

NaSPA

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# Migrating to z/OS 1.10 – Part 1

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CICS	ESCON	IMS	OSQSO	Resource Unit	zVM
DEZ	Esaver	Infoprint	Parallel Sysplex	RMF	zSeries
DEZ Universal Database	FICON	Language Environment		SQD	
DFSMSIsp		Mailmerge		SQD Parallel Enterprise Server	
DFSMSIus		MVS		Splicex Timer	
		MVSESA		SystemFac	
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z/OS 1.10 Planning

## z/OS 1.10 Planning Agenda

- ▶ **Content of z/OS R10**
  - Elements and Features Added, Changing, and Withdrawn
- ▶ **z/OS Ordering and Deliverables**
  - Products Related to z/OS
- ▶ **z/OS Policies**
  - z/OS Coexistence-Migration-Fallback
- ▶ **Positioning for z/OS R10:**
  - Ensuring System Requirements are Satisfied
    - Driving and Target System Requirements
  - Coexistence System Requirements
    - Programmatic Verification is Available!
  - Migration Actions You Can Do NOW
  - Programmatic Verification of Migration Actions for z/OS R10
- ▶ **Summary**

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z/OS 1.10 Planning

## Scope

- ▶ **Focus on Migrating to z/OS R10 from z/OS R9 and R8**
  - If migrating to a new server level, see:
    - for z890 and z990: migration action in z/OS Migration "Migrate to a z990 or z890 server"
    - for z9 EC and BC: migration action in z/OS Migration "Migrate to a System z9 server"
    - for z10 EC: migration action in z/OS Migration "Migrate to a System z10 server"

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**Related Publications:**

- z/OS Planning for Installation (GA22-7504)*
- z/OS Introduction and Release Guide (GA22-7502)*
- z/OS Program Directory (n/a)*
- System z Platform Test Report for z/OS and Linux Virtual Servers (available from <http://www.ibm.com/servers/eserver/zseries/zos/integtst/>)*
- z/OS Migration (GA22-7499)*
- z/OS Summary of Interface and Message Changes (SA22-7505)*
- z/OS MVS Initialization and Tuning Reference (SA22-7592)*
- z/OS UNIX System Services Planning (GA22-7800)*
- ServerPac: Installing Your Order (no order number; custom-built to your order)*
- ServerPac: Using the Installation Dialog, (SA22-7815)*

URL	DESCRIPTION
<a href="http://www.ibm.com/servers/eserver/zseries/zos">http://www.ibm.com/servers/eserver/zseries/zos</a>	IBM z/OS home page
<a href="http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp">http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp</a>	IBM Education Assistant
<a href="http://www.ibm.com/servers/eserver/zseries/zos/servicetst/">http://www.ibm.com/servers/eserver/zseries/zos/servicetst/</a>	Consolidated Service Test (CST) home page
<a href="http://www.ibm.com/servers/eserver/zseries/zos/installation/">http://www.ibm.com/servers/eserver/zseries/zos/installation/</a>	z/OS Installation
<a href="http://www.ibm.com/servers/eserver/zseries/zos/support/zos_eos_dates.html">http://www.ibm.com/servers/eserver/zseries/zos/support/zos_eos_dates.html</a>	End of Service dates for z/OS releases
<a href="http://www.ibm.com/servers/eserver/zseries/zos/integtst/">http://www.ibm.com/servers/eserver/zseries/zos/integtst/</a>	zSeries Platform Test web page
<a href="http://www.ibm.com/servers/eserver/zseries/zos/bkserv/">http://www.ibm.com/servers/eserver/zseries/zos/bkserv/</a>	z/OS Library web page
<a href="http://www.redbooks.ibm.com/">http://www.redbooks.ibm.com/</a>	IBM Redbooks web page
<a href="http://www.ibm.com/support/techdocs/atmastr.nsf/Web/Flashes">http://www.ibm.com/support/techdocs/atmastr.nsf/Web/Flashes</a>	IBM Systems Center Flashes
<a href="http://www.ibm.com/servers/eserver/zseries/zos/support/">http://www.ibm.com/servers/eserver/zseries/zos/support/</a>	z/OS Technical Support
<a href="http://www.ibm.com/ibmlink/">http://www.ibm.com/ibmlink/</a>	IBMLink web page
<a href="http://www.ibm.com/systems/z/advantages/psocftable.html">http://www.ibm.com/systems/z/advantages/psocftable.html</a>	Coupling Facility Level (CFLEVEL) Considerations web page
<a href="http://service.boulder.ibm.com/390holddata.html">http://service.boulder.ibm.com/390holddata.html</a>	Enhanced HOLDDATA web page
<a href="http://www14.software.ibm.com/webapp/set2/psp/srchBroker">http://www14.software.ibm.com/webapp/set2/psp/srchBroker</a>	PSP buckets web page (for EPSPT extract files)
<a href="http://www14.software.ibm.com/webapp/set2/sas/f/psp/download.html">http://www14.software.ibm.com/webapp/set2/sas/f/psp/download.html</a>	EPSPT download page

## Migrating to zOS 1.10 – Part 1

<a href="http://www.ibm.com/software/shopzseries">http://www.ibm.com/software/shopzseries</a>	ShopzSeries home page
<a href="http://www.ibm.com/servers/eserver/zseries/zos/software/isy110.html">http://www.ibm.com/servers/eserver/zseries/zos/software/isy110.html</a>	Software Dev. Supporting z/OS V1.10
<a href="http://www.ibm.com/servers/eserver/zseries/swprice/">http://www.ibm.com/servers/eserver/zseries/swprice/</a>	IBM System z Software Pricing: home
<a href="http://www.ibm.com/servers/eserver/zseries/swprice/zna1c.html">http://www.ibm.com/servers/eserver/zseries/swprice/zna1c.html</a>	IBM System z Software Pricing: zNALC
<a href="http://www.ibm.com/servers/eserver/zseries/zos/zos_sods.html">http://www.ibm.com/servers/eserver/zseries/zos/zos_sods.html</a>	z/OS statements of direction web page
<a href="http://www-306.ibm.com/software/support/lifecycle/">http://www-306.ibm.com/software/support/lifecycle/</a>	IBM Software Support Lifecycle (for EOS)
<a href="http://www.ibm.com/software/network/commserver/zos/">http://www.ibm.com/software/network/commserver/zos/</a>	z/OS Communications Server web page
<a href="http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html">http://www.ibm.com/systems/z/os/zos/hchecker/check_table.html</a>	z/OS Health Checker Checks web page
<a href="http://www.ibm.com/software/awdtools/czos/support/">http://www.ibm.com/software/awdtools/czos/support/</a>	z/OS XL C/C++ Support web page (for IOCCHK tool)
<a href="http://www.ibm.com/servers/eserver/zseries/zos/unix/suptlk/">http://www.ibm.com/servers/eserver/zseries/zos/unix/suptlk/</a>	IBM Ported Tools for z/OS: Supplementary Toolkit for z/OS feature web page

### IBM Education:

IBM courses are available for z/OS. For schedules and enrollment on the world wide web, IBM Global Campus URL: <http://www.ibm.com/services/learning/> .

z/OS 1.10 Planning

## z/OS R10 Base Elements and Optional Features Changing (from R8)

<ul style="list-style-type: none"> <li>➔ <b>Alternate Library for Rexx (V1R4)*</b></li> <li>➔ <b>BCP</b></li> <li>➔ <b>Capacity Provisioning*</b></li> <li>➔ <b>System Rexx for z/OS*</b></li> <li>➔ <b>Common Information Model (CIM)</b></li> <li>➔ <b>Communications Server</b></li> <li>➔ <b>Communications Server Security Level 3</b></li> <li>➔ <b>Cryptographic Services:</b></li> <li>➔ <b>ICSF (FMID HCR7750)</b></li> <li>➔ <b>OCSF</b></li> <li>➔ <b>PKI Services</b></li> <li>➔ <b>System SSL</b></li> <li>➔ <b>DFSMSdftp</b></li> <li>➔ <b>DFSMSdss</b></li> <li>➔ <b>DFSMShsm</b></li> <li>➔ <b>DFSMSrmm</b></li> <li>➔ <b>DFSMSstvs</b></li> <li>➔ <b>Distributed File Service</b></li> <li>➔ <b>HCD</b></li> <li>➔ <b>HCM</b></li> <li>➔ <b>HLASM (V1R6)</b></li> <li>➔ <b>HLASM Toolkit (V1R6)</b></li> <li>➔ <b>IBM Tivoli Directory Server</b></li> </ul>	<ul style="list-style-type: none"> <li>➔ <b>Integrated Security Services:</b></li> <li>➔ <b>Enterprise Identity Mapping</b></li> <li>➔ <b>LDAP Server</b></li> <li>➔ <b>Network Authentication Service</b></li> <li>➔ <b>OCEP</b></li> <li>➔ <b>ISPF</b></li> <li>➔ <b>JES2</b></li> <li>➔ <b>JES3</b></li> <li>➔ <b>Language Environment</b></li> <li>➔ <b>Library Server</b></li> <li>➔ <b>Metal C Runtime Library*</b></li> <li>➔ <b>Network File System</b></li> <li>➔ <b>RMF</b></li> <li>➔ <b>Run-Time Library Extensions</b></li> </ul>	<ul style="list-style-type: none"> <li>➔ <b>SDSF</b></li> <li>➔ <b>Security Server - RACF</b></li> <li>➔ <b>SMP/E (V3R5)</b></li> <li>➔ <b>TSO/E</b></li> <li>➔ <b>C/C++ Without Debug Tool</b></li> <li>➔ <b>z/OS Security Level 3:</b></li> <li>➔ <b>IBM Tivoli Directory Server Security Level 3* (includes LDAP Security Level 3)</b></li> <li>➔ <b>Network Authentication Service Level 3</b></li> <li>➔ <b>OCSF Level 3</b></li> <li>➔ <b>SSL Level 3</b></li> <li>➔ <b>z/OS UNIX:</b></li> <li>➔ <b>Application Services</b></li> </ul>
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**KEY:**

- **Black** (in bold) are base elements
- **Green** (also in bold) are optional priced features
- **Brown** (also in *italics*) are optional unpriced features with export controls
- \* indicates a new element since z/OS R8
- ➔ This element changed in z/OS R10 (from z/OS R8)
- ➔ This element changed in z/OS R10 (from z/OS R9)
- All other elements not listed have not changed since z/OS R8

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## z/OS Elements and Features

z/OS consists of base elements and optional features:

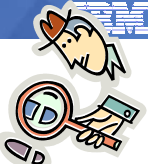
- The **base elements** (or simply *elements*) deliver essential operating system functions. When you order z/OS, you receive all of the base elements.
- The **optional features** (or simply *features*) are orderable with z/OS and provide additional operating system functions. Optional features are unpriced or priced:
  - Unpriced features* are shipped to you **only if** you order them. If you plan to use any unpriced features, IBM recommends that you order them when you order your base elements. You must not wait until the next release becomes available. Once a release's base elements are no longer orderable, usually neither are its unpriced features.
  - Priced features* are **always** shipped to you. When IBM packages your order, we *enable* the priced features that you ordered. These features are ready to use after you install z/OS (and customize them as needed). We *disable* the priced features that you did not order. Although they are installed on your system, you cannot use them. Later on, if you decide to use them, you notify IBM and you enable them dynamically (which is known as *dynamic enablement*). You dynamically enable by updating parmlib member IFAPRDxx and you notify IBM by contacting your IBM representative.

Elements and features may be exclusive or nonexclusive:

- An element or feature is called *exclusive* to z/OS if it exists only within z/OS (not also as a separately orderable, or stand-alone, product) and if future functional enhancements will occur only within z/OS.
- An element or feature is called *nonexclusive* if it exists both (1) within z/OS and (2) as a stand-alone product.

Listed in the foil above is the changing elements within z/OS R10 since z/OS R8. For a complete list of all the z/OS R10 base elements and optional features, see Appendix A in this presentation.

**z/OS 1.10 Planning**



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**Some Notable Element Information in z/OS R10**






- ➔ **Alternate Library for REXX (new in R9)**
  - Consists of FMIDs HWJ9143 (ENU) and JWJ9144 (JPN). Same level available from the Alternate Library portion of the priced product IBM Library for REXX on zSeries V1R4 (5695-014), and the no-fee Web download Alternate Library for REXX on z/OS.
- ➔ **Metal C Runtime Library (new in R9)**
  - Is a set of LPA-resident C functions that can be called from a C program created using the z/OS XL C compiler METAL option.
  - The XL C METAL compiler option generates code that does not have access to the Language Environment support at run time.
- ➔ **System REXX for z/OS (new in R9, also available for R8)**
  - Make possible execution of REXX routines in an authorized environment (in addition to the normal TSO/E or Batch environments). Now SYSREXX execs can be used to automate complex operator commands and other system functions.
  - SYSREXX execs can be invoked by a program interface, and by operator command.
  - IBM also has made this available for z/OS R8 via a Web deliverable.

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## Some Element Information for z/OS R10

The foil above mentions some notable changes that occurred since z/OS R8. For a list of all new functions within z/OS R10, refer to *z/OS Introduction and Release Guide*.

z/OS 1.10 Planning		
<b>Element and Functions Withdrawn from z/OS R9</b>		
<b>Host communication between HCM and HCD with APPC (from HCM)</b>	Priced Feature - Only TCP/IP for host communication between HCM and HCD will be allowed. (Currently both TCP/IP and APPC are supported.)	<b>as of R9</b>
<b>In-stack version of TN3270 Server (from Communications Server)</b> 	Base Element - use standalone TN3270 Server instead (introduced in z/OS R6)	<b>as of R9</b> 
<b>APPC Application Suite in Communications Server</b>	Base Element - more full-featured alternative applications exist in modern integrated SNA/IP networks. (APPC itself remains an integral part of SNA functions, and no plans to remove APPC from z/OS.)	<b>as of R9</b>
<b>Run-time support for applications that use the C/C++ IBM Open Class (IOC) Dynamic Link Libraries (DLLs).</b>	Priced Feature - Any application code that uses the IOC Library should migrate to use the Standard C++ Library	<b>as of R9</b> 
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**Withdrawn in z/OS R9 (last delivered in z/OS R8)**

This section lists items that were withdrawn in z/OS R9. You should take this into account as you plan your migration to z/OS R10. The removal of these functions may have migration actions which you can perform now, in preparation for z/OS R10.

- In z/OS V1R8 and prior releases, host communication between HCM and HCD is performed using either TCP/IP or Advanced Program to Program Communication (APPC). Starting with z/OS V1R9, host communication using APPC is discontinued. Host communication is now done exclusively using TCP/IP.
- Before z/OS V1R9, the TN3270E Telnet server could run as part of the TCP/IP stack or in its own separate address space. Starting in z/OS V1R9, the TN3270E Telnet server is no longer available to run as part of the TCP/IP stack. You must run the TN3270E Telnet server in its own separate address space. The TN3270E Telnet server has been able to run in its own address space since z/OS V1R6. This enhancement provides visibility and control over the TN3270E function separate from the TCP/IP stack. For example, users can run the TN3270E Telnet server at a different priority than the TCP/IP stack. This enhancement also provides the ability to stop and restart the TN3270E Telnet server without stopping the TCP/IP stack. This makes it easier to reset the server or install maintenance. Overall, problem diagnosis is easier and better when the TN3270E Telnet server and the TCP/IP stack are separate.
- The APPC Application Suite is a set of common applications originally designed to enhance the value of SNA networks for end users. Because more full-featured alternative applications exist in modern integrated SNA/IP networks, z/OS V1R8 is the last release that includes the APPC Application Suite. As of z/OS V1R9, the APPC Application Suite is no longer shipped with the product and is not supported. But note that APPC itself remains an integral part of z/OS. Consider the following alternatives to the APPC Application Suite:
  - For A3270, consider migrating to TN3270. TN3270 provides a much richer capability assuming IP connectivity exists between the client and server.
  - For APING, use the DISPLAY APING command that has been provided as a native VTAM command for many years.
  - A number of other IBM and vendor products provide SNA file transfer capability (such as NetView FTP) and can be used to replace AFTP. TCP/IP's FTP capability is also a good alternative if an IP infrastructure is in place between the client and server.

## Migrating to zOS 1.10 – Part 1

- In z/OS V1R5, development support for the C/C++ IBM Open Class® Library, specifically, the Application Support Class and Collection Class libraries, was removed. From z/OS V1R5 to z/OS V1R8, only run-time support was provided for the C/C++ IBM Open Class Library. Now, as of z/OS V1R9, the run-time support is also removed. If you have applications that depend on the C/C++ IBM Open Class Library run-time support, they will not run on z/OS V1R9 or higher.





### Element and Functions Withdrawn from z/OS R10

<b>Assignment of CPU affinity to a logical processor from BCP</b>	Base Element –CPU affinity has long been obsolete for z/OS partitions operating under PR/SM. The system will ignore attempts to assign CPU affinity	<b>as of R10</b>
<b>English and Japanese panels from DFSORT</b>	Priced Feature - no replacement offered	<b>as of R10</b>
<b>RMF LDAP replacement (from RMF)</b>	Priced Feature - RMF LDAP interface is replaced with a CIM Monitoring Interface (introduced as of z/OS R7)	<b>as of R10</b>








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#### Withdrawn in z/OS R10 (last delivered in z/OS R9)

This section lists items that were withdrawn in z/OS R10. You should take this into account as you plan your migration to z/OS R10. The removal of these functions may have migration actions which you can perform now, in preparation for z/OS R10.

- IBM has removed support for CPU affinity. CPU affinity originally provided support for assigning work to the same CP. However, this predates Processor Resource/Systems Manager (PR/SM), which introduced logical processors. CPU affinity has long been obsolete for z/OS partitions operating under PR/SM, which makes the CP on which a piece of work executes unpredictable. z/OS V1R9 is the last release to provide support for the assignment of CPU affinity to a logical processor. Beginning with z/OS V1R10, any attempt to assign CPU affinity is ignored. For example, specifications for assigning a program to a specific logical processor or processors using the program properties table (PPT) or a SCHEDxx member of parmlib are ignored.
- The DFSORT ISPF panels are used to generate and execute DFSORT jobs, and are available in both English and Japanese. z/OS V1R10 is the last release that supports these panels. No replacement is planned for this limited-function interactive facility. All other previously supported methods for invoking DFSORT are still supported.
- Before z/OS V1R10, the RMF LDAP backend, ERB6LBCK, allowed access to RMF performance data from application programs. Effective with z/OS V1R10, this interface has been removed from z/OS. In its place you can use the Common Information Model (CIM) monitoring interface, which has been provided since z/OS V1R7. CIM allows system programmers to write applications (CIM monitoring clients) that retrieve system resource measurements. If a CIM client asks the CIM server to obtain z/OS metrics, the CIM server invokes the appropriate z/OS RMF monitoring provider to retrieve these metrics. The z/OS RMF monitoring providers use RMF Monitor III performance data.

z/OS 1.10 Planning		
<b>Functions Planned to be Withdrawn</b> <i>in the release after z/OS R10...</i> 		
<b>BIND DNS 4.9.3 from CS</b> 	Base Element - implement BIND 9.2.0 as a replacement (available since z/OS R4)	<b>Planned for release after R10</b>
<b>Network Database (NDB) function from CS</b> 	Base Element - investigate the distributed data facility (DDF) provided by z/OS DB2, and the DB2 Run-Time Client	<b>Planned for release after R10</b>
<b>DHCP server function from Communications Server</b> 	Base Element - investigate using a DHCP server on Linux for System z	<b>Planned for release after R10</b>
<b>Boot Information Negotiation Layer (BINL) function from CS</b> 	Base Element - investigate the use of IBM Tivoli Provisioning Manager for OS Deployment for network based operating system installation services	<b>Planned for release after R10</b>
<b>Integrated Security Services LDAP Server</b>	Base Element - implement IBM Tivoli Directory Server for z/OS (avail since R8)	<b>Planned for release after R10</b> 
<b>Attaching zFS multi-file system aggregates in a shared file system environ.</b>	Base Element – For shared multi-fs aggr: mounting was removed in R8, attaching is planned for removal after R10.	<b>Planned for release after R10</b>
<b>IPCS Problem Management Subcommands</b>	Base Element – Consider using IBM Tivoli Information Management for z/OS V7 (5698-A08) or other similar product.	<b>Planned for release after R10</b>
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### Planned for Withdrawal after z/OS R10 (planned for last delivery in z/OS R10)

This section lists items that are planned to be withdrawn in the release after z/OS R10. You should take this into account as you plan your migration past z/OS R10. The removal of these functions may have migration actions which you can perform now, in preparation for the release following z/OS R10. These statements represent IBM's current intentions. IBM development plans are subject to change or withdrawal without further notice.

- Network Database (NDB) function: z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the Network Database (NDB) function. After z/OS V1.10, the function will be removed from the product. Customers who currently use or plan to use the NDB function should investigate the distributed data facility (DDF) provided by z/OS DB2, and the DB2 Run-Time Client. DDF allows client applications running in an environment that supports DRDA(R) to access data at DB2(R) servers.
- BIND DNS 4.9.3: z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support BIND DNS 4.9.3. After z/OS V1.10, the function will be removed from the product. BIND DNS 9.2.0 has been available since z/OS V1.4, and customers should implement this version as a replacement for BIND DNS 4.9.3. Customers that use the load balancing Connection Optimization (DNS/Workload Manager) feature of BIND DNS 4.9.3 should investigate Sysplex Distributor, the Load Balancing Advisor, Automated Domain Name Registration (ADNR), or other solutions.
- Boot Information Negotiation Layer (BINL): z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the Boot Information Negotiation Layer (BINL). After z/OS V1.10, the function will be removed from the product. Customers using this function should investigate the use of IBM Tivoli Provisioning Manager for OS Deployment for network based operating system installation services.
- DHCP server: z/OS V1.10 is planned to be the last release in which z/OS Communications Server will support the DHCP server function. After z/OS V1.10, the function will be removed. Customers who currently use or plan to use the z/OS DHCP server should investigate using a DHCP server on Linux for System z.
- Integrated Security Services LDAP Server: z/OS V1.10 is planned to be the last release of z/OS which will support the Integrated Security Services LDAP Server. A new optimized LDAP server, called IBM Tivoli Directory Server for z/OS (ITDS) as delivered for z/OS 1.8. Customers who are currently using the Integrated Security Services LDAP Server, should investigate migrating to ITDS, which was designed to allow greater consolidation of LDAP directories on z/OS to help simplify enterprise management and disaster recovery.

## Migrating to zOS 1.10 – Part 1

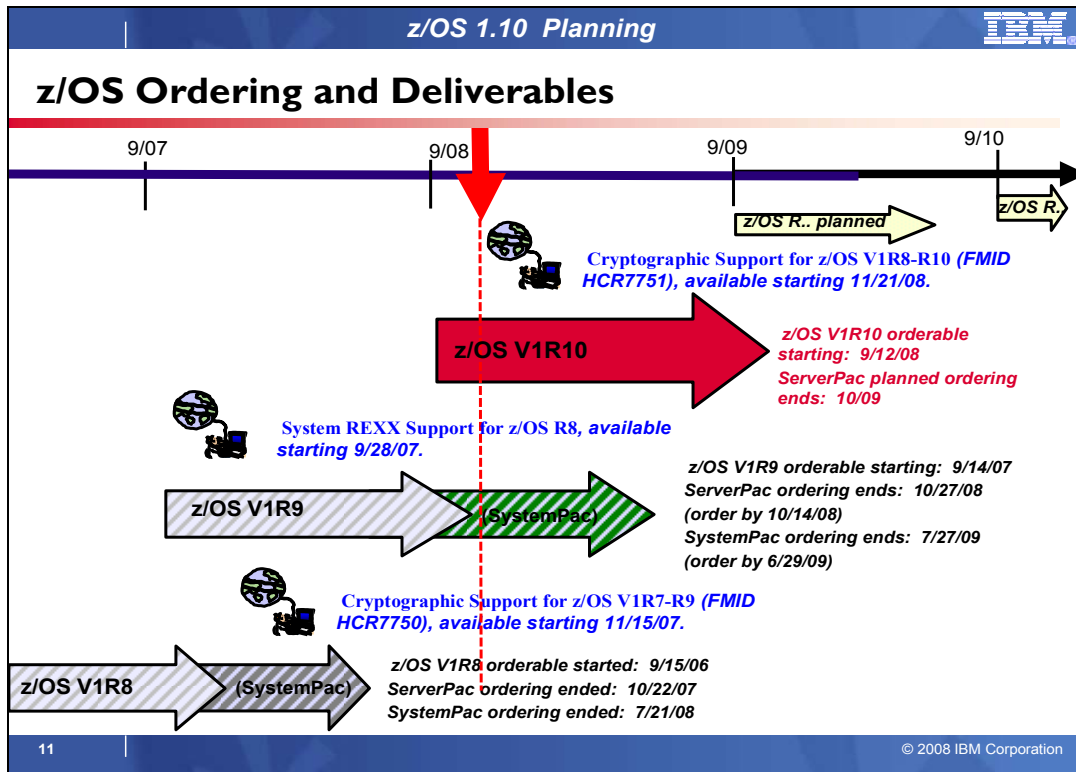
- z/OS V1.10 is planned to be the last release to allow attaching zSeries File System (zFS) multi-file system aggregates that are to be shared across systems in a sysplex. IBM has previously recommended that these multi-file system aggregates not be shared in a sysplex environment. Once this support has been removed, attempts to attach zFS aggregates will fail in a z/OS UNIX shared file system environment. Attaching zFS compatibility mode aggregates, which have a single file system per data set, will continue to be supported in all environments.
- z/OS V1.10 is planned to be the last release that includes IPCS Problem Management Subcommands. If you currently use the IPCS problem management subcommands to report and track problems, consider using IBM Tivoli Information Management for z/OS V7 (5698-A08) or other similar products. IBM plans to continue to enhance the dump and trace analysis and display facilities of IPCS.

z/OS 1.10 Planning		
<b>Functions Planned to be Withdrawn in the future...</b>		
<b>zFS multi-file system aggregates (from Distributed File Service)</b>	Base Element - zFS compatibility mode aggregates will be supported	<b>Future</b> 
<b>Optional setting for RFC4301 compliance (from Communications Server)</b>	Base Element – IBM intends to make RFC4301 compliance mandatory when using IPSec policies. This RFC includes restrictions on the routing of fragmented packets, which may require changes to existing z/OS IP filtering policy	<b>Future</b>
<b>Support for VSAM data sets with IMBED and REPLICATE (not KEYRANGE) attributes from DFSMS</b>	Base Element - plan to redefine any affected VSAM data sets. Use tool to assist in identifying affected VSAM data sets. (KEYRANGE removed from this statement as of z/OS R9 GA Announce.)	<b>Future</b> 
10	 = don't overlook!	© 2008 IBM Corporation

## Planned for removal in a future z/OS release

This section lists items that IBM has announced it intends to remove in a future z/OS release. You are encouraged to consider these removals when making your plans for system upgrades. These statements represent IBM's current intentions. IBM development plans are subject to change or withdrawal without further notice.

- 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. (A zFS compatibility mode aggregate has a single file system per data set.)
- Support for the VSAM KEYRANGE attribute will not be withdrawn as stated in announcement IBM z/OS 1.6: Integrating new applications and Preview: z/OS V1.7, 204-180, dated August 10, 2004. No supported release of z/OS allows you to define new VSAM data sets with the KEYRANGE attribute. On modern storage devices, KEYRANGE is generally detrimental to performance. For this reason, IBM recommends that you minimize or eliminate your use of KEYRANGE. Striped data sets are expected to provide better performance than KEYRANGE, and can be viewed as a good replacement for KEYRANGE data sets. To detect the KEYRANGE attribute on existing data sets, refer to INFO APAR II13894 or use the DFSMSHsm ARCTOOLS (FINDKRDS) to detect this attribute for data sets migrated with DFSMSHsm. Details on how to use this tool is in the DFSMSHsm Implementation and Customization Guide (SC35-0418).  
In a future release of z/OS, when DFSMSHsm or DFSMSdss recalls or restores a VSAM data set with either IMBED or REPLICATE attribute or both, the attributes will be removed. No supported release of z/OS allows you to define new VSAM data sets or catalogs with the IMBED or REPLICATE attributes, and using them for existing data sets can waste DASD space and can often degrade performance. IBM recommends that you stop using these attributes. For information about how to detect IMBED and REPLICATE attributes on existing data sets and catalogs, refer to INFO APAR II13894.
- In a future release of z/OS, IBM intends to make RFC4301 compliance mandatory when using z/OS IPSec policies. RFC4301 "Security Architecture for the Internet Protocol" specifies the base architecture for IPSec-compliant systems, including restrictions on the routing of fragmented packets, which may require changes to existing z/OS IP filtering policy. RFC4301 compliance enforcement is currently an optional setting in z/OS IPSec policy.



## z/OS Ordering and Deliverable Key Dates

Key Dates for z/OS R9 and z/OS R10 ordering:

- **September 12, 2008:** First date for ordering z/OS V1.10 ServerPac, SystemPac, CBPDO using CFSW configuration support, or ShopzSeries, the Internet ordering tool. Note that most z/OS media (executable code) is shipped only through Customized Offerings (ServerPac, SystemPac, and CBPDO).
- **September 26, 2008:** z/OS V1.10 general availability via ServerPac, CBPDO and SystemPac.
- **October 14, 2008:** Recommended last date for submitting z/OS V1.9 orders via the entitled Customized Offerings (ServerPac and CBPDO).
- **October 27, 2008:** Last date for ordering z/OS V1.9 via ServerPac and CBPDO.
- **November 21, 2008:** General availability of Cryptographic Support for z/OS V1R8-R10 & z/OS.e V1R8 Web deliverable (FMID HCR7751). This Web deliverable will support z/OS V1.8 through z/OS V1.10 and z/OS.e V1.8.
- **June 29, 2009:** Recommended last date for submitting z/OS V1.9 orders via the fee Customized Offering SystemPac. This date will allow for adequate order processing time.
- **July 27, 2009:** Last date for ordering z/OS V1.9 via SystemPac.
- **October 2009:** Planned last date for ordering z/OS V1.10 via ServerPac and CBPDO.

## Web deliverables

Sometimes enhancements are provided as Web deliverables, **and not integrated in your ServerPac, CBPDO, or SystemPac deliverable**. For example, some of the ICSF enhancements are available this way. z/OS Web deliverables are available from <http://www.ibm.com/eserver/zseries/zos/downloads/>. They are packaged as two files that you download:

- A **readme** file, which contains a sample job to uncompress the second file, transform it into a format that SMP/E can process, and invoke SMP/E to RECEIVE the file. This file must be downloaded as text.

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- A **pax.z** file, which contains an archive (compressed copy) of the FMIDs to be installed. This file needs to be downloaded to a workstation and then uploaded to a host as a binary file.

For Web downloads, you must perform the following tasks:

1. Allocate a R/W HFS of zFS directory on the z/OS driving system where the package will be staged (optional).
2. Download both parts of the package from the download zone:  
<http://www.ibm.com/eserver/zseries/zos/downloads/>
3. Run the sample job provided in the README.TXT file. The job will invoke the GIMUNZIP service routine to extract the original data from the packages.
4. Obtain and install service for the target system. Service is not included in Web deliverables. You can obtain service for Web deliverables through your regular preventive service deliverables that you use for z/OS.
5. Install (SMP/E APPLY) the downloaded FMIDs.

**Cryptographic Support for z/OS V1.8 through z/OS V1.10 and z/OS.e V1.8 Web deliverable** (ICSF FMID HCR7751) is planned to become available on November 21, 2008. This Web deliverable supports z/OS V1.8 through z/OS V1.10 and z/OS.e V1.8. This Web deliverable contains support for:

- **Secure Key AES**

The Advanced Encryption Standard (AES) is a National Institute of Standards and Technology specification for the symmetric encryption of electronic data. It is expected to become the accepted means of encrypting digital information, including financial, telecommunications, and government data. System z supports the AES encryption algorithm using clear AES keys. The AES encryption algorithm is extended to accept keys of 128, 192, and 256 bits. In addition, the AES keys may be encrypted (i.e. made secure) so that they never appear in the clear. The secure key approach, similar to what is supported today for DES and Triple-DES, provides the ability to keep the encryption keys protected at all times including the ability to import and export AES keys, encrypted using RSA public key cryptography.

- **Support for 13-Digit through 19-Digit PAN data**

Credit card companies sometimes perform card security code computations based on Personal Account Number (PAN) data. Currently, ICSF callable services CSNBCSV (VISA CVV Service Verify) and CSNBMSG (VISA CVV Service Generate) are used to verify and to generate a VISA Card Verification Value (CVV) or a MasterCard Card Verification Code (CVC). The ICSF callable services currently support 13, 16, and 19-digit PAN data. To provide additional flexibility, new keywords PAN-14, PAN-15, PAN-17, and PAN-18 are implemented in the rule array for both CSNBMSG and CSNBCSV to indicate that the PAN data is comprised of 14, 15, 17, or 18 PAN digits, respectively.

- **New Crypto Query Service**

The ICSF Web deliverable includes a new callable service, ICSF Query Algorithms, which retrieves information about the cryptographic and hash algorithms that are available based on hardware options and software installed on System z.

- **Enhanced IPv6 Support**


The U.S. government has defined a new protection profile for IPv6 that takes advantage of the strongest symmetric encryption algorithm, AES. In conjunction with Communications Server exploitation, you can create more secure VPN networks based on AES message authentication code technology.

- **Enhanced SAF Checking**

The ICSF Web deliverable introduces Key Token Policies to augment the existing security controls of symmetric and asymmetric keys stored in the CKDS and PKDS. The Key Token Policy provides a set control points for the management of keys stored in an ICSF key data set. The policy control points provide the ability to: enable Key Token Checking, enable Default Key Label Checking, identify and prevent duplicate keys tokens from being stored in the ICSF key data sets. As part of the Key Token Policy support, ICSF is replacing the PKDS cache with an in-storage copy of the PKDS, similar to the in-storage copies of the CKDS and the TKDS. In addition, the in-storage copies will be kept current in a sysplex environment where the PKDS is shared through the use of sysplex messaging.

z/OS 1.10 Planning

## Crypto Support in z/OS Releases



Release	Level Integrated and Available
z/OS R10	ICSF FMID HCR7750 is incorporated. <ul style="list-style-type: none"> <li>▪ <b>Cryptographic Support for z/OS V1R8-R10 Web deliverable (FMID HCR7751) planned to be available on 11/21/08.</b></li> </ul>
z/OS R9	ICSF FMID HCR7740 is incorporated. <ul style="list-style-type: none"> <li>▪ <b>Cryptographic Support for z/OS V1R7-R9 Web deliverable (FMID HCR7750) available on 11/15/07.</b></li> <li>▪ <b>Cryptographic Support for z/OS V1R8-R10 Web deliverable (FMID HCR7751) planned to be available on 11/21/08.</b></li> </ul>
z/OS R8	ICSF FMID HCR7731 is incorporated. <ul style="list-style-type: none"> <li>▪ <b>Cryptographic Support for z/OS V1R7-R9 Web deliverable (FMID HCR7750) available on 11/15/07.</b></li> <li>▪ <b>Cryptographic Support for z/OS V1R8-R10 Web deliverable (FMID HCR7751) planned to be available on 11/21/08.</b></li> </ul>

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### z/OS ICSF Release Levels

The support for cryptography (z/OS base element ICSF) has been delivered via Web deliverables and release incorporations for z/OS R8, R9, and R10.

z/OS Releases and Crypto Web Deliverables		
Deliverable	General availability	Delivery method
<b>z/OS V1R8, FMID HCR7731 incorporated</b>	September 29, 2006	New release of products
Cryptographic Support for z/OS V1R7-R9 (FMID HCR7750)	November 15, 2007	Web deliverable
Cryptographic Support for z/OS V1R8-R10 (FMID HCR7751)	Planned for November 21, 2008	Web deliverable
<b>z/OS V1R9, FMID HCR7740 Incorporated</b>	September 28, 2007	New release of products
Cryptographic Support for z/OS V1R7-R9 (FMID HCR7750)	November 15, 2007	Web deliverable
Cryptographic Support for z/OS V1R8-R10 (FMID HCR7751)	Planned for November 21, 2008	Web deliverable
<b>z/OS V1R10, FMID HCR7750 Incorporated</b>	Planned for September 26, 2008	New release of products
Cryptographic Support for z/OS V1R8-R10 (FMID HCR7751)	Planned for November 21, 2008	Web deliverable

Refer to this technote: <http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/TD103782> for a complete history of ICSF deliverables, and functions contained in those deliverables.

*z/OS 1.10 Planning*

## z/OS V1R10 Ordering

► **Program Number: 5694-A01**

- Ensure you order the optional priced and unpriced features that you were using before!
- Especially remember your export controlled features, if you desire.


Here's the complete list:

- **z/OS Security Level 3**
- **Communications Server Security Level 3**

► **Ordering consideration after November 21, 2008:**

- **ICSF:** since ICSF is integrated into z/OS R10 is *\*not\** the highest level available after November 21, 2008. You may want to add the **Web deliverable** to your z/OS system.
- **Important Future Ordering consideration:**
  - IBM intends to discontinue delivery of software on 3480, 3480 Compressed (3480C), and 3490E tape media.
  - **If** you must use physical delivery, choose 3590 or 3592 tape media.

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## z/OS V1R10 Ordering

The program number for z/OS Version 1 Release 10 is **5694-A01**. When ordering this program number, remember to order all the optional features that you were licensed for in previous releases of z/OS.


In z/OS V1R10 there are only two export controlled unpriced features: **z/OS Security Level 3**, and **Communications Server Security Level 3**. z/OS Security Level 3 contains the sub-elements: IBM Tivoli Directory Server for z/OS Security Level 3, Network Authentication Service Level 3, OCSF Security Level 3, and System Secure Sockets Layer (SSL) Security Level 3,

Typically, when one new z/OS release becomes orderable in ServerPac and CBPDO, the previous release is orderable for only a month. Due to this short overlap, it is very important that you order the z/OS release you need for migration and coexistence while it's still available for ordering. Typically, a z/OS release remains orderable in the fee'd deliverable SystemPac longer than in ServerPac.

### Important Future Ordering Consideration!

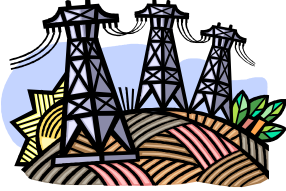
IBM intends to discontinue delivery of software on 3480, 3480 Compressed (3480C), and 3490E tape media. IBM recommends using Internet delivery when ordering your z/OS products or service which eliminates tape handling. If you must use physical delivery, you may continue to choose 3590 or 3592 tape media. Internet delivery is IBM's strategic delivery method, therefore future software delivery enhancements will be focused on Internet delivery.



**z/OS 1.10 Planning** 

## A Quick Word on Electronic Deliverables

- ▶ **If you want to receive z/OS V1R10 electronically, you must order it via ShopzSeries.**
- ▶ **Some big advantages to installing electronically:**
  - ▶ **No tapes! No tapes! No tapes!**
  - ▶ **Faster delivery**
- ▶ **Some considerations for installing electronically:**
  - ▶ **Driving system requirements (see later in this presentation)**
  - ▶ **Temporary file system space**
    - ▶ **Depends on order size, but can range between 6-10G.**
  - ▶ **Connectivity with firewall**



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### Ordering and Installing z/OS R10 Electronically!

Internet delivery is the newer medium and, like tape, can be used for all products, that is, z/OS and products that run on z/OS. You must place the order using ShopzSeries (<http://www.ibm.com/software/shopzseries>). You can install the order using ServerPac, CBPDO, or SystemPac. ShopzSeries generates a customized download page for each order; the page includes order content and instructions. Support to install Internet orders has been added to the CustomPac Installation Dialog and CBPDO installation process.

A typical z/OS-only ServerPac or SystemPac order is approximately 6 GB (compressed) in size. A typical SystemPac order with multiple SRELS is approximately 8 GB (compressed) in size. A typical subsystem ServerPac or SystemPac order is approximately 500 MB (compressed) in size. You will know the size of your order when it is ready to download (the size can be found in the *CustomPac Dialog Information* document). As a general rule, you should have file system space equal to twice the order size, to allow it to be processed.

If you are downloading your order, the entire download might take considerable time. However, the download is done in two phases, and the first phase will usually not take very long (just a couple of minutes). Once it has finished, you can begin to use the dialog to configure your new order while the second phase is occurring. The RECEIVE job will send you a message to tell you when the dialog is ready to be used if you are logged on and have INTERCOM set in your TSO/E Profile. To see whether you have INTERCOM set, issue the PROFILE command from the TSO/E Ready prompt or ISPF Option 6. To set INTERCOM, issue PROFILE INTERCOM.

Before downloading your order, you must understand your network security environment. For example, does a z/OS image have access to the Internet? Are there security concerns for downloading to a workstation or transferring files to the host? If you are planning to download directly to z/OS, you must be familiar with the security and networking information required to navigate your enterprise's firewall from z/OS.



## z/OS.e and zNALC

- ▶ **z/OS.e V1.8 (5655-G52) is the last release of z/OS.e.**
  - Marketing, ordering, support, and service for z/OS (5694-A01) remain unaffected.
  - z/OS.e V1.8 remains orderable until its planned withdrawal from marketing in October 2007.
- ▶ **zNALC will replace New Application License Charges (NALC) and z/OS.e, and is intended to be IBM's strategic z/OS offering for new workloads.**
  - Offers a reduced price for the z/OS operating system on LPARs where you are running a qualified 'new workload' application.
- ▶ **zNALC was available March 16, 2007.**
- ▶ **zNALC is available only on IBM z/Architecture servers (z900, z990, z9 EC, z800, z890, z9 BC, or later) running the z/OS (5694-A01) operating system.**
  - Only IBM servers on which z/OS.e runs are the z9 BC, z890, and z800 servers.
- ▶ **zNALC is available only on LPARs where a Qualified Application is present, among other requirements.**

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### z/OS.e Product and zNALC

z/OS.e V1.8 (5655-G52) is the last release of z/OS.e. Marketing, ordering, support, and service for z/OS (5694-A01) remain unaffected. In accordance with the z/OS (5694-A01) and z/OS.e service policy (to provide service support for each release for three years following its general availability date), IBM intends to withdraw service for z/OS.e V1.8 in September 2009. IBM provides a new pricing alternative for z/OS, System z New Application License Charges (zNALC). zNALC replaces New Application License Charges (NALC) and z/OS.e, and is intended to be IBM's strategic z/OS offering for new workloads. zNALC was available March 16, 2007.

System z New Application License Charges (zNALC) offers a reduced price for the z/OS operating system on LPARs where you are running a qualified 'new workload' application (Qualified Application) such as Java language business applications running under WebSphere Application Server, Domino, SAP, PeopleSoft, and Siebel.

The zNALC offering extends the IBM commitment to sub-capacity pricing, allowing customers with a Qualified Application to obtain a reduced price for z/OS where charges are based on the size of the LPAR(s) executing a Qualified Application, assuming all applicable terms and conditions are met.

z/OS with zNALC provides many benefits over previous 'new workload' pricing offers. It provides a strategic pricing model available on the full range of System z servers for simplified application planning and deployment. zNALC provides similar pricing benefits to both z/OS.e pricing and z/OS with NALC pricing. zNALC allows for aggregation across a qualified Parallel Sysplex, which can provide a lower cost for incremental growth across 'new workloads' that span a Parallel Sysplex.

### Qualified Applications

zNALC is available only on LPARs where a Qualified Application is present, among other requirements. In general, Qualified Applications are those that IBM considers 'new workload,' such as Java language business applications running under WebSphere Application Server, Domino, SAP, PeopleSoft, or Siebel.

IBM has established the following criteria to determine which applications are Qualified Applications:

1. An "Application" is a computer program that is used to accomplish specific business tasks (such as, Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), Supply Chain Management (SCM), business information warehouse, accounting, and inventory control programs), including the database server used for that task. In this definition, an Application is not a stand-alone database management system or systems management tool (i.e., related to the management or operation of the computer itself or of other computer programs). Examples of software that are not considered applications are operating system software, database products (except those qualifying as described in section (b) below), transaction managers, tools, utilities, and games.

An application may be considered a Qualified Application if:

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- a) It is currently generally commercially available, supported by its manufacturer, and enabled to run under z/OS, and that same Application (with substantially the same functionality) is simultaneously generally commercially available, supported by its manufacturer on, and enabled to run under a UNIX operating system (for example, AIX, HP-UX, Linux, or Solaris), or Microsoft Windows (collectively "Distributed Platforms");  
or
  - b) It is a database server running under z/OS and it is operating solely in support of a software program that is currently generally commercially available, supported by its manufacturer, and running in a client/server environment where the business logic (e.g., application server) is running on a Distributed Platform.  
or
  - c) It is a Java language business application running under WebSphere Application Server (or equivalent). These do not include systems management tools.
2. z/OS is eligible for zNALC pricing when running in an LPAR where the Qualified Application is executing. The only other products that may execute in this LPAR are those products that support the Qualified Application. The LPAR must be used exclusively for the Qualified Application and for programs that support the Qualified Application and for no other purpose.
  3. IBM will determine whether a particular program is a qualified application.

In the event you want to check if another application can qualify, contact your IBM sales representative or IBM business partner.

### Examples of Qualified Applications

This list is only a list of examples, it is in no way an exhaustive list:

- SAP
- PeopleSoft
- Seibel
- Domino
- Java Language Business Applications running under WebSphere Application Server

### Prerequisites, Restrictions, and Certification

zNALC is available only on IBM z/Architecture servers (z900, z990, z9 EC, z800, z890, z9 BC, z10 EC or later) running the z/OS (5694-A01) operating system. z/OS middleware running on the IBM z/Architecture server which qualifies for Workload License Charges (WLC) or Entry Workload License Charges (EWLC) must be priced WLC/EWLC in order for z/OS to be eligible for zNALC charges.


Any Logical Partition (LPAR) that is designated as a zNALC LPAR must follow the naming convention "ZNALxxxx" where xxxx may be any letters or numbers. Alternatively, customers who prefer not to change LPAR names to qualify for zNALC (and are running z/OS Version 1 Release 6, or later) may set the LICENSE = "ZNALC" IPL parameter to indicate a zNALC LPAR. The zNALC IPL parameter is available via APAR OA20314.

zNALC is not available on any server where OS/390 or z/OS.e is licensed or running, or on any server where the pricing metric for z/OS is NALC. Sub-Capacity zNALC is not available on any LPARs where z/OS is running as a guest of z/VM.

IBM has established a certification process whereby customers must complete a form when they establish zNALC charges and which must be renewed each year to maintain zNALC charges. This form requires customers to certify that they meet all the requirements to be eligible for z/OS with zNALC charges. IBM may cancel zNALC charging if a customer fails to submit an annual certification. IBM has the right to audit servers with z/OS with zNALC charges to ensure compliance with all zNALC terms and conditions.

The IBM System z Software Pricing zNALC website is

<http://www.ibm.com/servers/eserver/zseries/swprice/znalc.html>.

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<b>Other Popular Products for z/OS</b>	
<ul style="list-style-type: none"> <li>▶ <b><u>IBM SMP/E for z/OS, V3.5 (5655-G44)</u></b> <ul style="list-style-type: none"> <li>• Same as incorporated into R10. Runs back on R7, R8, and R9!</li> </ul> </li> <li>▶ <b><u>IBM Debug Tool for z/OS V8 R1 (5655-S17)</u></b> <ul style="list-style-type: none"> <li>• Debug Tool no longer incorporated, as of z/OS R5</li> </ul> </li> <li>▶ <b><u>Print Services Facility Version 4.2 (5655-M32)</u></b></li> <li>▶ <b><u>IBM Ported Tools for z/OS (5655-M23)</u></b> - provides OpenSSH function!</li> <li>▶ <b><u>IBM Ported Tools for z/OS: Perl Feature (5655-M23)</u></b>- port of the Perl (version 5.8.7)</li> <li>▶ <b><u>IBM Ported Tools for z/OS: PHP Feature (5655-M23)</u></b>- port of the PHP (version 5.1.2)</li> <li>▶ <b><u>IBM Ported Tools for z/OS: Suppl Toolkit Feature (5655-M23)</u></b>- initially delivering bzip2, then service has added IRMM CLI and cURL 7.16.1</li> <li>▶ <b><u>XML Toolkit for z/OS V1 R9 (5655-J51)</u></b> <ul style="list-style-type: none"> <li>• Contains XML VIR8 and VIR7 levels, as well</li> </ul> </li> <li>▶ <b><u>IBM 64-bit SDK for z/OS, Java 2 Technology Edition V1 R4 (5655-M30)</u></b> <ul style="list-style-type: none"> <li>• Can be ordered and can coexist with <b><u>IBM SDK for z/OS, Java 2 Technology Edition V1 R4 (5655-I56)</u></b></li> </ul> </li> <li>▶ <b><u>IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N99)</u></b> <ul style="list-style-type: none"> <li>• Can be ordered and can coexist with <b><u>IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N98)</u></b></li> </ul> </li> <li>▶ <b><u>IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V6 (5655-R32)</u></b> <ul style="list-style-type: none"> <li>• Can be ordered and can coexist with <b><u>IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V6 (5655-R31)</u></b></li> </ul> </li> </ul>	
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## SMP/E for z/OS and OS/390 Version 3 Release 5 (5655-G44)

SMP/E for z/OS V3.5 provides the following enhancements:

### Simplifying PSP buckets

SMP/E has been extended to help simplify the task of verifying that required software fixes identified in the Preventive Service Planning (PSP) buckets have been installed. PSP buckets identify required software fixes for new hardware devices, toleration and coexistence of new software releases, and enabling new functions. IBM will consolidate the lists of required fixes from the PSP buckets and produce new Fix Category (FIXCAT) HOLDDATA to identify those fixes. Some example fix categories are IBM.Device.z10-EC-2097 and IBM.Coexistence.z/OS.V1R10. The new type of ++HOLD statement will be used to identify APARs, their fix categories, and the PTFs that resolve the APARs.

Just like Error HOLDDATA, the new FIXCAT HOLDDATA will be delivered by IBM as part of all corrective service, preventative service, and product orders such as SMP/E Internet Service Retrieval (the SMP/E RECEIVE ORDER command), ShopzSeries, ServiceLink, TechSupport, and the Customized Offerings such as CBPDO, ServerPac, and SystemPac. It will also be available independently on an IBM Internet server

(<http://service.software.ibm.com/holddata/390holddata.html> )

### Important toleration action:

SMP/E releases prior to SMP/E V3.5 cannot process the new FIXCAT HOLDDATA. If you use a prior SMP/E release, you must install toleration APAR IO07480 (PTF Uo00700 for SMP/E V3.3 or UO00701 for SMP/E V3.4) to allow those releases to silently ignore the FIXCAT HOLDDATA.

When FIXCAT HOLDDATA statements are received into a global zone, SMP/E will assign the fix category values as sourceids to the PTFs that resolve the APARs. These sourceids will then simplify selecting and installing the required fixes. During APPLY and ACCEPT command processing you can specify the assigned sourceids on the SOURCEID and EXSRCID operands to select the SYSMODs associated with a particular fix category.

In addition, for the APPLY and ACCEPT commands you can specify which fix categories are of interest using the FIXCAT operand. This tells SMP/E to process only FIXCAT HOLDDATA for the categories you specify, and all others are ignored.

Finally, SMP/E will use the new FIXCAT HOLDDATA to identify what required fixes are missing. A new REPORT MISSINGFIX command will analyze the new FIXCAT HOLDDATA and determine which fixes (APARs) identified by the HOLDDATA are not yet installed. Only the fixes associated with the fix categories of interest to you, specified by you, are analyzed and identified. For example, you can identify only the missing fixes associated with a particular hardware device or coexistence for a specific new software release.

## Migrating to zOS 1.10 – Part 1

### Fix Category Explorer

To complement the new FIXCAT HOLDDATA, SMP/E has added a new Fix Category Explorer dialog. This dialog provides a hierarchical view of all fix categories from all FIXCAT HOLDDATA in the global zone and provides an easy method to manage the list of fix categories that are interesting to you. The Explorer dialog even identifies new Fix Categories that have been defined since the last time you used the dialog. The Fix Category Explorer is integrated into the existing SMP/E dialog options, and can be used, for example, in the Administration dialog to manage a permanent list of interesting fix categories stored in an OPTIONS entry, or to select fix categories of interest to be specified on an APPLY, ACCEPT, or REPORT MISSINGFIX command in the Command Generation dialog.

### Long sourceids

SMP/E has increased the maximum length allowed for a sourceid value from 8 to 64 characters to support more meaningful and easily recognized values. For example, sourceid values such as IBM.Device.z10-EC-2097 and IBM.Coexistence.z/OS.V1R10 will be possible. In addition, the wildcard characters "\*" and "%" can be used to implicitly select a list of sourceids for SMP/E commands that support their use. Sourceids may be defined on ++ASSIGN statements, defined on the SOURCEID operand of the RECEIVE command, and derived from fix categories specified on FIXCAT HOLDDATA statements.

### ZONEEDIT command enhancements

The ZONEEDIT command has been extended to allow wildcard specification in the conditional CHANGE subcommand, and to allow the UNIT, VOLUME, and WAITFORDSN subentries for DDDEF entries to be added if they do not already exist. Formerly the ZONEEDIT command only allowed existing subentries to be changed, but did not allow subentries to be added. If you prefer to keep your target or distribution library data sets uncataloged, then this change makes it easier for you, for example, to add the necessary UNIT and VOLUME subentries for DDDEF entries defined by a ServerPac.

### HTTPS and FTP reconnect and retry support

SMP/E has added reconnect and retry capabilities for HTTPS and FTP operations that fail due to apparent network outages and anomalies. This will help prevent SMP/E RECEIVE command and GIMGTPKG service routine failures because of short-lived network outages.

### Support for FTP client parameters

SMP/E will now allow user-specified parameters to be passed to the FTP client program for SMP/E FTP operations during the RECEIVE command and the GIMGTPKG service routine. A new FTPOPTIONS tag may be specified in the CLIENT or SMPCLNT data set to identify any parameters that SMP/E should pass to the FTP client program. This is most useful when you need to override the FTP.DATA configuration file used by the FTP client program.

### RECEIVE ORDER command enhancements

The RECEIVE ORDER command has been extended to resubmit orders when the request cannot be completely satisfied. This helps to ensure you obtain as much of your desired PTFs and HOLDDATA as possible, and eliminates the need to submit follow-on orders. Specifically, if an order request for CRITICAL, RECOMMENDED, or ALL PTFs results in no applicable PTFs, SMP/E will resubmit the order to obtain the latest HOLDDATA. When PTFs specified by name, or PTFs to fix specified APARS are requested, but not all requested PTFs are found or available, SMP/E will resubmit the order to only obtain those requested PTFs that can be found by the server. In addition, when a requested order cannot be fulfilled within the WAIT time specified (or defaulted), SMP/E will now end the RECEIVE command with a return code of 12 rather than 4. This helps differentiate a failing operation from a successful one.

### HOLDDATA report changes

SMP/E has defined a new report destination, SMPHRPT, for HOLDDATA reports. If the SMPHRPT DD name is allocated (either by DD statement or DDDEF entry), the HOLDDATA reports produced by the RECEIVE, APPLY, and ACCEPT commands will be written to this DD name while other reports are written to the SMPRPT DD name. If the SMPHRPT DD name is not allocated, all reports are written to SMPRPT. If you do not want to review the APPLY, ACCEPT, or RECEIVE command HOLDDATA reports, you can define SMPHRPT as a DUMMY data set. In addition, the Bypassed HOLD Reason Report for the APPLY and ACCEPT commands will now include only bypassed HOLDDATA for SYSMODs that are successfully applied or accepted. No longer will bypassed HOLDDATA for SYSMODs that fail command processing appear in the report. This eliminates clutter and limits the report to only the HOLDDATA that must be reviewed or acted upon.

Finally, suppressed reasonids will be consolidated and reported only once per FMID in the APPLY and ACCEPT command HOLDDATA reports. Formerly reasonids were reported once per SYSMOD and that contributed to the

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clutter and the large output. Reasonids to be suppressed are defined in the SUPPHOLD subentry of the active OPTIONS entry.

### **BYPASS (HOLDSYS) message severity changes**

During APPLY and ACCEPT command processing SMP/E writes messages to identify SYSTEM HOLD conditions that have been bypassed. In prior SMP/E releases these messages had a severity of Warning and resulted in a minimum overall return code for the command of 4. With SMP/E V3.5, Informational messages will be written for bypassed SYSTEM HOLD conditions instead of Warning messages. This change to use Informational messages will result in a minimum overall return code for the command of 0 rather than 4 when SYSMOD HOLDS are bypassed, and helps make it easier for you to determine if the APPLY or ACCEPT operation was successful or not by simply inspecting the overall return code. To change APPLY and ACCEPT command processing to write Warning messages for bypassed SYSTEM HOLD conditions, use the new COMPAT(WARNBYPASS) execution parameter for program GIMSMP.

### **SMP/E dialog enhancements**

The SYSMOD Management dialog will now allow all SYSTEM HOLDS to be bypassed easily with one action. To accomplish the same result, formerly you were required to select each unique reasonid. In addition, the REDO operand may now be specified for the APPLY and ACCEPT commands. In the Order Management dialog, when an ORDER entry is deleted from the global zone, the associated package directory within the SMPNTS will now also be deleted.

### **UNIX file Utility Input for LMODs**

SMP/E has been extended to allow definition side deck files stored in the z/OS UNIX System Services file system to be included easily during link-edit operations. Specifically, in addition to members of partitioned data sets, relative file names can now be used as utility input on INCLUDE statements in JCLIN link-edit steps. This change is designed to make it easier for product packagers to use definition side deck files that reside in the z/OS UNIX file system.

### **IBM Debug Tool for z/OS Version 8 Release 1 (5655-S17)**

IBM Debug Tool for z/OS V8.1 helps examine, monitor, and control the execution of application programs by letting you:

- Interactively debug an application as it runs
- Perform seamless debugging of mixed-language applications
- Make adjustments to your application while debugging
- Display, monitor, and alter program variables

Debug Tool also supports many programming languages and numerous execution environments.

### **Some Enhancements in V8R1**

In earlier releases, with Debug Tool you could assume that all floating point data items and registers were in hexadecimal floating point format. Now, for disassembly programs, Debug Tool also supports floating point registers in binary (IEEE) and decimal floating point format.

You can now display the 64-bit General Purpose Registers when your programs run on hardware that supports this feature. New symbols (%GPRGn and RGn) are added so you can reference the 64-bit General Purpose Registers in disassembly expressions. However, no support is provided for 64-bit addressing.

In earlier releases, if Debug Tool could not display a COBOL character in character format, it would display the entire string in hexadecimal format. Now, Debug Tool displays all COBOL characters in character format, even if the character symbol can not be displayed on the screen. You can also modify the COBOL characters while they are displayed in character format.

A new window, the Memory window, is added to display sections of memory. Navigate through this window with scrolling commands or by specifying a specific address. Update memory by typing over existing data with new data. The Memory window keeps track of certain addresses so you can quickly navigate back to those addresses.

As of z/OS V1R5, optional feature C/C++ *with* Debug Tool is no longer in z/OS. The functional replacement that you will need to order for that feature is the C/C++ *without* Debug Tool feature in z/OS and also the independent standalone program product - IBM Debug Tool for z/OS V7.1 (5655-R44) or IBM Debug Tool for z/OS V8.1 (5655-S17).

### **Print Services Facility Version 4 Release 2 (5655-M32)**

In 2006, IBM, along with a consortium of over thirty vendors in the printing and publishing industry, voted to accept and make public the Advanced Function Presentation (AFP) Color Management Architecture (ACMA) as an open, industry standard for printing and presentation. This was the result of over two years of working jointly on a color management architecture based on AFP that would provide a standard for color applications and color management industry-wide.

This new architecture includes support for industry-standard ICC profiles, which are carried in AFP files, as Color Management Resources (CMRs). The CMR format is defined by a new AFP object content architecture called the Color Management Object Content Architecture (CMOCA).

This architecture provides consistent and device-independent color rendering across multiple color technologies and printer vendors. Architected color management enables customers to develop a single color application and workflow that can be printed in color on the full process InfoPrint 5000 Color Printer from IBM's joint venture partner, InfoPrint Solutions Company, or in high-quality grayscale on models of InfoPrint 4100 black-and-white printers. Print Services Facility V4.2 for z/OS provides z/OS-based print server support for the ACMA and support for AFP CMRs. IBM can now provide an end-to-end, managed workflow that makes high-quality color and black-and-white printing a reality, with consistent results across a variety of devices that support the architecture.

### **IBM Ported Tools for z/OS Version 1 Release 1 (5655-M23)**

IBM Ported Tools for z/OS is designed to provide the select features of secure shell known as OpenSSH enabling for:

- Authentication for both the client and server
- Privacy through encryption
- Data integrity
- Authorization
- Forwarding or tunneling
- An optional feature of compression
- Communication using SSH1 and SSH2 protocols.

Ordering information: It is an unpriced program product, that can be ordered with z/OS. It can run on z/OS R4 and higher. It has been generally available since May 28, 2004. The program numbers are IBM Ported Tools for z/OS (5655-M23) and IBM Ported Tools for z/OS Software and Subscription (5655-M29).

### **IBM Ported Tools for z/OS: Perl for z/OS Feature (5655-M23)**

IBM Ported Tools for z/OS: Perl for z/OS Feature provides a port of the Perl (version 5.8.7) scripting language to the z/OS UNIX platform. Perl (Practical Extraction and Report Language) is a very popular general-purpose programming language that is widely used on UNIX and other computing platforms.

Support for z/OS UNIX has been available for several years in the open-source version of Perl. Building this version of Perl is often difficult even for experienced users, and requires access to several GNU utilities.

Perl for z/OS is preconfigured and precompiled, and is designed to eliminate the need for those complicated tasks. EBCDIC-related factors in the Perl application have been addressed; therefore, it is anticipated that Perl applications can run with data generated entirely in the z/OS UNIX environment. As with any z/OS related programming language, Perl programs that process data originating from non-EBCDIC (typically ASCII) systems must still convert this data from ASCII to EBCDIC, and vice versa. Tips for conversion can be found in IBM Ported Tools for z/OS: Perl for z/OS User's Guide (SA23-1347) at <http://www.ibm.com/servers/eserver/zseries/zos/bkserv/> or [http://www.ibm.com/servers/eserver/zseries/zos/unix/port\\_tools.html](http://www.ibm.com/servers/eserver/zseries/zos/unix/port_tools.html).

Ordering information: Perl for z/OS is an unpriced feature of the IBM Ported Tools for z/OS, an unpriced licensed program. It has been generally available since June 16, 2006. The program numbers are IBM Ported Tools for z/OS (5655-M23) and IBM Ported Tools for z/OS Software and Subscription (5655-M29).

### **IBM Ported Tools for z/OS: PHP for z/OS Feature (5655-M23)**

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IBM Ported Tools for z/OS: PHP for z/OS Feature (PHP for z/OS) provides a port of the PHP (version 5.1.2) scripting language to the z/OS UNIX System Services platform. PHP (PHP: Hypertext Preprocessor) is a general purpose scripting language that is well-suited for Web development. PHP's syntax is similar to that of C and Perl, making it easy for anyone with basic programming skills to learn. It allows one to embed program statements directly within an HTML page. PHP is both powerful and flexible: it has a rich set of APIs and it contains a Perl-compatible regular expression library. PHP is popular in the computing industry and is available on a wide variety of platforms. PHP for z/OS includes an extension to access DB2 for z/OS via ODBC. This allows PHP applications to access DB2 data on z/OS.

Ordering information: PHP for z/OS is an unpriced feature of the IBM Ported Tools for z/OS, an unpriced licensed program product. It has been generally available since May 25, 2007. The program numbers are IBM Ported Tools for z/OS (5655-M23) and IBM Ported Tools for z/OS Software and Subscription (5655-M29).

### IBM Ported Tools for z/OS: Supplementary Toolkit for z/OS Feature (5655-M23)

IBM Ported Tools for z/OS: Supplementary Toolkit for z/OS Feature has been created to provide miscellaneous utilities that are commonly used on other platforms, and now on the z platform as well. With the initial delivery, we are delivering bzip2. bzip2 is a powerful data compression tool. It is widely used on other platforms in the industry and has now been made available to run on z/OS UNIX System Services. Its usage syntax is intuitive and therefore makes it attractive for a wide audience. As with most compression utilities, it provides both compression and decompression capabilities. Additional utilities and updates to the Supplementary Toolkit may be made via the service stream, in order to provide a seamless delivery mechanism – watch for them on <http://www.ibm.com/servers/eserver/zseries/zos/unix/suptlk/>

The following additional utilities were made available via the service stream:

- IBM Integrated Removable Media Manager for the Enterprise on System z (IRMM) command line interface (CLI) (APAR: OA22006). **IRMM CLI** permits a z/OS administrator to fully administer, control, and monitor the distributed tape infrastructure from z/OS.
- cURL 7.16.1 (APAR: OA22944). **cURL** is an open source tool that can transfer data from or to a server or servers, using one of the supported protocols (HTTP, HTTPS, FTP, FTPS, TFTP, DICT, TELNET, LDAP or FILE). The command is designed to work without user interaction. cURL offers a variety of useful functions like proxy support, user authentication, FTP upload, HTTP post, SSL connections, cookies, file transfer, resume, and more. It is a command-line UNIX application, and runs in the z/OS UNIX System Services environment.

### XML Toolkit for z/OS Version 1 Release 9 (5655-J51)

The C++ XML parser within this toolkit is a port of the IBM XML Parser for C++, XML4C V5.6, which is based on Apache's Xerces C++ V2.6 parser.

- Specify that XML Schema annotations not be generated
- Specify that XML Schema annotations not be regenerated when deserializing a grammar
- Turn off default entity resolution
- Perform schema-only validation when there is a Document Type Definition (DTD)

The IBM XSLT Processor for C++, XSLT4C V1.10 within this toolkit, which is based on Apache's Xalan C++ V1.10 XSLT processor, has been updated with:

- XML1.1 and Namespaces for XML1.1 support
- Improved pluggable memory management
- Improvements in Xalan XML serializers designed to provide improved performance.

Support for the Java XML Parser and Processor is not packaged with the IBM XML Toolkit for z/OS. This support can now be obtained within the IBM SDK for z/OS, product offerings.

The XML Toolkit for z/OS is based on open-source software developed by the Apache Software Foundation that does not provide for compatibility with prior releases. Care must be taken when installing IBM XML Toolkit for z/OS, V1.9, because the XML parsers and the XSLT processors in this toolkit are not compatible with previous releases. Please note, the IBM XML Toolkit for z/OS, V1.9 packages the latest XML parser and XSLT processor from Apache as well as those XML parsers and the XSLT processors from previous XML Toolkits so that applications that are using XML Toolkit for z/OS, V1.8 or XML Toolkit for z/OS, V1.7 will continue to run. This is intended to allow for continued use of these levels of the toolkit by applications that have written to their specific APIs.



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Ordering information: The availability date was June 16, 2006. The program numbers are XML Toolkit for z/OS (5655-J51), and XML Toolkit for z/OS S&S (5655-I30).

### **IBM 64-bit SDK for z/OS, Java 2 Technology Edition Version 1 Release 4 (5655-M30)**

64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 is a Java SDK that contains a reengineered Java 2 virtual machine at the SDK 1.4 level and the IBM Just-in-Time (JIT) compiler. The program is a key building block for developing e-business applications. 64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 passes the Java SDK 1.4 compatibility test and provides the stability, service, and scalability you expect from a zSeries program. 64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 provides:

- Support for Java application programming in a 64-bit environment
- Java 2 APIs at the SDK 1.4 level
- Continuation of the "write once, run anywhere" Java paradigm
- Java Record I/O (JRIO)
- XML support
- SAF and cryptography support
- Support for the IBM zSeries Application Assist Processors available on the z9 EC, z9 BC, z990, and z890 servers
- Additional reliability, availability, and serviceability (RAS) enhancements

64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 requires z/OS V1 R6. IBM 64-Bit SDK for z/OS, Java 2 Technology Edition, Version 1.4 (5655-M30) has the same functions as IBM SDK for z/OS, Java 2 Technology Edition (5655-I56), with the exception of:

- Persistent reusable function
- Sharing class objects between Java virtual machine (JVM) processes running in the same address space

64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 (5655-M30) and SDK for z/OS, Java 2 Technology Edition, 2 V1.4 (5655-I56) are independent products and can co-exist on the same z/OS system.

Programs interacting with the 64-bit Java product, whether launching the JVM or being called from the JVM through the JNI interface, must be 64-bit programs. Programs dependent on JNI interfaces may require changes at the interface boundary to conform to 64-bit data types. Application JNI routines written in C will need to be recompiled for 64-bit, which may require some code changes. For details on incompatibilities, visit

<http://www.ibm.com/servers/eserver/zseries/software/java/>

Ordering information: General availability occurred on December 17, 2004. The program numbers are IBM 64-Bit SDK for z/OS, Java 2 Technology Edition, V1.4 (5655-M30), and IBM 64-Bit SDK for z/OS, Software Subscription and Support (5655-I48).

### **IBM SDK for z/OS, Java 2 Technology Edition, Version 1.4 (5655-I56)**

SDK for z/OS, Java 2 Technology Edition, V1.4 is a Java SDK that contains a reengineered Java 2 virtual machine at the SDK 1.4 level and the IBM Just-in-Time (JIT) compiler. The program is a key building block for developing e-business applications. SDK for z/OS, Java 2 Technology Edition, V1.4 passes the Java SDK 1.4 compatibility test and provides the stability, service, and scalability you expect from a zSeries program.

SDK for z/OS, Java 2 Technology Edition, V1.4 provides:

- Java 2 APIs at the SDK 1.4 level
- Continuation of the "write once, run anywhere" Java paradigm
- New Java 2 function, including XML
- Exploitation of enhanced z/OS linkage capabilities (XPLINK)
- Enhanced IBM JIT compiler
- JRIO
- Security services
- IBM enhanced memory management
- Persistent reusable Java Virtual Machine (JVM) Support
- Additional reliability, availability, and serviceability (RAS) enhancements

SDK for z/OS, Java 2 Technology Edition, V1.4 includes improved dump capability, tracing, and problem determination, as well as isolation to better diagnose and fix software defects.

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Ordering information: The program numbers are IBM SDK for z/OS, Java 2 Technology Edition, Version 1.4 (5655-156), and IBM SDK for z/OS Service and Subscription (5655-148)

### **IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N99)**

64-bit SDK for z/OS, Java 2 Technology Edition, V5 is a Java SDK that contains a reengineered Java 2 virtual machine at the SDK 5 level and the IBM Just-in-Time (JIT) compiler. The program is a key building block for developing on demand applications. 64-bit SDK for z/OS, Java 2 Technology Edition, V5 is designed to be compliant with the Java SDK 5 compatibility test and is intended to provide the stability, service, and scalability you expect from a zSeries program.

64-bit SDK for z/OS, Java 2 Technology Edition, V5 is designed to provide:

- Support for Java application programming in a 64-bit environment
- Java 2 APIs at the SDK 5 level
- Continuation of the "write once, run anywhere" Java paradigm
- Java Record I/O (JRIO)
- XML support
- System Authorization Facility (SAF) and cryptography support
- Use the System z9 and zSeries Application Assist Processors (zAAPs) available on z9 EC, z9 BC, z990 and z890 servers
- Additional reliability, availability, and serviceability (RAS) enhancements

64-bit SDK for z/OS, Java 2 Technology Edition, V5 includes similar dump capability, tracing, and problem determination as in SDK for z/OS, Java 2 Technology Edition, V1.4 (5655-156).

Ordering information: The program numbers are IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N99), and IBM SDK for z/OS Software Subscription and Support (5655-148)

### **IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N98)**

31-bit SDK for z/OS, Java 2 Technology Edition, V5 is a Java SDK that contains a reengineered Java 2 virtual machine at the SDK 5 level and the IBM Just-in-Time (JIT) compiler. The program is a key building block for developing on demand applications. 31-bit SDK for z/OS, Java 2 Technology Edition, V5 is compliant with the Java SDK 5 compatibility test and is designed to provide the stability, service, and scalability you expect from a zSeries program.

31-bit SDK for z/OS, Java 2 Technology Edition, V5 is designed to provide:

- Support for Java application programming in a 31-bit environment
- Java 2 APIs at the SDK 5 level
- Continuation of the "write once, run anywhere" Java paradigm
- Java Record I/O (JRIO)
- XML support
- System Authorization Facility (SAF) and cryptography support
- Use the System z9 and zSeries Application Assist Processors (zAAPs) available on z9 EC, z9 BC, z990 and z890 servers
- Additional reliability, availability, and serviceability (RAS) enhancements

31-bit SDK for z/OS, Java 2 Technology Edition, V5 includes similar dump capability, tracing, and problem determination as in SDK for z/OS, Java 2 Technology Edition, V1.4 (5655-156).

Ordering information: The program numbers are IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V5 (5655-N98), and IBM SDK for z/OS Software Subscription and Support (5655-148)

### **IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V6 (5655-R31)**

31-bit SDK for z/OS, Java Technology Edition, V6 provides a software development kit (SDK) at the Java technology level, designed to be compliant with the Sun SDK 6 application programming interfaces (APIs). With 31-bit SDK for z/OS, Java Technology Edition, V6 you can:

- Test and deploy Java applications in a 31-bit environment

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- Continue the "write once, run anywhere" Java paradigm
- Use your System z Application Assist Processors (zAAPs) available on z9 BC, z9 EC, z990, and z890 servers to run eligible Java work
- Leverage traditional System z benefits: scalability, reliability, availability, and serviceability.

Ordering information: The program numbers are IBM 64-bit SDK for z/OS, Java Technology Edition, V6.0.0 (5655-R31), and IBM SDK for z/OS Software Subscription and Support V1.1.0 (5655-I48).

### **IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V6 (5655-R32)**

64-bit SDK for z/OS, Java Technology Edition, V6 provides a software development kit (SDK) at the Java technology level, designed to be compliant with the Sun SDK 6 application programming interfaces (APIs). With 64-bit SDK for z/OS, Java Technology Edition, V6 you can:

- Test and deploy Java applications in a 64-bit environment
- Continue the "write once, run anywhere" Java paradigm
- Use your System z Application Assist Processors (zAAPs) available on z9 BC, z9 EC, z990, and z890 servers to run eligible Java work
- Leverage traditional System z benefits: scalability, reliability, availability, and serviceability.

Ordering information: The program numbers are IBM 64-bit SDK for z/OS, Java Technology Edition, V6.0.0 (5655-R32), and IBM SDK for z/OS Software Subscription and Support V1.1.0 (5655-I48).

z/OS 1.10 Planning

## z/OS Policies

- ▶ **Annual Release Frequency**
  - z/OS V1 R10 GA is planned for **Sept 26, 2008**
  - **All subsequent releases are planned for GA every September**
  
- ▶ **Service Support**
- ▶ **Coexistence-Migration-Fallback**



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### Release Frequency

In response to customer feedback that the 6-month release cycle was too short and complicated customer migration plans, IBM announced in August 2002 that the release schedule for z/OS has changed to a 12-month cycle. The vast majority of z/OS customers migrate to new releases every 12 to 18 months. Less frequent releases in the future will allow IBM to provide even more integration testing for z/OS and related IBM middleware. It will also enable IBM to align the coexistence, migration, and fallback policy with the service policy, with the annual releases.

**Starting with z/OS R6, IBM intends to deliver releases annually, with general availability in September.** This predictable release cycle will enable you to better plan your migration, freeing you to increase the value of your computing environment to your business and deliver better service to your end users. New z/OS functions will continue to be delivered between releases through the normal maintenance stream or as Web deliverables. In addition, significant new functions may be delivered between releases as features of the product. *z/OS V1R10 is the fifth release to be delivered on this annual release cycle.*

These statements regarding the new release strategy represent current intentions of IBM. Any reliance on these statements is at the relying party's sole risk and will not create any liability or obligation for IBM. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.


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## z/OS Service Policy

- ▶ **Release serviceable for three years following GA**
  - ▶ IBM Lifecycle Extension for z/OS V1.7 (5637-A01) is a fee-based offering
- ▶ **Service on last release of a version might be extended**
- ▶ **At least 12 months notice before withdrawing service**
- ▶ **Handy website:**  
[http://www.ibm.com/servers/eserver/zseries/zos/support/zos\\_eos\\_dates.html](http://www.ibm.com/servers/eserver/zseries/zos/support/zos_eos_dates.html)

	GA Date	End of Service Date
z/OS V1R4	27 Sept 2002	Occurred on 31 March 2007
z/OS V1R5	24 March 2004	Occurred on 31 March 2007
z/OS V1R6	24 Sept 2004	Occurred on 30 Sept 2007
z/OS V1R7	30 Sept 2005	Occurred on 30 Sept 2008 (see above!)
z/OS V1R8	29 Sept 2006	Announced to occur on 30 Sept 2009
z/OS V1R9	28 Sept 2007	Planned to be Sept 2010
z/OS V1R10	26 Sept 2008 (planned)	Planned to be Sept 2011



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### Service Policy

IBM's current policy is to provide maintenance (service) for each release of z/OS for three years following its general availability (GA) date. However, service on the last release of a version might be extended beyond the intended three-year period. Prior to withdrawing service for any version or release of z/OS, IBM intends to provide at least 12 months notice. The service policy for z/OS also applies to any enhancements (including but not limited to web deliverables), such as the zIIP support enhancements that were provided for z/OS R6 and R7 via web deliverables.

See the table below for expiration dates for service support. Planned end of service dates are based on the 3-year service policy.

Version and release	General availability (GA)	End of service (EOS)
OS/390 V2R8	24 September 1999	Occurred 30 September 2002
OS/390 V2R9	31 March 2000	Occurred 31 March 2003
OS/390 V2R10	29 September 2000	Occurred 30 September 2004
z/OS V1R1	30 March 2001	Occurred 31 March 2004
z/OS V1R2	26 October 2001	Occurred 31 October 2004
z/OS V1R3	29 March 2002	Occurred 31 March 2005
z/OS V1R4	27 September 2002	Occurred on 31 March 2007
z/OS V1R5	26 March 2004	Occurred on 31 March 2007
z/OS V1R6	24 September 2004	Occurred on 30 September 2007
z/OS V1R7	30 September 2005	Occurred on 30 September 2008 See "z/OS V1.7 Lifecycle Extended Service" below for a fee-based accommodation.
z/OS V1R8	29 September 2006	30 September 2009 (announced)
z/OS V1R9	28 September 2007	September 2010 (planned)
z/OS V1R10	26 September 2008 (planned)	September 2011 (planned)

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### **z/OS V1.7 Lifecycle Extended Service**

To address our customer requirements of support and service IBM is announcing a special extended lifecycle accommodation (5637-A01) exclusively for z/OS V1.7. z/OS V1.7 offered many advances in platform simplification, security, availability, and application development capabilities making it one of the most popular releases of z/OS ever.

The IBM Lifecycle Extension for z/OS V1.7 provides corrective service, which is a work around or fix to a problem. If you are licensed for the IBM LifeCycle Extension for z/OS V1.7 problem reporting remains unchanged. The IBM Support Center can be contacted to report problems that may be associated with z/OS V1.7. The IBM Support Center will provide a fix or circumvention for new problems that are defects in z/OS V1.7. Any PTF for z/OS V1.7 that was available prior to the end of z/OS V1.7 warranty period (September 30, 2007) will continue to be available through the existing service acquisition portals such as SMP/E RECEIVE ORDER and ShopzSeries.

The IBM LifeCycle Extension for z/OS V1.7 does not provide preventive service or new function, nor does it provide any extension or changes to IBM's coexistence or migration policy for z/OS.


Customers with SoftwareXcel or SupportLine support should contact their IBM representative, an IBM Business Partner, or the IBM Call Center for additional information.

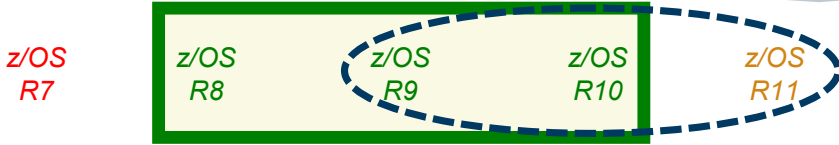
- Starting October 1, 2008, IBM will offer a fee-based, corrective service extension for up to a 2 year period following the z/OS V1.7 discontinuance of the warranty service (September 30, 2008). This support enables users who have not completed their migration to z/OS V1.8 or z/OS V1.9 to continue to receive corrective service for z/OS V1.7 in the 2 year period of October 1, 2008 through September 30, 2010
- Available as a six month minimum purchase with the option of either:
  - Purchasing the support for a longer period OR
  - Extending the existing purchase period in increments of one month

If you purchase the IBM Lifecycle Extension for z/OS V1.7, you must license it for all IBM z/Architecture servers running z/OS V1.7; however, you may specify unique duration periods for servers migrating their z/OS V1.7 images on differing schedules.

z/OS 1.10 Planning

z/OS R10 Coexistence





- **Starting with z/OS R6, IBM has aligned the coexistence, fallback, and migration policy with the service policy.**
- **z/OS R8, z/OS R9, and z/OS R10** are supported for coexistence, migration, and fallback
- **If you stage your JES2 or JES3, then you may use with z/OS R10:**
  - z/OS R8 JES2 (with z/OS R8 SDSF) and z/OS R9 JES2 (with z/OS R9 SDSF) are supported for coexistence, migration, and fallback Note that SDSF is aligned with the JES2 release.
  - z/OS R8 JES3 and z/OS R9 JES3 are supported for coexistence, migration, and fallback

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## Understanding Coexistence

*Coexistence* occurs when 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
- Parallel Sysplex or non-Parallel Sysplex configurations

**Note:** The term coexistence does not refer to z/OS residing on a single system along with VSE/ESA, VM/ESA, or z/VM in an LPAR or as a VM guest.

z/OS systems can coexist with specific prior releases. This is important because it gives you flexibility to migrate systems in a multisystem configuration using rolling IPLs rather than requiring a systems-wide IPL. The way in which you make it possible for earlier-level systems to coexist with z/OS is to install coexistence service (PTFs) on the earlier-level systems.

You should complete the migration of all earlier-level coexisting systems as soon as you can. Keep in mind that the objective of coexistence PTFs is to allow existing functions to continue to be used on the earlier-level systems when run in a mixed environment that contains later-level systems. Coexistence PTFs are not aimed at allowing new functions provided in later releases to work on earlier-level systems.

## Rolling z/OS across a multisystem configuration

A *rolling IPL* is the IPL of one system at a time in a multisystem configuration. You might stage the IPLs over a few hours or a few weeks. The use of rolling IPLs allows you to migrate each z/OS system to a later release, one at a time, while allowing for continuous application availability. For example, data sharing applications offer continuous availability in a Parallel Sysplex configuration by treating each z/OS system as a resource for processing the workload. The use of rolling IPLs allows z/OS systems running these applications to be IPLed one at a time, to migrate to a new release of z/OS, while the applications continue to be processed by the other z/OS systems that support the workload. By using LPAR technology, you can use rolling IPLs to upgrade your systems without losing either availability or capacity.

You can use rolling IPLs when both of the following are true:

- The release to which you're migrating falls is supported for coexistence, fallback, and migration with the releases running on the other systems.
- The appropriate coexistence PTFs have been installed on the other systems in the multisystem configuration.

Even when you're using applications that do not support data sharing, rolling IPLs often make it easier to schedule z/OS software upgrades. It can be very difficult to schedule a time when all applications running on all the systems in a multisystem configuration can be taken down to allow for a complex-wide or Parallel Sysplex-wide IPL. The use of rolling IPLs not only enables continuous availability from an end-user application point of view, but it also eliminates the work associated with migrating all z/OS systems in a multisystem configuration at the same time.

## Understanding fallback

Fallback (backout) is a return to the prior level of a system. Fallback can be appropriate if you migrate to z/OS R10 and, during testing, encounter severe problems that can be resolved by backing out the new release. By applying fallback PTFs to the "old" system before you migrate, the old system can tolerate changes that were made by the new system during testing.

Fallback is relevant in all types of configurations, that is, single-system or multisystem, with or without resource sharing. As an example of fallback, consider a single system that shares data or data structures, such as user catalogs, as you shift the system image from production (on the "old" release) to test (on the new release) and back again (to the old release). The later-level test release might make changes that are incompatible with the earlier-level production release. Fallback PTFs on the earlier-level release can allow it to tolerate changes made by the later-level release.

As a general reminder, always plan to have a backout path when installing new software by identifying and installing any service required to support backout.

Fallback is at a system level, rather than an element or feature level, except for z/OS JES2 and z/OS JES3. That is, except for z/OS JES2 and z/OS JES3, you can't back out an element or feature; you can only back out the entire z/OS product. z/OS JES2 and z/OS JES3 fallback can be done separately as long as the level of JES is supported with the release of z/OS and any necessary fallback PTFs are installed.

Fallback and coexistence are alike in that the PTFs that ensure coexistence are the same ones that ensure fallback.

**Note:** Keep in mind that new functions can require that all systems be at z/OS V1R10 level before the new functions can be used. Therefore, be careful not to exploit new functions until you are fairly confident that you will not need to back out your z/OS V1R10 systems, as fallback maintenance is not available in these cases. You should consult the appropriate element or feature documentation to determine the requirements for using a particular new function.

## Which releases are supported for coexistence, fallback, and migration?

**Starting with z/OS R6, IBM has aligned the coexistence, fallback, and migration policy with the service policy.** IBM intends to continue with the practice of providing service support for each release of z/OS for three years following its general availability (GA) date. IBM, at its sole discretion, may choose to leave a release supported for more than three years. This change to the coexistence, fallback, and migration policy is effective starting with z/OS R6 (that is, the first release of the new annual release cycle). **As a general rule, this means that three releases will be supported for coexistence, fallback, and migration over a period of three years.** This represents an increase of one year over the two-year period provided by the current coexistence, fallback, and migration policy of four releases under a six-month release cycle. The intention of this policy change is to simplify and provide greater predictability to aid in release migrations.



## Migrating to z/OS 1.10 – Part 1

Exceptions are:

- In some cases, more than three releases may be coexistence, fallback, and migration supported if IBM at its sole discretion chooses to provide service support for greater than three years for a release.
- Any z/OS release having three or fewer months of service remaining at general availability of a new release will not be coexistence, fallback, or migration supported with the new release.

Thus, except for JES2 and JES3, **z/OS V1R10 is coexistence, fallback, and migration supported with the following two z/OS releases: V1R9 and V1R8.** This means that:

- Coexistence of a V1R10 system with a V1R9 or V1R8 system is supported.
- Fallback *from* V1R10 to V1R9 or V1R8 is supported.
- Migration *to* V1R10 *from* V1R9 or V1R8 is supported.

For JES2 and JES3, the way in which three consecutive releases is determined is different than for the rest of the operating system. If a JES2 or JES3 release is functionally equivalent to its predecessor (that is, its FMID is the same), then the release is considered to be the same JES release. Thus, **z/OS V1R10 JES2 and JES3 are coexistence, fallback, and migration supported with the following JES releases: V1R10, V1R9, and V1R8.**

As of z/OS V1R2, compliance to the coexistence, fallback, and migration policy for JES2 and JES3 is enforced. A migration to a JES2 or JES3 release level that is not supported by the policy results in the following:

- For JES2: If the JES2 release level for a system that is initializing is not compatible with the other active systems in the JES2 MAS, message HASP710 is issued and the JES2 address space for the initializing system is terminated.
- For JES3: If the JES3 release level for a local is not compatible with the global in a JES3 multisystem complex, message IAT2640 is issued and the JES3 local is not allowed to connect to the global.

The JES2 and SDSF releases allowed with z/OS V1R10 BCP are shown below. Note that the SDSF release level must be the same as the JES2 release level. Before z/OS V1R9, the SDSF release level had to be the same as the BCP release level.

BCP release	JES2 release allowed	SDSF release allowed
R10	R8	R8
	R9	R9
	R10	R10

The JES3 and SDSF releases allowed with z/OS V1R10 BCP are shown below. Note that SDSF is now supported with JES3. Before z/OS V1R10, SDSF was supported only with JES2.

BCP release	JES3 release allowed	SDSF release allowed
R10	R8	Not allowed with JES3
	R9	Not allowed with JES3
	R10	R10

The z/OS coexistence, fallback, and migration policy applies to the elements and features of z/OS, not to customer-developed applications, vendor-developed applications, or IBM products that run on z/OS. IBM performs integration testing and will provide service as necessary to support the z/OS coexistence, fallback, and migration policy.

See the table below for a summary of current and planned coexistence, fallback, and migration support. These statements represent IBM's current intentions. IBM reserves the right to change or alter the coexistence, fallback, and migration policy in the future or to exclude certain releases beyond those stated. IBM development plans are subject to change or withdrawal without further notice. Any reliance on this statement of direction is at the relying party's sole risk and does not create any liability or obligation for IBM.

## Migrating to zOS 1.10 – Part 1

Releases that are coexistence, fallback, and migration supported with z/OS V1R6 and beyond

z/OS release (see note 1)	Releases that are coexistence, fallback, and migration supported with the release in column one (see note 1)	Explanation (see note 2)
R6	R6, R5, R4, R3	The new policy starts. General availability of R6 was September 2004. R2 would be the oldest service-supported release at that time and therefore the oldest release that is coexistence, fallback, and migration supported. However, its end-of-service date (October 2004) is within three months of R6 general availability (September 2004), so R3 becomes the oldest release that is coexistence, fallback, and migration supported with R6.
R7	R7, R6, R5, R4	General availability of R7 was September 30, 2005. R4 is the oldest release that is service supported at that time and therefore the oldest release that is coexistence, fallback, and migration supported with R7.
R8	R8, R7, R6, R5	General availability of R8 was September 29, 2006. R4 is the oldest release that is service supported at that time because its end-of-service date was extended by 18 months to 31 March 2007. <b>However, R4 is not coexistence, fallback, and migration supported with R8.</b> Therefore, R5 is oldest release that is coexistence, fallback, and migration supported with R8.
R9	R9, R8, R7	General availability of R9 was September 28, 2007. R7 is the oldest release that is service supported at that time and therefore the oldest release that is coexistence, fallback, and migration supported with R9.
R10	R10, R9, R8	General availability of R10 was September 26, 2008. R8 is the oldest release that is service supported at that time and therefore the oldest release that is coexistence, fallback, and migration supported with R10.

**Notes:**

1. For readability, the version numbers have been omitted from the releases shown. Also, release numbering of future releases (later than R7) is for illustrative purposes and is not a guarantee of actual release numbers.
2. Future general availability (GA) dates are projections based on the annual release cycle. Future end of service (EOS) dates are projections based on the 3-year service policy.

z/OS 1.10 Planning


## Positioning for z/OS R10

- ▶ **Read Documentation and PSP buckets**
  - *z/OS Migration* and *z/OS Planning for Installation*
  - Software PSP buckets: ZOSV1Rx: ZOSGEN, SERVERPAC, ...
  - Hardware PSP buckets: 20xxDEVICE, ...
  - Use FIXCATs or the EPSPT tool for PSP bucket verification!
- ▶ **DASD Storage Requirements for z/OS R10:**


	z/OS R8	z/OS R9	z/OS R10
<b>Target</b>	5,456	6,400	6,700
<b>DLIB</b>	7,362	8,900	9,200
<b>File System</b>	2,800	2,900	3,100

sizes in 3390 cylinders


- ▶ **Ensuring System Requirements Are Satisfied**
  - Driving System Requirements
  - Target System Requirements
    - Hardware and Software
  - Coexistence System Requirements
- ▶ **Migration Actions You Can Do NOW**



OVER the 3390-6 limit of 6678 cylinders !!!



Approaching 3390-3 limit of 3339 cylinders !!!



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## z/OS Documentation: Where to Start

To gain an overview of z/OS and plan for the installation, review:

- *z/OS V1R10 Migration* (GA22-7499)
- *z/OS V1R10 Planning for Installation* (GA22-7504)
- *zSeries Platform Test Report for z/OS and Linux Virtual Servers* (formerly, the *z/OS Parallel Sysplex Test Report*)
- *z/OS V1 R10.0 Introduction and Release Guide* (GA22-7502)

To install z/OS, review Preventive Service Planning (PSP) Buckets for:

- ServerPac (if using ServerPac to install)
- z/OS and individual elements (including ZOSGEN, which is handy for coexistence service as mentioned later in this presentation)
- Hardware, if you will using specific HW functions or upgrading your server

In addition, to install z/OS using ServerPac, review:

- *ServerPac: Using the Installation Dialog* (SC28-1244)
- The custom-built installation guide, *ServerPac: Installing Your Order*

To install z/OS using CBPDO, review the *z/OS Program Directory*.

## PSP Buckets

z/OS, and most products that run on it, provide files containing information that became available after the product documents were printed. Kept on IBM's RETAIN system and also available using IBMLink, these files are called preventive service planning (PSP) "buckets", or just "PSPs". PSP buckets are identified by an *upgrade* identifier, and specific parts of them are called *subsets*. Each upgrade contains information about a product. Subsets contain information about specific parts of a product. For example, the z/OS PSP bucket has subsets for the BCP, JES2, ServerPac, and others.

For software upgrades for ServerPac and CBPDO installations, refer to *z/OS Program Directory*. For software upgrades for SystemPac installations, the upgrade is CUSTOMPAC and the subsets are SYSPAC/FVD (for full volume dump format) and SYSPAC/DBD (for dump-by-data-set format).

At the beginning of each PSP bucket is a change index. For each subset, the change index identifies the date of the latest entries in each section. You can quickly determine whether there are new entries you need to read by checking the change index. Since z/OS V1R7, the contents of PSP buckets are no longer shipped with CBPDO and ServerPac orders. Instead of the actual PSP information, you now receive the names of relevant upgrades and

## Migrating to z/OS 1.10 – Part 1

subsets, and you're directed to the PSP Web site (<https://techsupport.services.ibm.com/server/390.psp390>) for the contents of the buckets. This ensures that you see the latest PSP information, as the PSP information that was provided with an order was current only on the day the order was created.

The upgrade for the z/OS R10 PSP bucket is ZOSV1R10. Recognizing that there are many PSP buckets to review, z/OS uses descriptive element names, instead of FMIDs for the subsets. This reduces the number of PSP buckets that must be reviewed, since most elements are composed of multiple FMIDs. There are subsets in the ZOSV1R10 upgrade for general topics (ZOSGEN), and for the ServerPac deliverable (SERVERPAC) that should be reviewed also. DFSMS is consolidated into one subset. All PSP upgrades and subset IDs are listed in the *z/OS Program Directory*. However, the non-exclusive elements' stand-alone product upgrade and subsets are used.

### Hardware PSP upgrade identifiers

Hardware PSP bucket upgrade IDs are in the form xxxxDEVICE and contain the latest software dependencies for the hardware, and recommended PTFs and APARs required for specific processor models. The PSP hardware upgrade identifiers are:

- 2097DEVICE for the z10 EC server
- 2094DEVICE for the z9 EC server
- 2096DEVICE for the z9 BC server
- 2084DEVICE for the z990 server
- 2086DEVICE for the z890 server
- 2064DEVICE for the z900 server
- 2066DEVICE for the z800 server

### Verifying the PTFs in the PSP buckets are installed

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. For complete information about the REPORT MISSINGFIX command, see *SMP/E Commands*.
- **Alternative automated method:** Use the Enhanced PSP Tool (EPSPT), and the extract files found at (<http://www14.software.ibm.com/webapp/set2/psp/srchBroker>) . 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 you are preparing for and click **Go**.

### DASD Storage Requirements

If you are migrating to z/OS R10 from z/OS R8 or you will have a different product set than your previous release, you will see increased need for DASD. How much more depends on what levels of products you are running. Keep in mind the DASD required for your z/OS system includes (per the z/OS Policy). That is, it includes ALL elements, ALL features that support dynamic enablement, regardless of your order, and ALL unpriced features that you ordered. This storage is in addition to the storage required by other products you might have installed. All sizes include 15% freespace to accommodate the installation of maintenance.


The total storage required for z/OS data sets is listed in the space table in the *z/OS Program Directory*.

For z/OS R10:

- The total storage required for all the target data sets is 6,700 cylinders on a 3390 device. (SCEERUN2 is significantly increased as of z/OS R9.) **It is strong recommended that review the size of your existing target volumes and plan for the required target volume storage for z/OS R10.**
- The total storage required for all the distribution data sets listed in the space table is 9,200 cylinders on a 3390 device.
- The total file system (HFS or zFS) storage is 3,100 cylinders on a 3390 device for the ROOT and 50 cylinders for the /etc file system. For the CIM element, the space required for the /var VARWBEM file system is 50 cylinders. **It is strong recommended that you put your file system ROOT data set on multiple 3390-3 volumes (a multi-volume data set) or on a volume larger than a 3390-3.**

z/OS 1.10 Planning

## Driving System Requirements - ServerPac via Tape




- ▶ **Minimum to Install z/OS R10 ServerPac via tape:**
  1. Either of the following:
    - **z/OS R8 with DFSMSdfp PTF UA34953 .**
    - Customized Offerings Driver V2.4.1 (5655-M12, a subset of z/OS R8 with SMP/E V3R4)
  2. Activated OMVS address space with UNIX kernel services operating in full function mode for unloading the HFS via the *pax* utility
  3. Install from a user id that is permitted to the system resources defined in ServerPac job RACFDRV. You can install from a superuser (UID=0), or be a member of the facility class resource BPX.SUPERUSER
  4. Do not specify these LE run-time options as nonoverridable (NONOVR) in the CEEDOPT CSECT: ALL31, ANYHEAP, BELOWHEAP, DEPTHCONDLIMIT, ERRCOUNT, HEAP, HEAPCHK, INTERRUPT, LIBSTACK, PLITASKCOUNT, STACK, ...
- ▶ **Minimum to Service the New Target System:**
  - See subsequent foil (includes shipped levels of **program binder, SMP/E, and HLASM, and UNIX System Services requirements**)
  - If you order a product with your z/OS ServerPac that uses ++JARUPD, you'll need Java 2 Technology Edition (5655-D35). *z/OS itself does NOT need Java as a driving system requirement!*

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z/OS 1.10 Planning

## Driving System Requirements - Electronic ServerPac



- ▶ **Electronic delivery is available for those locations that can order z/OS products via ShopzSeries.**
  - ▶ Can choose between tape and electronic delivery
  - ▶ **Must be ordered from ShopzSeries to obtain electronic delivery**
- ▶ **Minimum to Install z/OS R10 ServerPac via electronic delivery:**
  - Must meet the tape requirements (on the previous foil)
  - And to verify integrity of the data within the package SHA-1 hash values are used, must have either:
    - **ICSF** configured and active (which is preferred, for performance)
    - **-or- IBM SDK Java 2 Technology Edition V1.4 or later** (ICSF is **not** necessary in this case!).

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## z/OS Driving System Requirements

The *driving system* is the system image (hardware and software) that you use to install the target system. The *target system* is the system software libraries and other data sets that you are installing. You log on to the driving system and run jobs there to create or update the target system. Once the target system is built, it can be IPLed on the same hardware (same LPAR or same processor) or different hardware than that used for the driving system.

If your driving system will share resources with your target system after the target system has been IPLed, *be sure to install applicable coexistence service* on the driving system before you IPL the target system. If you don't install the coexistence service, you will probably experience problems due to incompatible data structures (such as incompatible data sets, VTOCs, catalog records, GRS tokens, or APPC bind mappings).

## Customized Offerings Driver (5665-M12)

The Customized Offerings Driver V2.4.1 or later (5665-M12) is an entitled driving system you can use if:

- you don't have an existing system to use as a driving system, or
- your existing system does not meet driving system requirements and you don't want to upgrade it to meet those requirements.

At z/OS R10 GA, this driver is a subset of a z/OS R8 system, with the level of SMP/E at V3R4.

The Customized Offerings Driver is in DFSMSdss dump/restore format and supports 3380 and 3390 triple-density or higher DASD devices. The Customized Offerings Driver requires a locally attached non-SNA terminal and a system console from the IBM (or equivalent) family of supported terminal types: 317x, 327x, 319x, or 348x. An IBM (or equivalent) supported tape drive is also required to restore the driver.

The Customized Offerings Driver is intended to run in single-system image and monoplex modes only. Its use in multisystem configurations is not supported. The Customized Offerings Driver is intended to be used only to install new levels of z/OS using ServerPac or CBPDO, and to install service on the new software until a copy (clone) of the new system can be made. The use of the Customized Offerings Driver for other purposes is not supported.

The Customized Offerings Driver includes an HFS and the necessary function to use Communications Server (IP Services), Security Server, and the system-managed storage (SMS) facility of DFSMSdftp, but these items are not customized. However, existing environments can be connected to, and used from, the Customized Offerings Driver system.

## Identifying Driving System Software Requirements for ServerPac for z/OS R10

Driving system requirements for installing z/OS R10 by way of ServerPac or dump-by-data-set SystemPac are:

- *An operating system:* Use either of the following:
  - z/OS V1R8 or later, or z/OS.e V1R8. If V1R8, DFSMSdftp PTF UA34953 (for APAR OA20599) is also required, or
  - The Customized Offerings Driver (5665-M12).
- *A terminal:* A locally-attached or network-attached terminal that can be used to establish a TSO/E session on the IPLed system is required.
- *Proper authority:* Use the RACFDRV installation job as a sample of the security system definitions required so that you can perform the installation tasks.
- *Proper security:*
  - In order for you to install into the zFS, the user ID you use must have read access to the SUPERUSER.FILESYS.PFSCCTL resource in the RACF FACILITY class.
  - In order for you to install the z/OS UNIX files, the following is required:
    - The user ID you use must be a superuser (UID=0) or have read access to the BPX.SUPERUSER resource in the RACF facility class.
    - The user ID you use must have read access to facility class resources BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB (or BPX.FILEATTR.\* if you choose to use a generic name for these resources). The commands to define these facility class resources are in SYS1.SAMPLIB member BPXISEC1.

## Migrating to zOS 1.10 – Part 1

- Group IDs uucpg and TTY, and user ID uucp, must be defined in your security database. These IDs must contain OMVS segments with a GID value for each group and a UID value for the user ID. (For ease of use and manageability, define the names in uppercase.)
  - The group ID and user ID values assigned to these IDs cannot be used by any other IDs. They must be unique.
- You must duplicate the required user ID and group names in each security database, including the same user ID and group ID values in the OMVS segment. This makes it easier to transport the HFS data sets from test systems to production systems. For example, the group name TTY on System 1 must have the same group ID value on System 2 and System 3. If it is not possible to synchronize your databases you will need to continue running the FOMISCHO job against each system after z/OS UNIX is installed.

If names such as uucp, uucpg, and TTY are not allowed on your system, or if they conflict with existing names, you can create and activate a user ID alias table. For information about defining these group and user IDs to RACF and about creating a user ID alias table (USERIDALIAS), see *z/OS UNIX System Services Planning*. Other sources of information are SYS1.SAMPLIB member BPXISEC1. (**Note:** You can use the RACFDRV installation job as a sample of the security system definitions required to perform the installation tasks.)

- *Language Environment run-time options:* As of z/OS R7, ServerPac requires that the following Language Environment run-time options are **not** specified as nonoverrideable (NONOVR) in the CEEDOPT CSECT: ALL31, ANYHEAP, BELOWHEAP, DEPTHCONDLIMIT, ERRCOUNT, HEAP, HEAPCHK, HEAPPOOLS, INTERRUPT, LIBSTACK, PLITASKCOUNT, STACK, STORAGE, THREADHEAP, and THREADSTACK.
- *Language Environment:* The CustomPac Installation Dialog uses the Language Environment run-time library SCEERUN. If SCEERUN is not in the link list on the driving system, you must edit the ServerPac installation jobs to add it to the JOBLIB or STEPLIB DD statements.
  - *OMVS address space active:* For ServerPac only (not SystemPac), an activated OMVS address space with z/OS UNIX kernel services operating in full function mode is required.
  - *SMS active:* The Storage Management Subsystem (SMS) must be active to allocate HFS and PDSE data sets, whether they are SMS-managed or non-SMS-managed. Also, the use of HFS data sets is supported only when SMS is active in at least a null configuration, even when the data sets are not SMS-managed. Do either of the following:
    - To allocate non-SMS-managed HFS and PDSE data sets, you must activate SMS on the driving system in at least a null configuration. You must also activate SMS on the target system.
    - To allocate SMS-managed HFS and PDSE data sets, you must activate SMS on the driving system in at least a minimal configuration. Then you must define a storage group, create SMS-managed volumes, and write, translate, and activate a storage class ACS routine that allows the allocation of PDSE and HFS data sets with the names in the ALLOCDS job. You must also activate SMS on the target system.
- *SMP/E ++JARUPD Support:* If your ServerPac order contains any product that uses the ++JARUPD support introduced in SMP/E V3R2, then your driving system will require IBM SDK for OS/390, Java 2 Technology Edition. z/OS V1R10 itself does not use the ++JARUPD support.
- *zFS configuration requirements (optional):* If you will specify that you will use a zFS for ServerPac installation, then you must be sure that the zFS has been installed and configured, as described in *z/OS Distributed File Service zSeries File System Administration*.
- *Electronic delivery requirements (optional):* If you intend to receive your ServerPac order by way of the Internet, you need the following:
  - ICSF configured and active so that it can calculate SHA-1 hash values in order to verify the integrity of data being transmitted. If ICSF is not configured and active, SMP/E calculates the SHA-1 hash values using an SMP/E Java application class, provided that IBM SDK for z/OS, Java 2 Technology Edition, V1 (5655-I56) or later is installed. IBM recommends the ICSF method because it is likely to perform better than the SMP/E method. (To find out how to configure and activate ICSF, see *z/OS Cryptographic Services ICSF System Programmer's Guide*. For the required SMP/E setup, see *SMP/E User's Guide*.)
  - A download file system. Your order is provided in a compressed format and is saved in a download file system. The size of this file system should be approximately twice the compressed size of your order to accommodate the order and workspace to process it.
  - Firewall configuration. If your enterprise requires specific commands to allow the download of your order using FTP through a local firewall, you must identify these commands for later use in the CustomPac Installation Dialog, which manages the download of your order.
  - Proper dialog level. If you are using a CustomPac Installation Dialog whose Package Version is less than 17.00.00, you must migrate the dialog to this level or later. You can determine if you have the correct dialog level by looking for the text "This dialog supports electronic delivery." at the bottom of panel CPPPPOLI. If

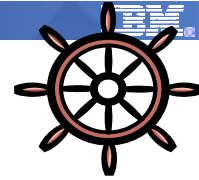
## Migrating to zOS 1.10 – Part 1

your dialog is not at the minimum level, follow the migration scenarios and steps described in *ServerPac: Using the Installation Dialog*.

- **Proper level for service:** In order for you to install service on the target system that you're building, your driving system must minimally meet the driving system requirements for CBPDO Wave 1 and must have the current (latest) levels of the program management binder, SMP/E, and HLASM. The service jobs generated by the CustomPac Installation Dialog use the target system's (and therefore current) level of the binder, SMP/E, and HLASM. If you choose to use your own jobs, model them after the jobs provided by ServerPac or dump-by-data-set SystemPac by adding STEPLIB DD statements to access MIGLIB (for the binder and SMP/E) and SASMMOD1 (for HLASM). Be sure that the SASMMOD1 and SYS1.MIGLIB data sets are APF authorized. Another way to install service is from a copy of your target system.



### Driving System Requirements to Service z/OS R10 (and for installing via CBPDO)



#### ► Very Similar to Installing via ServerPac:

- z/OS R8, along with **latest Program Binder, SMP/E, and HLASM**, and PTFs
  - May STEPLIB to Wave 0 target system's MIGLIB and SASMMOD1.
- Activated OMVS address space, in full function mode
- SMP/E Link Edit UTILITY entry for the Program Binder
- Language Environment Run Time Library SCEERUN access.
- Install from a user id that is a superuser (UID=0), or be a member of the facility class resource BPX.SUPERUSER
- Install from a user id that is permitted read access to facility class resources BPX.FILEATTR.APF, BPX.FILEATTR.PROGCTL, and BPX.FILEATTR.SHARELIB (or BPX.FILEATTR.\*)
- Group IDs uucpg and TTY, and user ID uucp, must be defined in your security database

#### ★ May also use the Customized Offerings Driver

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### Identifying Driving System Software Requirements for Servicing z/OS R10 (and Installing CBPDO)

After installing via ServerPac, you will eventually want to install service on your z/OS R10 system. The driving system to install service on your z/OS R10 ServerPac system are the same as to install with the CBPDO method. For servicing your ServerPac system, you must meet the driving system requirements for "Wave 1" below.

When you use the CBPDO method of installing z/OS you install in three stages called *waves*. (Wave 1, in order to be more manageable, is divided into several tasks called *ripples*.) This section describes the driving system requirements for each wave.

#### z/OS R10 CBPDO: Driving System Wave 0

In Wave 0 you install the program management binder (part of the BCP), the HLASM base element, and the SMP/E base element. These items must be installed on (available from) the driving system for subsequent wave installations.

You can use either of the following as the driving system for installing z/OS R10 Wave 0:

- z/OS R8 or later.
- The Customized Offerings Driver (5665-M12).

#### z/OS R10 CBPDO: Driving System Wave 1 (and to service a ServerPac system)

In Wave 1 you install most of the elements and features. The driving system requirements for installing Wave 1 are:

- *An operating system:* Use any of the following:
  - z/OS R8, except that the **program binder, HLASM, and SMP/E** must be at the current (latest) levels. To satisfy the binder and SMP/E requirements, you can use a STEPLIB DD statement to access the z/OS V1R10 program binder and z/OS V1R10 SMP/E (V3R5) in the Wave 0 target system's SYS1.MIGLIB data set, and to access the z/OS V1R10 HLASM's (V1R6) ASM.SASMMOD1 data set. Ensure that the target system's SYS1.MIGLIB and ASM.SASMMOD1 data sets are APF authorized on the driving system.
  - The Customized Offerings Driver (5665-M12).
- *Proper security:* In order for you to install into the file system, the security definitions described previously for ServerPac are required.

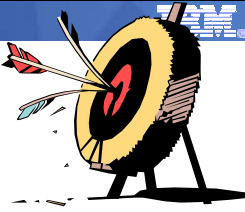
## Migrating to zOS 1.10 – Part 1

- *Binder entry in SMP/E UTILITY:* The SMP/E UTILITY must have an entry for the binder. You can specify any of these program names in the UTILITY entry: IEWBLINK, HEWL, IEWL, LINKEDIT, or HEWLH096. (The linkage editor, which uses the names HEWLKED, HEWLF064, IEWLF440, IEWLF880, and IEWLF128, cannot be used.)
- *Language Environment:* You must add SCEERUN (the run-time library provided by Language Environment) to your program search order because many elements and features require it. If you wish, add SCEERUN to your LNKLST concatenation. If you don't add SCEERUN to your LNKLST, you must access SCEERUN by using STEPLIB DD statements in the individual element and feature procedures that require them. The BCP's Program Management Binder is one function that requires access to SCEERUN; it has been required since OS/390 R10. This means that you must make available SCEERUN (via the LNKLST or STEPLIB, for instance) to any JCL and procedures (such as SMP/E procedures) that invoke the binder. This ensures that processing, such as conversion of long names to short names, is successful.
- *OMVS address space active:* Before you install the elements and features in Wave 1, you must activate the OMVS address space in full function mode on the driving system. To activate OMVS, complete the required customization (for example, SMS and RACF setup) as described in *z/OS UNIX System Services Planning*.
- *Target system's file system mounted:* The target system's file system must be mounted.

### **z/OS R10 CBPDO: Driving System Wave 2**

In Wave 2 you install the z/OS V1R10 level of JES2 or JES3. Wave 2 is optional and can be combined with Wave 1. The driving system requirements for Wave 2 are the same as for Wave 1.

z/OS 1.10 Planning



## Target System Requirements for z/OS R10

- ▶ **Software Requirements**
  - Coexistence Software (on Other Target Systems)
  - Correct Levels of IBM Non-z/OS and Non-IBM Products
    - If the IBM products are still service-supported, they may be used on z/OS V1R10, with some exceptions found in *z/OS V1R10 Planning for Installation*, Appendix B.
  - Functional Requirements
    - Some functions may need specific SW or HW levels for exploitation.
  - LPAR Name Restrictions for z/OS R10:
    - As “z/OS” (default) license: cannot be named ZNALxxxx
    - As “zNALC” license: can either be LPAR name of ZNALxxx –or– LICENSE=ZNALC with any LPAR name.
    - May want to rename your ZOSExxx LPAR names, if you were using z/OS.e previously.
- ▶ **Hardware Requirements**
  - Processor Requirements:
    - **IBM System z server: z10, z9 EC, z9 BC, z990, z890, z900, or z800**
  - Coupling Facility: see <http://www.ibm.com/eserver/zseries/psoc/table.html>

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### Choosing IBM Products That You Want to Run with z/OS

The functional and minimal requirements are found in the *z/OS Planning for Installation* which is available on the Internet from <http://www.ibm.com/servers/eserver/zseries/zos/bkserv/>.

For a list of products available for ordering with z/OS, you can use the self-service Internet application ShopzSeries: <http://www.ibm.com/software/shopzseries>.

The IBM software products that run with z/OS, and which are documented in *z/OS V1R10 Planning for Installation* Appendix, are documented slightly different for this release. Only the IBM software products levels **above the minimum service-supported level, or which need specific APARs or PTFs are documented**. Other IBM software products not documented in this Appendix, if they are still service-supported, are supported with z/OS R10.

Many of these products can be ordered as part of your z/OS ServerPac order, z/OS SystemPac order, separate CBPDO order, or separate ProductPac order.

If you're migrating to z/OS V1R10, you can find out which products have new levels by using ShopzSeries or by using the SMP/E base element's Planning and Migration Assistant. Both tools use data found on your system as well as the latest IBM software product catalog.

### Choosing ISV products that you want to run with z/OS

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/os/zos/software/isv110.html>

For a directory of IBM and IBM Business partners that provide z/OS applications, tools, and services, see the Global Solutions Directory: <http://www.ibm.com/software/solutions/isv>

### LPAR Name Considerations

Depending on the license type (z/OS or ZNALC), you may want to review your LPAR names. Since z/OS.e is not available on z/OS R10, you may want to consider renaming any LPARs that were previously called ZOSExxxx. To identify the z/OS LPAR as “zNALC”, you may do it in either of the following ways:

1. Specify system parameter LICENSE=ZNALC (with any LPAR name).
2. Specify ZNALxxxx as the LPAR name, along with one of the following:

## Migrating to zOS 1.10 – Part 1

- No system parameter specified for LICENSE (which will allow the default of Z/OS)
- System parameter LICENSE=Z/OS
- System parameter LICENSE=ZNALC (which is available on z/OS V1R6 and later with APAR OA20314)

Note that to identify the z/OS LPAR as “z/OS”, you cannot IPL it under any LPAR named ZNALxxx.

### Target System Hardware Requirements

The minimal hardware requirements for z/OS, as well as additional hardware needed by specific z/OS elements and features is documented in *z/OS Planning for Installation*. Remember, z/OS V1R10 runs only in z/Architecture mode, and only on z10 EC, z9 EC, z9 BC, z990, z890, z900 or z800 servers.

### Identifying Processor Requirements

z/OS V1R10 runs on the following IBM System z or their equivalents:

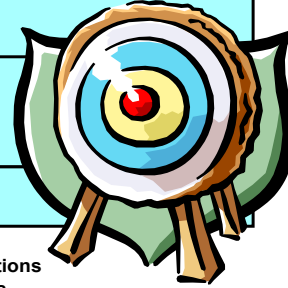
- IBM System z10 Enterprise Class (z10 EC)
- IBM System z9 Enterprise Class (z9 EC), formerly the IBM System z9 109 (z9-109)
- IBM System z9 Business Class (z9 BC)
- IBM eServer zSeries 990 (z990)
- IBM eServer zSeries 890 (z890)
- IBM eServer zSeries 900 (z900)
- IBM eServer zSeries 800 (z800)

### Identifying Coupling Facility Requirements

There are hardware and software requirements related to coupling facility levels (CFLEVELs). See <http://www.ibm.com/eserver/zseries/psocftable.html>.

## Some IBM SW Target System Requirements for z/OS R10

product name	minimum supported level
CICS TS	V3 R1 + PTFs (V2R2 was end of Service: 4/30/08, V2R3 is end of Service: 9/30/09)
DB2	V8 R1 with PTFs (including PK59399) (V7.1 was end of Service: 6/30/08)
IMS	V8 R1 with PTFs including APAR PK63000 (will be end of Service: 11/05/08) (V7 R1 was end of Service: 11/8/05)
WebSphere Application Server	V6.0.1 + PTFs (V5.0 end of service: 9/30/08)
Tivoli OMEGAMON XE	V3 or later + PTFS (V2.2 is end of Service: 9/30/08)




- Remember to refer to Appendix B in *z/OS R9 Planning for Installation* for exceptions above the minimum service-supported level, and for functional SW requirements.
- Website <http://www-306.ibm.com/software/support/lifecycle/> can be helpful.

### Selected IBM Subsystem Products that will run on z/OS R10

For the list of the IBM software products that run on z/OS R10 (above minimum service-supported levels, or those with specific PTF requirements), refer to Appendix B of *z/OS Planning for Installation* and PSP buckets. This appendix also lists functions of z/OS that require specific z/OS optional features, IBM middleware products, or IBM application products.

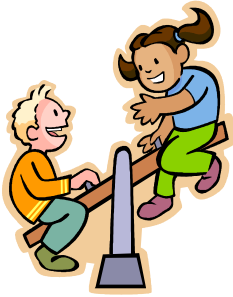
A handy website for finding end of service dates for IBM products is <http://www-306.ibm.com/software/support/lifecycle/>.

z/OS 1.10 Planning 

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## Coexistence System Requirements for z/OS R10


- ▶ **Programmatic assistance is available!**
  - ▶ **SMP/E V3R5's support for FIXCAT HOLDDATA**
  - ▶ **-or- Use EPSPT with Extract Files**
  
- ▶ **PTFs can be found in your handout for:**
  - ▶ **z/OS R9 to R10 Coexistence PTFs**
  - ▶ **z/OS R8 to R10 Coexistence PTFs**




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### Coexistence Service Requirements for z/OS Release 10

To understand the Coexistence-Fallback-Migration policy for z/OS, and which releases are supported with z/OS V1 R10, see the Coexistence section of this presentation. See Appendix B of this handout for a list of the coexistence service on z/OS R8 and R9, for z/OS R10.

z/OS 1.10 Planning 

## SMP/E V3R5's support for FIXCAT HOLDDATA For Coexistence Verification



- **A new HOLDDATA type FIXCAT (fix category) to associate an APAR to a particular category of fix.**

```
++HOLD(HBB7730) FMID(HBB7730) REASON(AA17252 ) FIXCAT
CATEGORY(IBM.Coexistence.z/OS.V1R10) RESOLVER(UA39715 ) .
```
- **A SOURCEID of the FIXCAT name will be added by SMP/E to the resolving PTF.**
- **This SOURCEID can be used on APPLY or ACCEPT commands.**
- **New REPORT MISSINGFIX command can be used to see what is needed, but not yet installed.**

```
SET BDY(GLOBAL).
REPORT MISSINGFIX ZONES(ZOS18T) FIXCAT(IBM.Coexistence.z/OS.V1R10).
```
- **Coexistence APAR IO07480 service is required in order to ignore FIXCAT HOLDS on prior SMP/E levels!**

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### Programmatic Help with Coexistence PTFs for z/OS Release 10


SMP/E has been extended to help simplify the task of verifying required software fixes identified in Preventive Service Planning (PSP) buckets are installed. PSP buckets identify required software fixes for new hardware devices, toleration and coexistence of new software releases, and for enabling new functions. IBM consolidates the lists of required fixes from PSP buckets and produces new Fix Category (FIXCAT) HOLDDATA to identify those fixes. For helping with coexistence verification for z/OS R10, the fix category of interest is **IBM.Coexistence.z/OS.V1R10**. You can use the new type of ++HOLD statement to identify APARs, their fix categories, and the PTF that resolves the APAR.

When FIXCAT HOLDDATA statements are received into a global zone, SMP/E assigns the fix category values as sourceids to the PTFs that resolve the APARs. These sourceids then simplify selecting and installing required fixes. During APPLY and ACCEPT command processing you can specify the assigned sourceids on the SOURCEID and EXSRCID operands to select the SYSMODs associated with a particular fix category.

In addition, for the APPLY and ACCEPT commands you can specify which Fix Categories are of interest using the new FIXCAT operand. This tells SMP/E to process only FIXCAT HOLDDATA for the categories you specify, and all others are ignored.

Finally, SMP/E uses the new FIXCAT HOLDDATA to identify what required fixes are missing. A new REPORT MISSINGFIX command analyzes the new FIXCAT HOLDDATA and determine which fixes (APARs) identified by the HOLDDATA are not yet installed. Only the fixes associated with the fix categories of interest to you, specified by you, are analyzed and identified. For example, you can identify only the missing fixes associated with a particular hardware device or coexistence for a specific new software release.

It is very important that all z/OS V3R4 users install UO00701 (APAR IO07480). This PTF allows SMP/E V3R4 (which is in z/OS V1R7, V1R8, and V1R9) to quietly ignore new FIXCAT HOLD statements that will be present in IBM product and service offerings. In addition, the PTF provides support for SMP/E users who share SMP/CSI data sets between pre-z/OS V1R10 systems and z/OS V1R10 systems.

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## Use EPSPT with Extract Files For Coexistence Verification

- **This solution uses the existing Enhanced PSP Tool (EPSPT).**
  - "Extract files" are produced from the ZOSGEN PSP bucket that contain the Coexistence PTFs.
  - You should use the Extract file for the z/OS release you are migrating **FROM**.
    - For instance, the ZOSV1R8 ZOSGEN Extract file contains the PTFs that you need to coexist with z/OS R10.
- **The Coexistence PTFs from the z/OS Migration book, along with any subsequently defined coexistence PTFs are included, for a complete and current Coexistence PTF list!**
- **Periodically check for updated Extract files, as Coexistence PTFs may have been added to the PSP bucket.**

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### EPSPT Programmatic Help with Coexistence PTFs for z/OS Release 10

You may use the Enhanced PSP Tool (EPSPT) to assist in programmatically determining which coexistence PTFs you must install on your current system in preparation for migration to a later z/OS release. When you retrieve the extract file from the ZOSGEN PSP bucket subset that is used as input to EPSPT, the file will contain the current list of coexistence PTFs for migrating to a later z/OS release. Coexistence PTFs are identified in the "Cross Product Dependencies" section of the ZOSGEN PSP bucket subset.

The steps to take to programmatically determine whether your current system has the complete list of required Coexistence PTFs for migration are:

1. Download and install the latest EPSPT level, available from <http://www14.software.ibm.com/webapp/set2/sas/f/psp/download.html>. Latest tool is: Report Level:1.04.11 Last Update:2007/06/28
2. Download the extract file from your current release's ZOSGEN PSP bucket subset. The list of "to" release coexistence PTFs is found in the "from" release ZOSGEN PSP bucket subset!
3. Using the extract file from your current release's ZOSGEN PSP bucket subset, run the EPSPT. Sample JCL to do this can be found at <http://www14.software.ibm.com/webapp/set2/sas/f/psp/use.html>
4. Resolve any outstanding discrepancies that the EPSPT has identified.


From time to time, you may want to download the extract file from your current release's ZOSGEN PSP bucket subset, and rerun EPSPT to ensure that any newly added coexistence PTFs are verified.

An example of the beginning of the ZOSGEN PSP extract file (from the ZOSV1R8 upgrade) is:

```

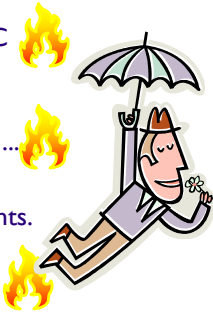
/* Preventive Service Planning */
/* UPGRADE: ZOSV1R8, SUBSET: ZOSGEN */
/* Updates also available at ftp site: */
/* ftp site = ftp://ftp.software.ibm.com/s390/pspapartool/ */
/* ftp file = ZOSV1R8_ZOSGEN.txt */
/* Last Extract: */
/*   Time = 18:47:14 */
/*   Date = 08/14/2008 */
APAR(AA17252) FMID(HBB7730) FIX(UA39715) UPG(ZOSV1R8) SUB(ZOSGEN).
    
```



*z/OS 1.10 Planning* 

## Some Migration Actions You Can Do NOW for z/OS R10

- 1. Transition off of removed functions and elements:**
  - In R9: TN3270 in TCP/IP stack, run-time IOC DLLs, HCM APPC communication, ....
  - In R10: CPU affinity, DFSORT panels, RMF LDAP backend.
  - in future: “old” LDAP, CS removals, VSAM obsolete attributes, ...
- 2. Prepare Driving and Target Systems:**
  - Driving systems - Doing electronic delivery? Review requirements.
  - Target systems -
    - DASD storage for z/OS R10 – **position on larger DASD??**
    - IBM product level research
    - ISV research for z/OS R10
  - Coexisting systems - install required coexistence service
    - Use FIXCAT **IBM.Coexistence.z/OS.V1R10** or the EPSPT Extract file!
- 3. Review PSP buckets:** HW, z/OS, and Functional (ZIIP, ZAAP, ...)
- 4. Use IBM Health Checker for z/OS (and possibly the IBM Migration Checker for z/OS!)**




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### Prepare for your migration to z/OS R10!

In this presentation you've seen many things you can do right now, on your current z/OS release to help make your z/OS R10 migration smooth. Listed above are the things that were shown in this presentation, but make sure you attend Part 2 so that you know a more complete migration picture.

z/OS 1.10 Planning

### IBM Migration Checker for z/OS



- **An "As Is" Tool That May Help - IBM Migration Checker for z/OS**
  - From the z/OS Download website:
    - [www.ibm.com/servers/eserver/zseries/zos/downloads](http://www.ibm.com/servers/eserver/zseries/zos/downloads)
  - Introduced for z/OS R8, and enhanced for z/OS R9!
    - Still has some value for z/OS R10.
  - This tool can:
    - Alert you to some migration actions that you should plan for in the future
    - Detect some migration actions that you can do now to ease your migration to z/OS V1R9 or later.
    - Verify that you've done some migration actions correctly when you're running z/OS V1R9 or later.
- Evaluates the **currently active** system. Can re-run these programs as many times you want, at any point in your migration cycle.
- Report any problems, suggestions, or comments to [zosmig@us.ibm.com](mailto:zosmig@us.ibm.com)

IBM Health Checker for z/OS for migration verification is preferred...

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### IBM Migration Checker for z/OS

The IBM Migration Checker for z/OS is a tool that checks the applicability of certain migration actions on the currently running system. It was introduced for z/OS R8, and has been enhanced for z/OS R9 – some programs are still appropriate for z/OS R10. It does not **perform** migration actions on your system. Instead, the tool **reports** which migration actions you have to perform. The tool is best used to assist you in creating your migration plan in conjunction with the *z/OS Migration* book.

A selection of migration actions for this tool can assist you in your migration from **z/OS V1R7 to z/OS V1R8 and to z/OS V1R9**. However, if you're not on the z/OS V1R7 to z/OS V1R8 or V1R9 migration path, most of the programs in the tool can also provide value on other migration paths such as z/OS V1R6 to z/OS V1R8, and even z/OS V1R4 to z/OS V1R7, or somewhat even z/OS V1R8 to z/OS V1R10. The output reports produced from running the tool will tell you whether the tool was able to do any analysis on the currently running system, so running it outside the intended migration path does no harm, and in many cases is helpful.

The IBM Migration Checker for z/OS is an "as is" download tool available from the z/OS download Web page at <http://www.ibm.com/servers/eserver/zseries/zos/downloads/>. It's composed of several batch programs that can be run either independently or serially in one job to check the applicability of certain migration actions on the currently running system. The user who runs the programs must have the authority to issue the **TSO/E CONSOLE** command and have an OMVS segment defined. Note that with our direction in z/OS R10 of using IBM Health Checker for migration verification, the IBM Migration Checker is not planned to be enhanced.

You can run the tool as often as you like. Before you've even ordered z/OS, after installing z/OS, and after each z/OS image is deployed on your enterprise. Because the tool does not make any changes to your system and is aware of the level of the system on which it is running, it can:

- Alert you to migration actions that you should plan for in the future
- Detect migration actions that you can do now to clear the way to z/OS V1R9 or later.
- Verify that you've done the migration actions correctly when you're running z/OS V1R9 or later.

As configurations change, rerun the tool. For example, if your enterprise has multiple TCP/IP stacks, and activates and deactivates those stacks at different times, it is beneficial to run the tool multiple times to analyze each active TCP/IP stack.

You can dynamically change many of the items that the tool checks for on your currently running system. You can set up your automation to submit IBM Migration Checker for z/OS jobs on a regular schedule that fits your needs or

## Migrating to zOS 1.10 – Part 1

you can manually submit the jobs. The frequencies is your choice, but keep in mind that only the latest report will be in the output data set. If you see a need to save the output from previous runs, you can include that in your automation steps too.

The IBM Service organization does not officially support this tool, but rather operates on a best-can-do basis. Please report any bugs, suggestions, or comments to the “IBM Migration Checker for z/OS” forum on IBM Customer Connect. For access to the forums, send an email to [zosmig@us.ibm.com](mailto:zosmig@us.ibm.com).

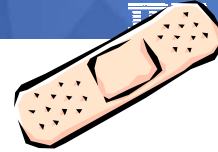
You must still review the migration actions in *z/OS Migration* that are not covered by the programs in the IBM Migration Checker for z/OS tool.



Here is a list of all the programs (and associated migration actions) that the IBM Migration Checker for z/OS covers:

1. **TN3270AS** - Run the TN3270E Telnet server as a separate address space
2. **HFSZFS** - Migrate from HFS file systems to zFS file systems
3. **ZFSMULT** - Discontinue use of multi-file system aggregates
4. **BTSIZE** - Use the new default for BLOCKTOKENSIZE in IGDSMSxx
5. **OLDVSAM** - Redefine existing VSAM data sets that contain the IMBED, REPLICATE, and KEYPAGE attributes
6. **MASTRCON** - Accommodate the removal of the master console
7. **ONEBCON** - Accommodate the removal of 1-byte console IDs
8. **LLSTCAT** - Catalog SYS1.SIEALNKE and SYS1.SIEAMIGE for the default system link list in z/OS V1R8
9. **NEWDS** - Add references to new data sets and paths
10. **OLDDDS** - Remove references to old data sets and paths
11. **SMSLVL** - Ensure the integrity of SMS control data sets
12. **ETCUSS** - Update Communications Server and z/OS UNIX /etc configuration files
13. **BINDDNS** - IP Services: Migrate from BIND DNS 4.9.3.
14. **LEGPROF** – IP Services: Services: Update profiles if still using TN3270 server legacy statements
15. **DIAGXX** - Discontinue use of the DIAGxx ISGERQA parameter
16. **GRSEXIT** - Ensure that the global resource serialization ISV-oriented exit routines run in a cross-memory environment
17. **ZOSEMIG** - Migrate from z/OS.e to z/OS
18. **JES2EXIT** - Update JES2 exit 8, 31, 42, and 45 routines (four migration actions consolidated into this one migration program)
19. **SNMPDATA** - IP Services: Remove customization of SNMP sysObjectID MIB object in OSNMPD.DATA file
20. **UNIX03N** - Ensure that \_UNIX03 is not set in system profiles
21. **SDSFPARM** – Use dynamic statements for ISFPARMS to avoid reassembly
22. **RMMCDSID** - Specify a DFSMSrmm control data set ID
23. **PAGQOSTR** – IP Services: Migrate from QoS TR policy to IDS TR policy
24. **PAGLDAP2** - IP Services: Migrate from LDAP protocol version 2 to LDAP protocol version 3 for QoS and IDS policies in Policy Agent
25. **DHCP SRVR**-IP Services: Stop using the DHCP function
26. **BINL SRVR**-IP Services: Stop using the BINL function
27. **STP** – Migrate from Sysplex Timer to STP
28. **CONSSSC** – Accommodate the subsystem console service interface change
29. **CONSERL**-Find callers of CNZMXURF that do not hold appropriate serialization.

**IBM Migration Checker for z/OS Direction**



- **The IBM Migration Checker for z/OS was a good (temporary) solution, however:**
  - Not maintained by components when updates were needed.
  - Wasn't supported by IBM Service organization.
  - Had lots of positive feedback. Alas, probably hasn't reached as many folks as the Health Checker function has.

Gave us a good indication that programmatic checking for migration actions was the right thing to do!

**IBM Health Checker for z/OS *for* MIGRATION!**

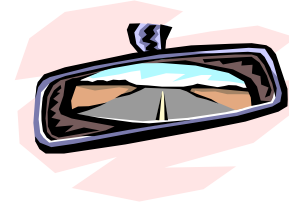


- **Solution, introduced in z/OS R10:**
  - Use the existing popular Health Checker infrastructure for migration purposes.
  - Migration Health Checks are owned by the components that produce them, and can be kept in sync with component changes.
  - Service supported by the component.
  - Require no changes to the Health Checker infrastructure, so you can immediately take advantage of this migration assistance.



### z/OS 1.10 Planning Summary

- ▶ **Content of z/OS R10**
  - Remember to order export controlled features: [z/OS Sec Lvl 3](#) and [CS Sec Lvl 3](#)
- ▶ **z/OS Ordering and Deliverables**
  - Cryptographic Support for R8-R10 (HCR7751) web deliverable available on 11/21/08.
  - [SMP/E V3R5](#), PSF V4R2, Ported Tools (and all features), XML R9, 31-bit and 64-bit SDKs...
  - z/OS.e R8 is the last release of z/OS.e - replace with zNALC now!
- ▶ **z/OS Policies**
  - z/OS R10 Coexistence-Migration-Fallback from [z/OS R8](#) or [z/OS R7](#).
  - If you're on z/OS R8, start planning for your migration to R10!
- ▶ **Ensuring System Requirements are Satisfied**
  - Driving System Requirements - z/OS R8 ...
  - Target System Requirements
    - Review DASD space requirements – position to use larger volumes?
    - Minimum Subsys levels: CICS 3.1, DB2 8.1, IMS 8.1, WAS 6.0.1, Tiv Omeg XE V3+PTFs.
- ▶ **Coexistence Requirements**
  - Use FIXCAT [IBM.Coexistence.z/OS.V1R10](#) , or the EPSPT tool with PSP extract files!
- ▶ **Migration Actions You Can Do NOW:**
  - Replacements for removed functions and elements - and future removals.
  - Use IBM Health Checker for migration verification (and perhaps IBM Migration Checker)
  - ...and everything applicable in the next presentation!



# Migrating to zOS 1.10 – Part 1

## Appendix A: List of Base Elements and Optional Features for z/OS V1R10

The following table lists the base elements and optional features in z/OS V1R10. The following table headings are used:

### Name

What this document calls the element or feature. (To help you distinguish elements from features, element names in this column are highlighted.)

### Function level

The most recent release in which the element or feature changed. ("Change" means that one or more of the element's or feature's FMIDs [function modification identifiers] was changed, or that the element or feature was added to the system. New function added in program temporary fixes [PTFs] is not considered change.) Also, for nonexclusive elements and features, the equivalent level of the separate product is listed in parentheses.

**Note:** The function level is expressed as a z/OS function level.

Do not confuse the function level with the product level. All elements and features are at the V1R10 product level but they are at various function levels. For example, the product level of z/OS BookManager READ is z/OS V1R10 but its function level is OS/390 V1R1 because OS/390 V1R1 was the last release in which it changed.

### Type and description

- "Type" means the following:
  - Whether it's a base element or optional feature
  - Whether the base element or optional feature is exclusive (existing only within z/OS) or nonexclusive (also available as a separate product)
  - If an optional feature, whether it's priced or unpriced
  - If an optional feature, whether it supports dynamic enablement (note that all the priced features support dynamic enablement)
- "Description" is a brief description of the element or feature, and miscellaneous facts about it.

Name	Last time changed (and equivalent product if nonexclusive)	Type and description
<b>Alternate Library for REXX<sup>™</sup></b>	z/OS V1R9  (see description about equivalent programs)	Type: base element, nonexclusive. Alternate Library for REXX enables users to run compiled REXX programs. This base element is nonexclusive to z/OS because the following programs provide equivalent functions: <ul style="list-style-type: none"> <li>• The Alternate Library portion of the priced product IBM Library for REXX on zSeries V1R4 (5695-014). The Alternate Library consists of FMIDs HWJ9143 (ENU) and JWJ9144 (JPN). These are the same FMIDs that are now in the z/OS base element.</li> <li>• The no-fee Web download Alternate Library for REXX on z/OS.</li> </ul> This base element was new in z/OS V1R9. Including it as a base element in z/OS is intended to make it easier to use than the functionally equivalent programs listed above.
<b>BCP</b>	z/OS V1R10	Type: base element, exclusive. The Base Control Program (BCP) provides essential operating system services. The BCP includes the I/O configuration program (IOCP), the workload manager (WLM), system management facilities (SMF), the z/OS UNIX <sup>®</sup> System Services (z/OS UNIX) kernel, the program management binder, and support for the Unicode <sup>™</sup> Standard. As of z/OS V1R8, the BCP also includes z/OS XML System Services (z/OS XML). As of z/OS V1R9, the BCP also includes Capacity Provisioning (FMID HPV7740) and System REXX for z/OS Base. IBM Health Checker for z/OS is also part of the BCP. This tool helps improve availability by reporting on active z/OS and sysplex settings that are different

## Migrating to zOS 1.10 – Part 1

		than IBM recommended best practices or customer-defined settings. It was initially available by PTF and download for z/OS V1R4, was integrated in base element msys for Operations in z/OS V1R5, was moved to the BCP in z/OS V1R7 (keeping its own FMID), and was merged into the BCP base FMID in z/OS V1R8 (losing its own FMID).
<b>BDT</b>	OS/390 V1R2	Type: base element, exclusive. Bulk Data Transfer (BDT) provides the base services that the optional BDT features (BDT File-to-File and BDT SNA NJE) need to transfer data from one computer system to another. You cannot activate any BDT functions until one or both of the optional BDT features is enabled.
BDT File-to-File	OS/390 V1R2	Type: optional feature, exclusive, priced, can be dynamically enabled. BDT File-to-File allows users at one z/OS system in a SNA network to copy data sets to or from another z/OS system in the network. This feature is related to the element BDT.
BDT SNA NJE	OS/390 V1R2	Type: optional feature, exclusive, priced, can be dynamically enabled. BDT SNA NJE allows JES3 users to transmit jobs, output, commands, and messages from one computer system to another within a SNA network. This feature is related to the element BDT and the feature JES3.
BookManager BUILD	OS/390 V1R1  (BookManager BUILD/MVS V1R3, 5695-045)	Type: optional feature, nonexclusive, priced, can be dynamically enabled. BookManager BUILD creates softcopy documents that can be used by any of the BookManager products, such as BookManager READ or Library Server.
<b>BookManager READ</b>	OS/390 V1R1  (BookManager READ/MVS V1R3, 5695-046)	Type: base element, nonexclusive. BookManager READ is used to display, search, and manage online documents and bookshelves. A related optional feature is BookManager BUILD.
C/C++ without Debug Tool	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. C/C++ without Debug Tool consists of: <ul style="list-style-type: none"> <li>• XL C/C++ compiler</li> <li>• XL C/C++ application development utilities</li> </ul>
<b>CIM</b>	z/OS V1R10	Type: base element, exclusive. Common Information Model (CIM) is a standard data model for describing and accessing systems management data in heterogeneous environments. It allows system administrators to write applications that measure system resources in a network with different operating systems and hardware. To enable z/OS for cross platform management, a subset of resources and metrics of a z/OS system are mapped into the CIM standard data model. CIM was new in z/OS V1R7. In z/OS V1R9, a new component was added that contains a Java programming interface for CIM client applications. In z/OS V1R10, all CIM components have been consolidated under one single FMID, HPG7750. Transport layer security (TLS) encryption is performed for CIM by base element Communications Server. CIM does not implement any of its own encryption algorithms.
<b>Communications Server</b>	z/OS V1R10	Type: base element, exclusive, can be dynamically enabled. Communications Server (also known as CS z/OS) supports secure TCP/IP, SNA, and UNIX networking throughout an enterprise. It gives you the ability to connect subsystems and applications to each other, and to connect network devices (such as terminals and printers) to the system. Communications Server consists of two components: IP Services and SNA Services. A related optional feature is Communications Server Security Level 3. For encryption, IP Services uses the SNMPv3 DES 56-bit and IP Sec DES 56-bit algorithms. IP Services also uses the System SSL component of Cryptographic Services for encryption services. SNA Services uses the limited DES algorithm for encryption. AnyNet <sup>(R)</sup> function was removed from Communications Server (SNA Services) in V1R8 of z/OS. AnyNet has not been enhanced in many years and has been supplanted by Enterprise Extender, which has superior function and

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		<p>performance.</p> <p>z/OS V1R9 Communications Server discontinued support of the APPC Application Suite. For most of the functions provided by the APPC Application Suite, more-robust alternative applications exist in modern integrated SNA/IP networks.</p>
Communications Server Security Level 3	z/OS V1R10	<p>Type: optional feature, exclusive, unpriced, cannot be dynamically enabled.</p> <p>This feature works in conjunction with the Communications Server base element to provide stronger encryption (greater than 64 bits) than that available without this feature. This feature uses the TDES and AES algorithms for encryption. The actual level of encryption that takes place with this feature installed can be configured to be less than the maximum level enabled by this feature.</p> <p>This feature is worldwide exportable subject to U.S. export regulations.</p>
<b>Cryptographic Services</b>	z/OS V1R10	<p>Type: base element, exclusive.</p> <p>Cryptography is the transformation of data to conceal its meaning. In z/OS, the base element Cryptographic Services provides the following base cryptographic functions: data secrecy, data integrity, personal identification, digital signatures, and the management of cryptographic keys. Keys as long as 56 bits are supported by this base element. (Keys longer than 56 bits are supported by the optional feature z/OS Security Level 3.)</p> <p>Cryptographic Services consists of the following components:</p> <ul style="list-style-type: none"> <li>• Integrated Cryptographic Service Facility (ICSF), which was last changed in z/OS V1R10.</li> <li>• Open Cryptographic Services Facility (OCSF), which was last changed in z/OS V1R9.</li> <li>• PKI Services, which was last changed in z/OS V1R10.</li> <li>• System Secure Sockets Layer (SSL), which was last changed in z/OS V1R10.</li> </ul> <p>For encryption:</p> <ul style="list-style-type: none"> <li>• OCSF uses the RC2/RC4/RC5 40-56 bit and DES 56-bit algorithms.</li> <li>• PKI Services uses the RACF<sup>(R)</sup> component of optional feature Security Server, and the ICSF, OCSF, and System SSL components of base element Cryptographic Services. PKI Services uses the RSA, DSA, and DES 56-bit algorithms.</li> <li>• System SSL uses the RC2/RC4, DES through 56-bit, Diffie-Hellman, RSA, and DSA algorithms.</li> </ul>
<b>DCE Base Services</b>	OS/390 V2R9	<p>Type: base element, exclusive.</p> <p>DCE Base Services provides services for developing and running client/server applications, including remote procedure call, directory, security, and distributed time services. This element is at the Open Group Open Software Foundation (OSF) DCE 1.1 level.</p> <p>DCE Base Services uses the limited DES algorithm for encryption.</p>
<b>DFSMSdfp<sup>(TM)</sup></b>	z/OS V1R10	<p>Type: base element, exclusive.</p> <p>DFSMSdfp provides storage, data, program, and device management functions. Related optional features are DFSMSrmm<sup>(TM)</sup>, DFSMSdss<sup>(TM)</sup>, DFSMShsm<sup>(TM)</sup>, and DFSMStvs.</p> <p>In z/OS V1R9, the FMID for the English panels was eliminated and the panels were merged into the base FMID, which is HDZ1190.</p>
DFSMSdss	z/OS V1R10	<p>Type: optional feature, exclusive, priced, can be dynamically enabled.</p> <p>DFSMSdss copies and moves data for backup and recovery, and to reduce free-space fragmentation.</p>
DFSMShsm (and DFSMSdss)	z/OS V1R10	<p>Type: optional feature, exclusive, priced, can be dynamically enabled.</p> <p>DFSMShsm provides automated DASD storage management, including space management for low and inactive data, and availability management for accidental data loss caused by local and site disasters. DFSMShsm also lets you make effective use of tape media.</p> <p>DFSMShsm requires DFSMSdss. For this reason, DFSMShsm is not available</p>



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		by itself. If you want to use DFSMSHsm, you must order the DFSMSHsm/DFSMSDss combination. (DFSMSDss is also available by itself for those who do not want DFSMSHsm.)
DFSMSrmm	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. DFSMSrmm helps you manage your removable media as one enterprise-wide library across systems that can share DASD.
DFSMSStvs	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. DFSMS <sup>(TM)</sup> Transactional VSAM Services (DFSMSStvs) enables batch jobs and CICS online transactions to update shared VSAM data sets concurrently.
DFSORT <sup>(TM)</sup>	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. DFSORT provides fast and easy sorting, merging, copying, reporting, and analysis of your business information, as well as versatile data handling at the record, field, and bit level. DFSORT also includes the high-performance ICEGENER facility, the versatile ICETOOL utility, Symbols, and multiple output capability with the powerful OUTFIL feature.
<b>Distributed File Service</b>	z/OS V1R10	<p>Type: base element, exclusive. Distributed File Service provides:</p> <ul style="list-style-type: none"> <li>• The DCE file serving (DFS<sup>(TM)</sup>) component of the Open Group Open Software Foundation (OSF) DCE. The file serving support (the DFS client and server) is at the OSF 1.2.2 level.</li> <li>• The System z File System (zFS). The zFS is a UNIX file system that can be used in addition to the hierarchical file system (HFS). zFS file systems contain files and directories that can be accessed with the z/OS hierarchical file system file APIs. zFS file systems can be mounted into the z/OS UNIX hierarchy along with other local (or remote) file system types (such as HFS, TFS, AUTOMNT, and NFS). The zFS does not replace the HFS; it is complementary to the HFS. As of z/OS V1R7, you can use any combination of HFS and zFS file systems. zFS can be used for the root file system. Because zFS has higher performance characteristics than HFS and is the strategic file system, HFS might no longer be supported in future releases and you will have to migrate the remaining HFS file systems to zFS.</li> </ul> <p>The zFS provides significant performance gains in most environments requiring files 8 KB in size or greater that are frequently accessed and updated. The access performance of smaller files is equivalent to that of the HFS. For all files, the zFS provides a reduced exposure to loss of updates. The zFS is a logging file system with a write pattern to disk that reduces the points of failure after a system outage. For additional information about the zFS, including how to migrate data from the HFS to the zFS, see <i>z/OS Distributed File Service zSeries File System Administration</i>.</p> <p>The zFS component has its own FMID starting with z/OS V1R5.</p> <ul style="list-style-type: none"> <li>• Server message block (SMB) file/print serving support. The SMB support is based on the X/Open PC Interworking: SMB, Version 2. Included in the support is access to HFS, sequential, PDS, PDSE, and VSAM data sets from Windows<sup>(R)</sup> XP Professional, Windows Terminal Server on Windows 2003, SUSE Linux<sup>(R)</sup> with Samba, and Redhat Linux with Samba. Windows workstation users can also exploit z/OS printer capabilities using the SMB file/print server interface to the z/OS Infoprint Server feature.</li> </ul> <p>For the software necessary to use the DFS or SMB file/print serving support, as well as the other Distributed File Service functions, see Appendix B, in <i>z/OS Planning for Installation</i>.</p>
<b>EREP</b>	OS/390 V1R1  (EREP MVS <sup>(TM)</sup> V3R5, 5658-260)	Type: base element, nonexclusive. The Environmental Record Editing and Printing Program (EREP) edits and prints reports for the records placed in the error recording data set (ERDS), helping IBM service representatives fix problems.

## Migrating to zOS 1.10 – Part 1

<b>ESCON<sup>(R)</sup> Director Support</b>	OS/390 V1R1	Type: base element, exclusive. ESCON Director Support enables the reporting of ESCON director device errors to z/OS.
<b>FFST<sup>(TM)</sup></b>	OS/390 V1R2	Type: base element, exclusive. First Failure Support Technology <sup>(TM)</sup> (FFST) provides immediate notification and first failure data capture for software events.
<b>GDDM<sup>(R)</sup></b>	OS/390 V1R2  (GDDM/MVS V3R2, 5695-167)	Type: base element, nonexclusive. GDDM provides presentation services and device-driving capability. It includes PCLK and REXX code. Related optional features are GDDM-Presentation Graphics Feature and GDDM-REXX. Other GDDM-associated products (IVU, GKS, IMD) are not in z/OS, but are separately orderable with z/OS.
GDDM-PGF	OS/390 V1R2  (GDDM/PGF V2R1.3, 5668-812)	Type: optional feature, nonexclusive, priced, can be dynamically enabled. GDDM-Presentation Graphics Feature (PGF) is a set of programs for creating presentation material in a variety of styles. This feature is related to the base element GDDM.
GDDM-REXX	OS/390 V1R2  (GDDM-REXX/MVS V3R2, 5664-336)	Type: optional feature, nonexclusive, priced, can be dynamically enabled. GDDM-REXX is a productivity tool that enables programmers to prototype GDDM applications and to create small routines and utility programs quickly and easily. This feature is related to the base element GDDM.
<b>HCD</b>	z/OS V1R10	Type: base element, exclusive. Hardware Configuration Definition (HCD) defines both the operating system configuration and the processor hardware configuration for a system. A related optional feature is HCM.
HCM	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. Hardware Configuration Manager (HCM) is a workstation-based client/server interface to the base element HCD.
<b>HLASM</b>	z/OS V1R10 (HLASM for z/OS and z/VM <sup>(R)</sup> and z/VSE <sup>(TM)</sup> V1R6, 5696-234)	Type: base element, nonexclusive. High Level Assembler (HLASM) integrates almost all functions of past assemblers and provides extensions and improvements. A related optional feature is the HLASM Toolkit.
HLASM Toolkit	z/OS V1R10  (Toolkit feature of HLASM for z/OS and z/VM and z/VSE V1R6, 5696-234)	Type: optional feature, nonexclusive, priced, can be dynamically enabled. HLASM Toolkit provides tools to improve application development, debugging, and recovery. It is related to the base element HLASM.
<b>IBM HTTP Server</b>	OS/390 V2R10 (but see description)	Type: base element, exclusive. IBM HTTP Server is the Web server for z/OS. It provides scalable, high performance Web serving for critical e-business applications. It supports Secure Sockets Layer (SSL) secure connections, dynamic caching using the Fast Response Cache Accelerator, multiple IP addresses, proxy authentication, and double-byte character set characters. IBM HTTP Server NA Secure is now a component of IBM HTTP Server. Before V1R6, it was an optional feature of z/OS. This packaging change was the only change to IBM HTTP Server in V1R6; there was no functional change.
<b>IBM TDS</b>	z/OS V1R10	Type: base element, exclusive. IBM Tivoli Directory Server for z/OS (IBM TDS) provides client access to an LDAP server. It consists of a rewritten LDAP server (available by PTFs for z/OS V1R8 and integrated in z/OS V1R9); an LDAP client; and LDAP client utilities. The LDAP client and LDAP client utilities can be used with the Integrated Security Services LDAP Server or the new IBM TDS LDAP server. For encryption, IBM TDS uses the AES, DES (56-bit, 112-bit, and 168-bit), SHA, MD5, and crypt algorithms.
<b>ICKDSF</b>	z/OS V1R4 z990 Compatibility Support feature  (ICKDSF for z/OS, z/OS.e, and OS/390)	Type: base element, nonexclusive. The Device Support Facility (ICKDSF) enables you to perform functions needed for the installation and use of IBM DASD. ICKDSF was last changed in the z/OS V1R4 z990 Compatibility Support feature. This level was carried forward to the z/OS V1R4 z990 Exploitation Support feature and then to z/OS V1R5 and later, and is functionally equivalent to the R17 level of the ICKDSF product.

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	R17, 5655-257)	
Infoprint Server	z/OS V1R8	<p>Type: optional feature, exclusive, priced, can be dynamically enabled. Infoprint Server allows you to print files on z/OS printers from any workstation that has TCP/IP access. This feature consists of the following components:</p> <ul style="list-style-type: none"> <li>• IP PrintWay<sup>(TM)</sup>. This component has its roots in the IP PrintWay feature of PSF/MVS V2R2 and the IP PrintWay/NetSpool feature of OS/390 V1R3. In z/OS V1R5, IP PrintWay extended mode was introduced.</li> <li>• NetSpool<sup>(TM)</sup>. This component has its roots in the NetSpool feature of PSF/MVS V2R2 and the IP PrintWay/NetSpool feature of OS/390 V1R3.</li> <li>• Print Interface, new in OS/390 V2R5.</li> <li>• Printer Inventory Manager, new in OS/390 V2R8.</li> <li>• Transform Interface, new in OS/390 V2R8.</li> <li>• z/OS Infoprint Central, new in z/OS V1R5.</li> </ul> <p>IBM recommends that you use the Infoprint Server feature's IP PrintWay component rather than the Communications Server base element's Network Print Facility (NPF) to reroute print data to an IP network. IP PrintWay provides improved function, capacity, performance, and usability over NPF.</p>
Integrated Security Services	z/OS V1R10	<p>Type: base element, exclusive. Integrated Security Services provides base security functions for z/OS. Its components are:</p> <ul style="list-style-type: none"> <li>• DCE Security Server, which was last changed in OS/390 V2R9. This component is at the OSF DCE 1.2.2 level. This component uses the limited DES algorithm for encryption.</li> <li>• Enterprise Identity Mapping (EIM), which was last changed in z/OS V1R10. This component allows you to map a user's identity on one system to the user's identity on another system.</li> <li>• LDAP Server, which was last changed in z/OS V1R8. LDAP Server uses the System SSL component of base element Cryptographic Services for encryption.</li> </ul> <p>A new base element, IBM TDS, was introduced in z/OS V1R8. It contains a rewritten LDAP server; an LDAP client; and LDAP client utilities. The LDAP server in Integrated Security Services continues to exist in V1R8 and later. However, the LDAP client and LDAP client utilities do not; in V1R8 and later, they are only in IBM TDS. All LDAP server enhancements in z/OS V1R10 were made to the IBM TDS LDAP server, not to the Integrated Security Services LDAP server.</p> <ul style="list-style-type: none"> <li>• Network Authentication Service, which was last changed in z/OS V1R10. Network Authentication Service uses the DES algorithm for encryption. Before z/OS V1R2, this component was named Network Authentication and Privacy Service.</li> <li>• Open Cryptographic Enhanced Plug-ins (OCEP), which was last changed in z/OS V1R9.</li> </ul> <p>The IBM Firewall Technologies component has been removed from the system effective with z/OS V1R8. It was a Security Server component before V1R5, then an Integrated Security Services component in V1R6 and V1R7.</p>
ISPF	z/OS V1R10	<p>Type: base element, exclusive. ISPF provides facilities for all aspects of host-based software development. ISPF has four major components:</p> <ul style="list-style-type: none"> <li>• Dialog Manager (DM). The Dialog Manager provides services to dialogs and end users. These services include display, variable services, input and output, user and application profiles, table management, system interface services, and dialog testing and</li> </ul>

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		<p>debugging aids.</p> <ul style="list-style-type: none"> <li>• Program Development Facility (PDF). PDF provides services to assist dialog or application developers. These include edit and browse functions, a wide range of foreground and batch compilers, data set and catalog utilities, TSO command interfaces, and data set search and compare functions.</li> <li>• Software Configuration and Library Manager (SCLM). SCLM is a tool that controls, maintains, and tracks all of the software components of the application throughout the development cycle.</li> <li>• Client/Server component. The Client/Server component provides users who have a workstation running Windows or UNIX with a graphical user interface to ISPF application panels.</li> </ul>
<b>JES2</b>	z/OS V1R10	<p>Type: base element, exclusive.  JES2 accepts the submission of work for the BCP. JES2 exercises independent control over its job processing functions, whereas JES3 exercises centralized control. A prior release of JES2 can be used with z/OS V1R10.</p>
JES3	z/OS V1R10	<p>Type: optional feature, exclusive, priced, can be dynamically enabled.  JES3 accepts the submission of work for the BCP. JES3 exercises centralized control over its job processing functions, whereas JES2 exercises independent control. A prior release of JES3 can be used with z/OS V1R10.</p>
<b>Language Environment<sup>(R)</sup></b>	z/OS V1R10	<p>Type: base element, exclusive.  Language Environment provides the run-time environment for programs generated with C, C++, COBOL, Fortran, and PL/I.  Inclusion of Language Environment as a base element in z/OS does not replace the need for separate compilers.  Language Environment uses the limited DES algorithm for encryption.</p>
<b>Library Server</b>	z/OS V1R10	<p>Type: base element, exclusive.  Library Server converts BookManager and InfoCenter documents to HTML for display through a Web browser, and provides unified organization and searching of BookManager, PDF, and InfoCenter documents.</p>
<b>Metal C Runtime Library</b>	z/OS V1R10	<p>Type: base element, exclusive.  The Metal C Runtime Library is a set of LPA-resident C functions that can be called from a C program created using the z/OS XL C compiler METAL option. This base element was new in z/OS V1R9.</p>
<b>MICR/OCR</b>	OS/390 V1R1	<p>Type: base element, exclusive.  This element provides the device support code for various magnetic and optical devices.</p>
<b>msys for Setup</b>	z/OS V1R4 (but see description)	<p>Type: base element, exclusive.  Managed System Infrastructure for Setup (msys for Setup) was introduced in z/OS V1R1 to provide a graphical user interface for configuring z/OS and products that run on z/OS. With z/OS V1R8, much of the function has been removed from msys for Setup. Of the seven plug-ins that supported the framework, six have been removed. The six plug-ins removed in z/OS V1R8 are:</p> <ul style="list-style-type: none"> <li>• IP Services</li> <li>• ISPF</li> <li>• Language Environment</li> <li>• Parallel Sysplex</li> <li>• RMF<sup>(TM)</sup></li> <li>• z/OS UNIX</li> </ul> <p>The only remaining plug-in, the DB2 V8 plug-in, is unaffected and remains available for enablement, setup, and configuration of DB2. Also remaining are the framework and DFSMS support.</p>
<b>NFS</b>	z/OS V1R10	<p>Type: base element, exclusive.  Network File System (NFS) acts as a file server to workstations, personal computers, or other authorized systems in a TCP/IP network. It consists of a client and a server. It supports Berkeley sockets but not TCP/IP sockets. NFS uses the Network Authentication Service component of Integrated Security Services for encryption.  NFS is always enabled, even when the alternate base configuration is ordered. In z/OS V1R8, the NFS server and client FMIDs were merged into one FMID.</p>

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<b>OSA/SF</b>	z/OS V1R4 z990 Compatibility Support feature	Type: base element, exclusive. Open Systems Adapter/Support Facility (OSA/SF) provides a user-friendly interface for monitoring and controlling the zSeries Open Systems Adapter feature, which provides network connectivity directly to local area networks (LANs) and wide area networks (WANs) that support IP and SNA protocols. OSA/SF supports Gigabit, Token Ring, Fast Ethernet, 1000Base-T Ethernet, 10 Gigabit Ethernet, and ATM features depending on the server on which z/OS runs. For details, see <i>System z10, System z9 and zSeries OSA-Express Customer's Guide and Reference, SA22-7935</i> . OSA/SF was last changed in the z/OS V1R4 z990 Compatibility Support feature. This level was carried forward to the z/OS V1R4 z990 Exploitation Support feature and then to z/OS V1R5 and later. OSA/SF became exclusive with the introduction of the z/OS V1R4 z990 Compatibility Support feature.
<b>RMF</b>	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. Resource Measurement Facility (RMF) gathers data about z/OS resource usage and provides reports at any system in a sysplex.
<b>Run-Time Library Extensions</b>	z/OS V1R10	Type: base element, exclusive. Run-Time Library Extensions extends the run-time support provided by the Language Environment base element. It consists of :  <ul style="list-style-type: none"> <li>• Common Debug Architecture (CDA) libraries and utilities</li> <li>• UNIX System Laboratories (USL) I/O Stream Library and USL Complex Mathematics Library, previously included in the base element C/C++ IBM Open Class<sup>(R)</sup> Library</li> </ul> <p><b>Note:</b> As of z/OS V1R9, the IBM Open Class (IOC) dynamic link libraries (DLLs) are withdrawn. For information about migrating from these libraries, see <i>z/OS XL C/C++ Compiler and Run-Time Migration Guide for the Application Programmer</i>.</p>
<b>SDSF</b>	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. System Display and Search Facility (SDSF) provides you with information to monitor, manage, and control your z/OS system. If you use a prior release of JES2 with z/OS V1R10, you must use the same prior release of SDSF with z/OS V1R10.
<b>Security Server</b>	z/OS V1R10	Type: optional feature, exclusive, priced, can be dynamically enabled. Security Server lets you control access to protected resources. Security Server contains one component, RACF. Security Server uses the limited DES, CDMF, RC 40-bit, RSA, and DSA algorithms for encryption.
<b>SMP/E</b>	z/OS V1R10  (SMP/E for z/OS V3R5, 5655-G44)	Type: base element, nonexclusive. SMP/E is a tool for installing and maintaining software, and for managing the inventory of software that has been installed. Before z/OS V1R2, SMP/E was an exclusive base element. Beginning with z/OS V1R2, SMP/E is nonexclusive because of the introduction of the SMP/E product. The SMP/E product allows customers who are currently licensed for an earlier level of z/OS to order and install the latest level of SMP/E without having to upgrade their entire operating system. This allows products that run on z/OS to exploit the packaging and installation enhancements of SMP/E without requiring a later level of the operating system. This also allows customers to exploit new electronic delivery and installation technologies in SMP/E sooner. The SMP/E product is available at no additional charge to customers. The Planning and Migration Assistant (PMA), a component of SMP/E, can help you maintain, plan for, and order new releases of z/OS and other products. It provides reports that use IBM-supplied data, your SMP/E consolidated software inventory (CSI) data set, and a CustomPac inventory file.
<b>TIOC</b>	OS/390 V1R1	Type: base element, exclusive. TIOC allows console services and TSO/E to communicate with the terminal hardware.
<b>TSO/E</b>	z/OS V1R10	Type: base element, exclusive.

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		Time Sharing Option/Extensions (TSO/E) provides an interactive terminal interface. As in prior releases of TSO/E, this element includes CLISTS and REXX, but does not include a REXX compiler.
z/OS Security Level 3	z/OS V1R10	<p>Type: optional feature, exclusive, unpriced, cannot be dynamically enabled. z/OS Security Level 3 provides strong encryption for z/OS. The components in this feature are:</p> <ul style="list-style-type: none"> <li>• IBM TDS Security Level 3, which was last changed in z/OS V1R10. This component works in conjunction with the IBM TDS base element, and with the LDAP Server component of the Integrated Security Services base element, to provide stronger encryption (greater than 64 bits) than that available without the z/OS Security Level 3 feature. This component uses the RC4, TDES, and Advanced Encryption Standard (AES) algorithms for encryption.</li> <li>• Network Authentication Service Level 3, which was last changed in z/OS V1R10. This component works in conjunction with the Network Authentication Service component of the Integrated Security Services base element to provide stronger encryption (greater than 64 bits) than that available without the z/OS Security Level 3 feature. This component uses the TDES and AES algorithms for encryption.</li> <li>• OCSF Security Level 3, which was last changed in z/OS V1R9. This component works in conjunction with the OCSF component of the Cryptographic Services base element to provide stronger encryption (greater than 64 bits) than that available without the z/OS Security Level 3 feature. This component uses the TDES, DES, and RC2/RC4/RC5 algorithms for encryption.</li> <li>• System Secure Sockets Layer (SSL) Security Level 3, which was last changed in z/OS V1R10. This component works in conjunction with the System SSL component of the Cryptographic Services base element to provide stronger encryption (greater than 64 bits) than that available without the z/OS Security Level 3 feature. This component uses the RC2/RC4, TDES, and AES algorithms for encryption.</li> </ul> <p>This feature is worldwide exportable subject to U.S. export regulations.</p>
z/OS UNIX	z/OS V1R10	<p>Type: base element, exclusive. z/OS UNIX System Services (z/OS UNIX) provides the standard command interface familiar to interactive UNIX users. This base element is made up of four components:</p> <ul style="list-style-type: none"> <li>• Application Services, which was last changed in z/OS V1R10. This component includes the Shell and Utilities, Debugger, and Parallel Environment.</li> <li>• Connection Manager, which was last changed in OS/390 V2R7.</li> <li>• Integrated Call Level Interface (ICLI), which was last changed in z/OS V1R6.</li> <li>• Process Manager, which was last changed in OS/390 V2R7.</li> </ul>
<b>3270 PC File Transfer Program</b>	OS/390 V1R2  (3270 PC File Transfer Program V1R1.1, 5665-311)	<p>Type: base element, nonexclusive. 3270 PC File Transfer Program transfers files from the host to the workstation for offline data manipulation, updating, or correction or for the transfer and storage of local data in the host system.</p>

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### **Appendix B: Coexistence Service for z/OS V1R10**

Coexistence and fallback PTFs installed on back-level systems allow those systems to coexist with z/OS V1R10 systems during your migration, and allow backout from z/OS V1R10 to the back-level systems if necessary. Coexistence and fallback are important because they allow you to migrate systems in a multisystem configuration to z/OS V1R10 using rolling IPLs (one system at a time), allowing for continuous application availability.

**This table is for coexistence and fallback service on z/OS V1R9 for z/OS V1R10.**

Element or feature, and function provided by PTFs	z/OS V1R9 PTFs (and corresponding APARs)
<b>B</b> CP: Allows a z/OS V1R9 system to tolerate the WLM policy changes and related control block changes that were introduced in z/OS V1R10.	UA39716 (APAR OA17252), UA41279 (APAR OA25013)
<b>B</b> CP: Causes the z/OS V1R9 program management binder to reject a PO5 PMAR level with the new z/OS V1R10 PO sublevel.	UA39319 (APAR OA20962)
<b>B</b> CP: Allows a z/OS V1R9 system to tolerate changes made in z/OS V1R10 to console data that is passed between members of a sysplex.	UA39760 (APAR OA18204)
<b>B</b> CP: Prevents all WTORs and retained action messages that are outstanding on pre-z/OS V1R10 systems when a z/OS V1R10 system joins a sysplex from appearing twice in the response to a D R command that is processed on the z/OS V1R10 system.	UA40988 (APAR OA24850)
<b>B</b> CP: Allows a z/OS V1R9 system to tolerate changes made in z/OS V1R10 to resource recovery services (RRS) as RRS saves data during startup.	UA39874 (APAR OA23153)
<b>Cryptographic Services:</b> In z/OS V1R10, the LRECL of the PKA key data set (PKDS) has increased. Without the PTF, the increase in size could cause problems when the PKDS is shared between multiple levels of ICSF. The PTF allows an earlier level of ICSF to perform I/O with either the existing PKDS or the larger PKDS. It also prevents the earlier level of ICSF from creating or using RSA keys that are larger than 2048 bits.	UA37971 (APAR OA21807)
<b>DFSMSdfp:</b> In z/OS V1R10, multiple lock structures are supported. The PTF prevents a z/OS V1R9 system from opening a data set that z/OS V1R10 has already opened to a secondary lock structure. (Current sharing can still be performed by using the current lock structure, IGWLOCK00.) The PTF also provides toleration of new shared structures and communication that is done between SMSVSAM instances.	UA42230 (APAR OA25754)
<b>DFSMSdfp:</b> Causes a z/OS V1R9 system to do the following: <ul style="list-style-type: none"> <li>• Fail OSREQ DELETE and OSREQ RETRIEVE requests for objects greater than 268 435 456 bytes.</li> <li>• Skip OSMC processing of objects greater than 268 435 456 bytes.</li> <li>• Recognize the new P value in the FULL column of the TAPEVOL and VOLUME tables as permanently marked full.</li> </ul>	UA39934 (APAR OA22026)
<b>DFSMSdfp:</b> Allows the new (in z/OS V1R10) P volume full value to be displayed as "yes" in the volume full column on the Mountable Optical Volume List ISMF panel (DGTLP31) of a z/OS V1R9 system.	UA39959 and, if Japanese, UA39960 (APAR OA22400)
<b>DFSMSdfp:</b> In z/OS V1R10, the LSPACE macro's parameter list has been extended to support extended address volumes (EAVs). The PTF allows a z/OS V1R9 system to tolerate the change.	UA40221 (APAR OA22449)
<b>DFSMSdfp:</b> Allows a DEVSERV QDASD command issued on z/OS V1R9 to report the actual size of an extended address volume even though the volume cannot be brought online. (Extended address volume support is introduced in z/OS V1R10.)	UA40229 (APAR OA21487)
<b>DFSMSdss<sup>(TM)</sup>:</b> Allows a z/OS V1R9 system to restore a data set that was dumped from an extended address volume on z/OS V1R10. See the APARs for additional information.	UA40266 (APARs OA22900 and OA24505)
<b>DFSMSShsm<sup>(TM)</sup>:</b> Allows a z/OS V1R9 system to tolerate backups <sup>(TM)</sup> created with the z/OS V1R10 NEWNAME SPHERE(NO) and GVCN(YES) keywords.	UA39926 (APAR OA23786)
<b>DFSMSShsm:</b> Allows a z/OS V1R9 system to tolerate enhanced CDS backup of XCF events in z/OS V1R10.	UA39940 (APAR OA22211)
<b>DFSMSShsm:</b> If you are using DFSMSShsm to manage extended address volumes on a z/OS V1R10 system, the PTF allows a z/OS V1R9 system to recall or recover an	UA40306 (APAR OA22804)

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EAS data set with a format-8 or format-9 DSCB if the data set was migrated to, or backed up on, z/OS V1R10. The PTF also allows VCC keywords specified in the management class to be processed correctly.	
<b>DFSMSrmm<sup>(TM)</sup></b> : Allows a z/OS V1R9 system to tolerate the DFSMSrmm CDS changes made in the TS1130 device support enhancement provided by APAR OA22132 and integrated in z/OS V1R10.	UA40426 and, if Japanese, UA40427 (APAR OA22706)
<b>DFSMSrmm</b> : Allows a z/OS V1R9 system to tolerate the new EDGHSKP RPTEXT command in SYSIN. The PTF is required <b>only</b> if you want to prepare in advance to override the z/OS V1R10 RPTEXT XREPTTEXT DD default processing, which is to create only extended (X) records.	UA38172 (APAR OA23177)
<b>HCD</b> : In z/OS V1R10, HCD allows multiple users to work simultaneously on the IODF. The PTFs prevent earlier z/OS releases from accessing an IODF prepared for multiuser access.	UA90386 and, if Japanese, UA90388 (APAR OA22842)
<b>IBM TDS</b> : Allows new directory attributes provided in z/OS V1R10 for an IBM TDS LDAP server to be tolerated by z/OS V1R9. Note that this PTF does not affect the Integrated Security Services LDAP server.	UA38112 and, if Japanese, UA38113 (APAR OA22022)
<b>Integrated Security Services</b> : When an LDAP search is used to display a RACF user, the PTF causes the LDAP Server to return the contents of the RACF user. Without the PTF, the LDAP Server returns an LDAP operations error return code.	UA29386 (APAR OA17710)
<b>JES2</b> : Allows z/OS V1R9 JES2 to run with z/OS V1R10 JES2 in a multi-access spool (MAS).	UA90383 (APAR OA20935)
<b>JES3</b> : Supports WLM APAR OA17252.	UA39863 (APAR OA21882)
<b>NFS</b> : A new NFS server processing attribute was added in z/OS V1R10 to better support ACLs between the z/OS server and z/OS client. The new attribute indicates that the server is communicating with a z/OS client, not some other client. The value is set automatically by the client; no user action is required. However, pre-z/OS V1R10 NFS servers must tolerate the existence of the new attribute.	UA37369 (APAR OA22759)
<b>NFS</b> : Allows a z/OS V1R9 system to read the z/OS V1R10 NFS mount handle database, resulting in the NFS server being able to start successfully.	UA40245 (APAR OA24257)
<b>SDSF</b> : Allows z/OS V1R9 SDSF to tolerate (by ignoring) new keywords added to parmlib member ISFPRMxx in z/OS V1R10. This allows z/OS V1R9 and V1R10 systems to share the same SDSF parmlib member. Note that only z/OS V1R9 and later SDSF can share parmlib members.	UK90012 and, if Japanese, UK33993 (APAR PK51434)
<b>Security Server</b> : In z/OS V1R10, the Network Authentication Service of base element Integrated Security Services exploits RACF password phrase support to allow the use of Kerberos passwords longer than eight characters. Kerberos keys are generated whenever a Kerberos principal's RACF password or password phrase is changed. The PTF allows non-z/OS V1R10 images that share the same RACF database with a V1R10 image to associate Kerberos key expiration with the password phrase expiration value when Kerberos keys are generated on the V1R10 image based upon RACF password phrase change, and to continue to base Kerberos key expiration on the password expiration value when Kerberos keys are generated based upon RACF password change.	UA39334 (APAR OA22588) ( <b>Note</b> : This fix is in error. The fixing APAR is OA24616.)
<b>SMP/E</b> : Allows SMP/E V3R4 (which is in z/OS V1R7, V1R8, and V1R9) to quietly ignore new FIXCAT HOLD statements that will be present in IBM product and service offerings. In addition, the PTF provides support for SMP/E users who share SMPCSI data sets between pre-z/OS V1R10 systems and z/OS V1R10 systems.	UO00701 (APAR IO07480)
<b>TSO/E</b> : In z/OS V1R10, the IKJTSOxx parmlib member has a new statement, LOGON. The PTF causes this new operand to be ignored if it is encountered on z/OS V1R9 during syntax checking of parmlib member IKJTSOxx. It also ensures that the TSO/E PARM LIB LIST ROUTE(*) command will display system settings correctly in a mixed sysplex environment.	UA39739 (APAR OA20525)



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**This table is for coexistence and fallback service on z/OS V1R8 for z/OS V1R10.**

Element or feature, and function provided by PTFs	z/OS V1R8 PTFs (and corresponding APARs)
<b>BCP:</b> Allows a z/OS V1R8 system to tolerate the WLM policy changes and related control block changes that were introduced in z/OS V1R10.	UA39715 (APAR OA17252)
<b>BCP:</b> Causes the z/OS V1R8 program management binder to reject a PO5 PMAR level with the new z/OS V1R10 PO sublevel.	UA39318 (APAR OA20962)
<b>BCP:</b> Allows a z/OS V1R8 system to tolerate changes made in z/OS V1R10 to console data that is passed between members of a sysplex.	UA39759 and, if Japanese, UA39763 (APAR OA18204)
<b>BCP:</b> Prevents all WTORs and retained action messages that are outstanding on pre-z/OS V1R10 systems when a z/OS V1R10 system joins a sysplex from appearing twice in the response to a D R command that is processed on the z/OS V1R10 system.	UA40987 (APAR OA24850)
<b>BCP:</b> Allows a z/OS V1R8 system to tolerate changes made in z/OS V1R10 to resource recovery services (RRS) as RRS saves data during startup.	UA39873 (APAR OA23153)
<b>BCP:</b> Enables a pre-z/OS V1R9 system to recognize the module map section built by the z/OS V1R9 or later program management binder and discard it during rebind on a pre-z/OS V1R9 system.	UA32213 (APAR OA17827)
<b>BCP:</b> Allows the z/OS V1R8 program management loader to properly handle module aliases produced by the S/360 <sup>™</sup> linkage editor.	UA29485 (APAR OA17662)
<p><b>BCP:</b> In z/OS V1R9 (and later), an enhancement allows a coupling facility to be placed into a new state called <i>maintenance mode</i>. When a coupling facility is in this state, it cannot be used to allocate any new coupling facility structures. Although pre-z/OS V1R9 systems cannot place a coupling facility into maintenance mode, in a mixed sysplex it is possible for a pre-z/OS V1R9 system to share a coupling facility with a z/OS V1R9 or later system and for the z/OS V1R9 or later system to place the coupling facility into maintenance mode.</p> <p>The PTF allows pre-z/OS V1R9 systems to "understand" when maintenance mode is the reason that a coupling facility is ineligible for structure allocation, and enables messages to include this specific reason.</p> <p>If the PTF is not installed, the effect depends on whether the coupling facility is placed into maintenance mode. If the coupling facility is never placed into maintenance mode, there is no impact. But if the coupling facility <i>is</i> placed into maintenance mode (from a z/OS V1R9 or later system), and maintenance mode is the reason that the coupling facility is ineligible for structure allocation, messages will state this specific reason rather than stating that the reason is unknown.</p>	UA32766 and, if Japanese, UA32769 (APAR OA17685)
<b>BCP:</b> If a locally-mounted non-owner z/OS V1R9 or later system removes or renames a file, the earlier-level systems are not informed and can have bad library lookaside (LLA) entries. This could cause local users to see incorrect information. The PTF disables LLA on all systems for a mount if LLA is disabled on the owner.	UA32495 (APAR OA16265)
<b>Cryptographic Services:</b> In z/OS V1R10, the LRECL of the PKA key data set (PKDS) has increased. Without the PTF, the increase in size could cause problems when the PKDS is shared between multiple levels of ICSF. The PTF allows an earlier level of ICSF to perform I/O with either the existing PKDS or the larger PKDS. It also prevents the earlier level of ICSF from creating or using RSA keys that are larger than 2048 bits.	UA37970 (APAR OA21807)
<b>DFSMSdfp:</b> In z/OS V1R10, multiple lock structures are supported. The PTF prevents a z/OS V1R8 system from opening a data set that z/OS V1R10 has already opened to a secondary lock structure. (Current sharing can still be performed by using the current lock structure, IGWLOCK00.) The PTF also provides toleration of new shared structures and communication that is done between SMSVSAM instances.	UA42229 (APAR OA25754)
<p><b>DFSMSdfp:</b> Causes a z/OS V1R8 system to do the following:</p> <ul style="list-style-type: none"> <li>• Fail OSREQ DELETE and OSREQ RETRIEVE requests for objects greater than 268 435 456 bytes.</li> <li>• Skip OSMC processing of objects greater than 268 435 456 bytes.</li> <li>• Recognize the new P value in the FULL column of the TAPEVOL and</li> </ul>	UA39933 (APAR OA22026)

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VOLUME tables as permanently marked full.	
<b>DFSMSdfp:</b> Allows the new (in z/OS V1R10) P volume full value to be displayed as "yes" in the volume full column on the Mountable Optical Volume List ISMF panel (DGTLP31) of a z/OS V1R8 system.	UA39956, UA39957 if English, and UA39958 if Japanese (APAR OA22400)
<b>DFSMSdfp:</b> z/OS V1R9 introduced Tape Sublevel 2 (TSL2) into the object access method (OAM) storage hierarchy. The PTF allows OAM members on pre-z/OS V1R9 systems to coexist in an OAMplex with OAM members on a z/OS V1R9 or later system. Specifically, the PTF enables pre-z/OS V1R9 systems to recognize and fail attempts to access objects residing on the new TSL2 media. It also modifies pre-z/OS V1R9 OAM members so that they mark tape media to which they write as TSL1.	UA32910 (APAR OA17812)
<b>DFSMSdfp:</b> In z/OS V1R10, the LSPACE macro's parameter list has been extended to support extended address volumes (EAVs). The PTF allows a z/OS V1R8 system to tolerate the change.	UA40220 (APAR OA22449)
<b>DFSMSdfp:</b> Allows a DEVSERV QDASD command issued on z/OS V1R8 to report the actual size of an extended address volume even though the volume cannot be brought online. (Extended address volume support is introduced in z/OS V1R10.)	UA40228 (APAR OA21487)
<b>DFSMSdss:</b> Allows a z/OS V1R8 system to restore a data set that was dumped from an extended address volume on z/OS V1R10. See the APARs for additional information.	UA40265 (APARs OA22900 and OA24505)
<b>DFSMShsm:</b> Allows a z/OS V1R8 system to tolerate backups created with the z/OS V1R10 NEWNAME SPHERE(NO) and GVCN(YES) keywords.	UA39925 (APAR OA23786)
<b>DFSMShsm:</b> Allows a z/OS V1R8 system to tolerate enhanced CDS backup of XCF events in z/OS V1R10.	UA39939 (APAR OA22211)
<b>DFSMShsm:</b> If you are using DFSMSHsm to manage extended address volumes on a z/OS V1R10 system, the PTF allows a z/OS V1R8 system to recall or recover an EAS data set with a format-8 or format-9 DSCB if the data set was migrated to, or backed up on, z/OS V1R10. The PTF also allows VCC keywords specified in the management class to be processed correctly.	UA40305 (APAR OA22804)
<b>DFSMSrmm:</b> Allows a z/OS V1R8 system to tolerate the DFSMSrmm CDS changes made in the TS1130 device support enhancement provided by APAR OA22132 and integrated in z/OS V1R10.	UA40423, UA40424 if English, and UA40425 if Japanese (APAR OA22706)
<b>DFSMSrmm:</b> Allows a z/OS V1R8 system to tolerate the new serialization ENQ name used for the control data set (CDS) in z/OS V1R9 and later. The new serialization is enabled automatically the first time z/OS V1R9 or later DFSMSrmm is started.	UA31621 (APAR OA17965)
<b>DFSMSrmm:</b> Provides coexistence support for the D/T3592 Model E05 encryption support in z/OS V1R9 and later.	UA29601 (APAR OA16524)
<b>Distributed File Service:</b> Prevents an abend on a z/OS V1R8 client system when a certain zFS mount sequence occurs.	UA29661 (APAR OA16908)
<p><b>Distributed File Service:</b></p> <ul style="list-style-type: none"> <li>• Allows the MOUNT command to work on a z/OS V1R8 system that is in a sysplex with a z/OS V1R9 or later system after a MOUNT command with the new zFS AGGRMOVE parameter has been issued on the z/OS V1R9 or later system.</li> <li>• Prevents an abend on a z/OS V1R8 system that is in a sysplex with a z/OS V1R9 or later system on which a zFS clone operation occurs.</li> <li>• Ensures that a z/OS V1R8 system that is in a sysplex with a z/OS V1R9 or later system that has failed is made aware of any zFS aggregates that another z/OS V1R9 or later system has taken ownership of from the failed z/OS V1R9 or later system.</li> <li>• Allows zFS to handle mounts properly when certain timing situations occur because of failed systems.</li> </ul>	UA31328 (APARs OA18139, OA17645, OA18494, and OA19034, respectively)
<b>HCD:</b> In z/OS V1R10, HCD allows multiple users to work simultaneously on the IODF. The PTFs prevent earlier z/OS releases from accessing an IODF prepared for multiuser access.	UA90385 and, if Japanese, UA90387 (APAR OA22842)
<b>IBM TDS:</b> Allows new directory attributes provided in z/OS V1R10 for an IBM TDS	UA38112 and, if Japanese, UA38113

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LDAP server to be tolerated by z/OS V1R8. Note that this PTF does not affect the ISS LDAP server.	(APAR OA22022)
<b>ISPF:</b> Enables ISPF edit recovery tables and ISPF edit recovery backup data sets from a z/OS V1R9 or later system to be used on a pre-z/OS V1R9 system.	UA33244 (APAR OA20207)
<b>JES2:</b> Allows z/OS V1R8 JES2 to run with z/OS V1R10 JES2 in a multi-access spool (MAS).	UA90382 (APAR OA20935)
<b>JES3:</b> Removes a job from output service during fallback to z/OS V1R8 JES3 from z/OS V1R9 or later if more than 65 536 OSE buffers were created for that job while on z/OS V1R9 or later JES3. The PTF also provides support to rebuild that job at the lower release by dumping it and restoring it using the dump job (DJ) DSP.	UA32620 (APAR OA16731)
<b>JES3:</b> In z/OS V1R9, changes were made to system data set record counts (JDSLINES and JDSRECDs). The PTF ensures that the counts remain consistent with the actual size of the data sets.	UA90398 (APAR OA24167)
<b>Language Environment<sup>(R)</sup>:</b> Causes a meaningful message to be issued when a new z/OS V1R9 or later Language Environment runtime option is encountered by an earlier release. The message states that the option is ignored. If the PTF is not installed, the option is still ignored but a less meaningful message, or no message at all, is issued.	UK22385 (APAR PK29028)
<b>NFS:</b> A new NFS server processing attribute was added in z/OS V1R10 to better support ACLs between the z/OS server and z/OS client. The new attribute indicates that the server is communicating with a z/OS client, not some other client. The value is set automatically by the client; no user action is required. However, pre-z/OS V1R10 NFS servers must tolerate the existence of the new attribute.	UA37368 (APAR OA22759)
<b>NFS:</b> In z/OS V1R9 (and later), the BUFSIZE parameter was added to parmlib member CTINFSxx to specify the size of the NFS server component trace (ctrace) buffer. The PTF enables a z/OS V1R8 system to tolerate the new parameter. If the PTF is not installed, NFS server trace initialization fails and the NFS server reverts to using the log data sets for recording diagnostics. Note that failing to install the PTF does not prevent the NFS server from starting; it only affects the debug message recording location.	UA29618 (APAR OA18325)
<b>NFS:</b> Allows a z/OS V1R8 system to read the z/OS V1R10 NFS mount handle database, resulting in the NFS server being able to start successfully.	UA40244 (APAR OA24257)
<b>RMF<sup>(TM)</sup>:</b> Allows z/OS V1R8 RMF to tolerate the changes in WLM service policy structures that have been introduced in z/OS V1R10.	UA40029 (APAR OA23971)
<b>SDSF:</b> The SDSF CK panel shows information from IBM Health Checker for z/OS. Without the PTF installed, the CK panel displays blank lines.	UK26754 (APAR PK46929)
<b>SDSF:</b> Missing records or ABEND 0C4, or both, will occur when browsing spool records created by z/OS V1R9 JES2 from z/OS V1R8 SDSF or earlier. This APAR is in support of running z/OS V1R8 SDSF and earlier in a MAS that includes z/OS V1R9 JES2 or in which any spool records were created by a z/OS V1R9 JES2 system.	UK90010 (APAR PK39852)
<b>Security Server:</b> In z/OS V1R10, the Network Authentication Service of base element Integrated Security Services exploits RACF password phrase support to allow the use of Kerberos passwords longer than eight characters. Kerberos keys are generated whenever a Kerberos principal's RACF password or password phrase is changed. The PTF allows non-z/OS V1R10 images that share the same RACF database with a V1R10 image to associate Kerberos key expiration with the password phrase expiration value when Kerberos keys are generated on the V1R10 image based upon RACF password phrase change, and to continue to base Kerberos key expiration on the password expiration value when Kerberos keys are generated based upon RACF password change.	UA39333 (APAR OA22588) ( <b>Note:</b> This fix is in error. The fixing APAR is OA24616.)
<b>Security Server:</b> Allows RACF running on a z/OS V1R8 system to tolerate the presence of Kerberos AES keys in RACF profiles, when sharing the RACF database with a z/OS V1R9 or later system. If the PTF is not installed, z/OS Network Authentication Service failures will occur on the z/OS V1R8 system if the z/OS Network Authentication Service has been configured to use RACF as its SAF registry and the SETROPTS KERBLVL(1) command has been issued to enable use of DES3 and DESD keys.	UA33766 (APAR OA20304)
<b>SMP/E:</b> Allows SMP/E V3R4 (which is in z/OS V1R7, V1R8, and V1R9) to quietly ignore new FIXCAT HOLD statements that will be present in IBM product and service offerings. In addition, the PTF provides support for SMP/E users who share SMPCSI	UO00701 (APAR IO07480)

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data sets between pre-z/OS V1R10 systems and z/OS V1R10 systems.	
<b>TSO/E:</b> In z/OS V1R10, the IKJTSOxx parmlib member has a new statement, LOGON. The PTF causes this new operand to be ignored if it is encountered on z/OS V1R8 during syntax checking of parmlib member IKJTSOxx. It also ensures that the TSO/E PARMLIB LIST ROUTE(*) command will display system settings correctly in a mixed sysplex environment.	UA39738 (APAR OA20525)