<td>- IBM SDK for z/OS, Java 2 Technology Edition, V5 (5655-N98) at the third release (SR3) or later</td>
</tr>
<tr>
<td></td>
<td>- Microsoft® Internet Explorer 5.5, Netscape Navigator 7.0, or IBM Home Page Reader 4.0</td>
</tr>
<tr>
<td></td>
<td>To use IP PrintWay extended mode to print to VTAM-controlled printers, Infoprint Coaxial Printer Support for z/OS (5655-N62) is required.</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:** See [Migrating from IP PrintWay basic mode to extended mode](z/OS Infoprint Server Customization) 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](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](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](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').

**Element or feature:** Infoprint Server.

**When change was introduced:** APAR OA18217 on z/OS V1R5 and later.

**Applies to migration from:** z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA18217 installed.

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

**Is the migration action required?** Yes, if you use IP PrintWay extended 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:** 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.
When change was introduced: APAR OA22885 on z/OS V1R5 and later.

Applies to migration from: z/OS V1R10 and z/OS V1R9, both without the PTF for APAR OA22885 installed.

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

Is the migration action required? Yes, if you use IP PrintWay e-mail protocol.

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 IP PrintWay e-mail protocol and the sendmail command is located in the /usr/sbin directory instead of in the /bin directory, specify the full path name of the sendmail command in the AOPMAILER environment variable (AOPMAILER=/usr/sbin/sendmail). Specify AOPMAILER in one of these locations, depending on the IP PrintWay mode:

- IP PrintWay extended mode: Specify AOPMAILER in the aopstart EXEC.
- IP PrintWay basic mode: Specify AOPMAILER in the IP PrintWay basic mode startup procedure.

Reference information: [z/OS Infoprint Server Customization](https://www.ibm.com/support/knowledgecenter/SSSLTN_10.4.0/com.ibm.zos.v1r10.doc/q005838.html)

### 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 13. Integrated Security Services migration actions

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 14. 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

None.

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.

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 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 DLIST SRCHFOR Options panel, see [z/OS ISPF Planning and Customizing](#).
Chapter 15. 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.

**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 9 explains which fields need to be replaced for specific exits.

Table 9. 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</td>
<td>X001JOA</td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-JOE.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X001CJOE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>characteristics-JOE.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>X015WJOE</td>
<td>X015JOA</td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-JOE.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X015CJOE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Characteristics-JOE.</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>X038JOE</td>
<td>X038JOA</td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-JOE.</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>X046JOE</td>
<td>X046JOA</td>
</tr>
<tr>
<td></td>
<td>Address of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-JOE.</td>
<td></td>
</tr>
</tbody>
</table>

• 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.
### Table 9. Replace fields for exits 1, 15, 38, 46, and 56 (continued)

<table>
<thead>
<tr>
<th>Exit</th>
<th>Previous Field</th>
<th>Replacement Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>X056JOE</td>
<td>X056JOA</td>
</tr>
</tbody>
</table>

- Address of the work JOE (JOE) 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.

- 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.
- For information about JES2 commands, 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.
- 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 ehOUNT
$HASP852 ---------  ---------  -----------
$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 $D ACTIVATE
$HASP895 JES2 CHECKPOINT MODE IS CURRENTLY Z2
$HASP895 THE CURRENT CHECKPOINT:
$HASP895 -- CONTAINS 1100 BERTS AND BERT UTILIZATION IS 30
$HASP895 PERCENT.
$HASP895 -- CONTAINS 158 4K RECORDS.
$HASP895 z11 CHECKPOINT MODE ACTIVATION WILL:
$HASP895 -- EXPAND CHECKPOINT SIZE TO 165 4K RECORDS.
$HASP895 -- REQUIRE 22 ADDITIONAL BERTS AND UTILIZATION
$HASP895 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:

```
$HASPO9130 D HISTORY
$HASPO9131 JES2 BERT USAGE HISTORY
DATE   TIME     LIMIT USAGE LOW  HIGH  AVERAGE
-------- -------- -------- -------- -------- -------- --------
2009.086 16:00:00 1100 337 337 337 337
2009.086 15:50:09 1100 337 125 337 192
```

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 $JD HISTORY command details, see z/OS JES2 Commands.
Chapter 16. JES3 migration actions

JES3 actions to perform before installing z/OS V1R11

<table>
<thead>
<tr>
<th>JES3 actions to perform before installing z/OS V1R11</th>
<th>Identify the JES3 auxiliary address space to your security product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify code that depends on the value of STVSTOD returned by extended status</td>
<td>Update JES3 exit IATUX72</td>
</tr>
</tbody>
</table>

This topic describes migration actions for optional feature JES3.

JES3 actions to perform before installing z/OS V1R11

This topic describes JES3 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 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.

**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.

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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.

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 the first IPL of z/OS V1R11.
Is the migration action required? Yes, if your security product is configured to monitor started tasks.
Target system hardware requirements: None.
Target system software requirements: None.
Other system (coexistence or fallback) requirements: None.
Restrictions: None.
System impacts: JES3 will not start unless this action is taken.

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 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.

### 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 the first IPL of z/OS V1R11.

### Is the migration action required?

Yes, if you use exit IATUX72.

### 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:

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](#).

---

### JES3 actions to perform after the first IPL of z/OS V1R11

None.
Chapter 17. Language Environment migration actions

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>
<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 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.

- **EDCWLP4:** 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>
</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 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 HEAPPOOLS 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.

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

None.
Chapter 18. Library Server migration actions

This topic describes migration actions for base element Library Server.

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.)

<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 your Library Server configuration.</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 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.
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 19. NFS migration actions

NFS actions to perform before installing z/OS V1R11

This topic describes 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',
```

Element or feature: NFS.

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 currently use the DEBUGn parameter in NFS server startup procedures.

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 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.
- PARMS='ERROR' – causes recording of NFS error messages only.
If you continue to use PARMS='DEBUGn', you will receive message GFSA949I and the server logging is set to INFO, which is the default.

**Reference information:** For details about specifying the PARMS parameter, see `z/OS Network File System Guide and Reference`.

---

**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**

None.
Chapter 20. RMF migration actions

RMF actions to perform before installing z/OS V1R11

None.

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.

Steps to take: To migrate Working Sets from pre-z/OS V1R11 releases, the Spreadsheet Reporter provides the **MigrateWSetsToXLS.bat** procedure to perform

Element or feature: RMF

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 want to process Working Sets produced with Spreadsheet Reporter versions prior to z/OS V1R11.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.

Restrictions: None.

System impacts: None.

Use an RMF Monitor III reporter version equal to or later than your RMF Monitor III gatherer version.

Replace the Postprocessor Plot report with an RMF Spreadsheet Reporter macro.

Redisplay fields for HiperSockets in the Monitor III CHANNEL report.
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.

---

**Element or feature:** RMF.

**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, if you had planned to use an earlier-level RMF reporter on data that was collected with a later-level RMF gatherer.

**Target system hardware requirements:** None.

**Target system software requirements:** None.

**Other system (coexistence or fallback) requirements:** See “Steps to take” below.

**Restrictions:** None.

**System impacts:** None.

---

**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.
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>
</tr>
</thead>
<tbody>
<tr>
<td>RMF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When change was introduced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/OS V1R11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applies to migration from:</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/OS V1R10 and z/OS V1R9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>After the first IPL of z/OS V1R11.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is the migration action required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, if you still want to get a graphic summary of system activity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system hardware requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target system software requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other system (coexistence or fallback) requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Restrictions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System impacts:</th>
</tr>
</thead>
<tbody>
<tr>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>RMF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>When change was introduced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>APAR OA21140 on z/OS V1R10 and integrated in z/OS V1R11.</td>
</tr>
</tbody>
</table>

Reference information: For more information about Monitor III commands, see z/OS RMF User’s Guide.
<table>
<thead>
<tr>
<th>Applies to migration from:</th>
<th>z/OS V1R10 without the PTF for APAR OA21140 installed, and z/OS V1R9.</th>
</tr>
</thead>
<tbody>
<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 21. SDSF migration actions

This topic describes migration actions for optional feature SDSF.

SDSF actions to perform before installing z/OS V1R11

SDSF actions to perform before installing z/OS V1R11

- Use an alternative to modifying SDSF source modules and macros.
- Reassemble user exit routines.
- Use dynamic statements for ISFPARMS to avoid reassembly.

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

- Define a new SAF profile that controls access to the SYSLOG.
- Update batch scripts for changes to the format of the SYSLOG panel.
- Update REXX execs for changes to fields on H, O and SP.
- Update the widths of columns on SP.
- Update post-SAF user exits.

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

- Delete unnecessary HASPINDX data sets.
- Define a new SAF profile that controls access to the SYSLOG.
- Update batch scripts for changes to the format of the SYSLOG panel.
- Update REXX execs for changes to fields on H, O and SP.
- Update the widths of columns on SP.
- Update post-SAF user exits.

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.

**Element or feature:** SDSF.

**When change was introduced:** z/OS V1R9.

**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 source modifications.

**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 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.
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.

<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 users access the SYSLOG panel.</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: 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 ISFPRMxx.

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.

<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 batch scripts rely on the format of the SYSLOG or the log stamp prefix.</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>-----------------------------------------------</td>
<td>------</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 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.
For information about using SDSF with REXX, use the SDSF command REXXHELP or see z/OS SDSF Operation and Customization.

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.

<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 users have saved Arrange criteria, or if you have customized field lists for the SP panel that specify a width for LoTrk or HiTrk.</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:** 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.

<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>
</tbody>
</table>
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.
Chapter 22. Security Server migration actions

Security Server actions to perform before installing z/OS V1R11

- Modify programs and JCL that use the LRECL of the IRRADU00 output data sets
  - Ensure access to HMC for WTOR reply

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

- Update database templates
- Remove trusted and privileged started task user IDs from RACF profile access lists

Security Server actions to perform before the first IPL of z/OS V1R11

- Check for duplicate class names

This topic describes migration actions for optional feature Security Server.

Security Server actions to perform before installing z/OS V1R11

None.

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.

**Element or feature:** Security Server.

**When change was introduced:**
- z/OS V1R10, z/OS V1R9, and z/OS V1R8, all with APAR OA26653, integrated into z/OS V1R11.

**Applies to migration from:**
- z/OS V1R10 and z/OS V1R9 without the PTF for APAR OA26653 applied.

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

**Is the migration action required?** Yes, if you have programs to read the outputs generated by IRRADU00 utility and your program cannot handle the longer LRECL.

**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:**
• 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.

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 WTORs 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 data base
and issues WTORs 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.

<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>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: To install the database template updates, run the IRRMIN00 utility with PARM=UPDATE.

Note: If IRRMIN00 produces a return code of 4 and message IRRR025 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.
Chapter 23. 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>
</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 the new behavior, 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](https://www.ibm.com) or [z/OS MVS Initialization and Tuning Guide](https://www.ibm.com).

### 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.

<table>
<thead>
<tr>
<th>Element or feature:</th>
<th>TSO/E.</th>
</tr>
</thead>
</table>
| 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 24. XL C/C++ migration actions

XL C/C++ actions to perform before installing z/OS V1R11

- Review the XL C/C++ Migration Guide for the Application Programmer

XL C/C++ actions to perform before the first IPL of z/OS V1R11

- Adjust inlining settings for changes to the INLINE option
- Use the XL C/C++ compiler -qmakedep option instead of the stand-alone makedepend utility

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.

<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>Yes, if you depend on the layout of the previous inline report, or if you have strict runtime performance target for your application.</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: 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>
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<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>
</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:** 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](https://www.ibm.com).
Chapter 25. 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

- Migrate from HFS file systems to zFS file systems
- Update z/OS UNIX configuration files changed by IBM
- Update automated actions for message BPXO040I
- Use man instead of OHELP
- Use the BPX.UNIQUE.USER profile instead of BPX.DEFAULT.USER
- Update automated actions for message BPXO046I
- Update automation that handles ISPF Edit and ISPF Browse

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

- Update automated actions for message BPXO046I
- Use man instead of OHELP
- Use the BPX.UNIQUE.USER profile instead of BPX.DEFAULT.USER
- Update automated actions for message BPXO046I
- Update automation that handles ISPF Edit and ISPF Browse

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.

Element or feature: z/OS UNIX.

When change was introduced: zFS became the strategic file system in z/OS V1R7.

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 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.

Target system hardware requirements: None.

Target system software requirements: None.

Other system (coexistence or fallback) requirements: None.
Restrictions:
Understand the zFS recommendations and limits. For more information, see Minimum and maximum file system sizes in z/OS Distributed File Service zSeries File System Administration.

System impacts:
None.

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 -XCM ./ /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:
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 10 on page 224.
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 10 on page 224, 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 10. 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 225.</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 BPX0040I

**Description:** Before z/OS V1R11, message BPX0040I 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 BPX0070I 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 BPX0040I.
**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 BPX0040I so they now work with message BPX0070I.

**Reference information:** For information about message BPX0070I, 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 set up 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 RACLST(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.

<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 have automation that depends on the display of OEDIT and OBROWSE panels.</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 any automation that depends on the display of panels by OEDIT and OBROWSE.

**Reference information:** None.
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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Policy for unsupported hardware

Various z/OS elements, such as DFSMS, HCD, JES2, JES3, and MVS, contain code that supports specific hardware servers or devices. In some cases, this device-related element support remains in the product even after the hardware devices pass their announced End of Service date. z/OS may continue to service element code; however, it will not provide service related to unsupported hardware devices. Software problems related to these devices will not be accepted for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.
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