IBM Advanced Technical Skills – Washington Systems Center

A System Programmer Productivity Tool Bag

Presented by Marna Walle

SHARE
Anaheim
Session 8664

February 2011

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A Potpourri of Information

Did you Know...

A System Programmer Productivity Tool Bag

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Recent Announcements

Software Releases
Service Discontinuance
Key Dates
Subscription Services
Statements of Direction

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Announcements

February 15, 2011

z/OS V1.13 – Preview letter

Announcement Letter 211-007

- New functions announced:
  - Enhancements to z/OS Predictive Failure Analysis® and Runtime Diagnostics functions
  - Shorten batch windows using JCL improvements in JES2 environments.
  - New z/OS base component, z/OS Batch Runtime environment to simplify application programming
  - Improve I/O performance for z/OS UNIX® workloads in a Parallel Sysplex® using direct I/O with fully shared zFS file systems, and improve zFS availability with a new zFS internal restart function.
  - Security and Crypto enhancements
  - Improve system responsiveness with less-disruptive DFSMShsmTM journal and control data set (CDS) backups.
- Distribution: Internet, 3590, 3592 and DVD
- Planned General Availability: September 2011
- Requires IBM System z196, z10 EC, z9 EC and BC, z900, z990, z890, z800

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Announcements

February 15, 2011

z/OS Management Facility V1.13(5655-S28)

Announcement Letter 211-007

- New functions announced:
  - Clone z/OS images and deploy software more easily and consistently, using a new z/OSMF software deployment task.
  - Define new storage volumes to SMS quickly and easily using a single UI, using a new z/OSMF disk management task.
  - More easily maintain highly secure network connections with an updated z/OSMF-based Configuration Assistant for z/OS Communications Server.
  - Integrate the z/OS experience with the ability to link and launch between z/OSMF applications and between z/OSMF and other browser-based applications
- Supported browsers: Internet Explorer 7 and 8; Mozilla Firefox 3.0 and 3.5
- Service and Support – must also order 5655-S29
  - z/OS Management Facility V1.13 Subscription and support
- Planned General Availability: September 2011
- Requires z/OS R13 or higher

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Announcements

July 22, 2010

z/OS V1.12 – Availability letter

Announcement Letter 210-235

- New functions announced:
  - Predictive Failure Analysis enhanced
  - DFSMS: Control Area Reclaim capability
  - Capacity Provisioning enhanced for CICS and IMS
  - EAV (Extended Address Volumes) support additional data types
  - Parallel Sysplex updates: Automatic partitioning
  - Run Time Diagnostics
  - Advanced cryptography: Support for Elliptic Curve Cryptography (ECC)
  - Performance improvements for key workloads

NEW

- Distribution: Internet, 3590, 3592 and DVD
- Planned General Availability: September 24, 2010
- Requires IBM System z196, z10 EC, z9 EC and BC, z900, z990, z890, z800

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Announcements

November 30, 2010

z/OS 1.9 Extended Usage Support

- Announcement Letter 210-230

- Planned General Availability: November 30, 2010
- Requires IBM z/OS 1.9 license
- Fee based offering
- Provides installation and usage support for up to 2 years
  - Starts November 30, 2010
  - Ends September 30, 2012
- Flexible – minimum 3 month purchase with additional increments
- Does not change coexistence, migration and fallback polices for z/OS
- FAQ available at http://www-03.ibm.com/systems/z/resources/faq/index.html

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Announcements

February 15, 2011

z/OS 1.10 Extended Lifecycle Support

- Announcement Letter 211-002

- General Availability: October 1, 2011
- Requires IBM z/OS 1.10 license
- Fee based offering
- Provides corrective service (a fix, bypass or restriction) for up to 2 years
  - Starts October 1, 2011
  - Ends September 30, 2013
- Flexible – minimum 3 month purchase with additional 1 month increments
- Does not change coexistence, migration and fallback polices for z/OS
- FAQ available at http://www-03.ibm.com/systems/z/resources/faq/index.html

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Announcements

July 22, 2010

IBM zEnterprise 196 System

Announcement Letter 110-170

- Workload-optimized Multiplatform Technology Offering
- Improved total system capacity in a 96-way core design
- Up to 3TB of available real memory per server
- Increased scalability
- Crypto Express3 cryptographic enhancements
- Up to 32 Hipersockets
- Energy efficiencies
- Up to 128 coupling CHPIDs
- Unified Resource Manager
- Quad-core 5.2 GHz processor chips + 100 new instructions
- Auto renewal of On/Off Capacity on Demand records

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- Planned General Availability: September 10, 2010

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Announcements

July 22, 2010

IBM zEnterprise BladeCenter Extension (zBX)

Announcement Letter 110-177

- Standard 42U racks for hosting multiplatform solutions
- Redundant hardware infrastructure for availability
- Preconfigured solution sizes for the IBM Smart Analytics Optimizer for DB2 for z/OS 1.1 (5697-AQT)
- zBX Model 002 includes support for POWER7™ Blades
- Planned Availability: November 19, 2010

- zBX Model 001
  - Allows management of heterogeneous resources to support the IBM Smart Analytics Optimizer application as a single entity on the System z10®
  - Planned availability" December 17, 2010

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Announcements

July 22, 2010

Software Withdrawal for Selected Media Types

- Announcement Letter 910-136

- 3480 Tape Cartridge – compressed format
- 3480 Tape Cartridge – uncompressed format
- 3490E Tape Cartridge

- Effective: February 22, 2011

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Announcements

July 22, 2010

Advanced Workload License Charges offers price/performance for the zEnterprise 196

Announcement Letter 210-238

- New Software Pricing Structure: Advanced Workload License Charges (AWLC)
  - Reduced price points, versus VWLC, for all MSU levels with > 3 MSUs
  - Sub-capacity or full-capacity implementation
  - Aggregation in an actively coupled Parallel Sysplex
  - Additional unit cost improvements, versus VWLC, for eligible montly license charge (MLC) IBM middleware programs > 875 MSUs
- Requirements:
  - Available only for single, stand-alone z196 servers or for actively coupled Parallel Sysplexes consisting only of z196 servers
  - Applies only to specified eligible software programs included on the Programs Eligible for AWLC list

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Notable Statements of Directions

- **z/OS 1.13 is the last release to allow: ***
  - the z/OS Capacity Provisioning support utilizing the System z API for communication with the Support Element (SE) or Hardware Management Console (HMC
  - the BIND 9.2.0 function in Communications Server
  - support multi-file system zSeries File System (zFS) aggregates, including zFS clones
  - Support of BPX.DEFAULT.USER

* **Will be removed from the product in z/OS *next* Release**

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Notable Statements of Directions

- **z/OS 1.12 is the last release to allow: ***
  - z/OS Distributed File Service using DCE architecture
  - z/OS UNIX System Services Connection Scaling functions provided by Connection Manager and Process Manager components
  - z/OS Distributed Computing Environment (DCE) & DCE Security server

* **Will be removed from the product in z/OS *next* Release (z/OS V1R13)**

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Notable Statements of Directions

- **z/OS 1.11 is the last release to allow: ***
  - From Communications Server:
    - Optional setting for RFC4301 compliance – will be mandatory
  - Language Environment underlying CSVRTLS services
  - msys for Setup
  - SDK1.4 (5655-156) support

* **Will be removed from the product in z/OS *next* Release (z/OS V1R12)**

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Notable Statements of Direction

Future (release nor date is specified)

- **IBM REMOVED the Enhanced PSP Tool, host compare program and associated extract files from IBM's Technical Support Web site. --- Effective December 31, 2010**
  - Replaced by SMP/E 3.5 and the new FIXCAT (fix category) in Enhanced HOLDDATA (z/OS R10 and higher)
- **Communications Server - BIND 9.2.0**
- **zFS multi-file system aggregates from Distribute File Services**
- **Remove SMP/E USERMOD to change LE run-time options**

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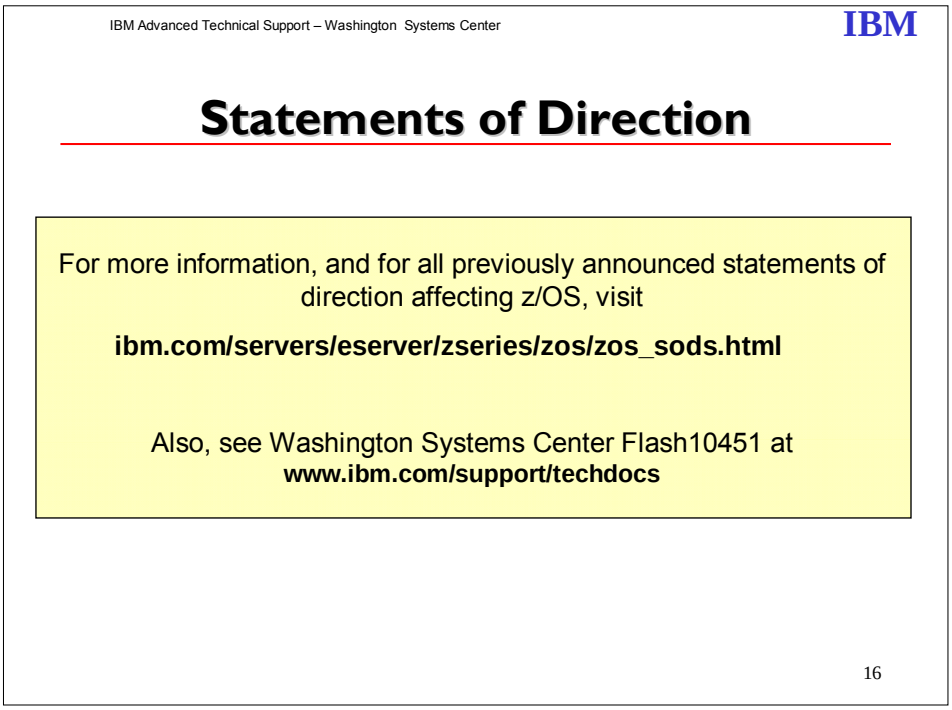

Note: All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

Functions Planned to be Withdrawn *in the Future* **(no specific release has been specified)**		**Announcement Letter**
BIND DNS 9.2.0 (from Communications Server)	Base Element – Anyone using this as a caching-only name server should use the Resolver cache function, which will be available in z/OS R11 to cache DNS responses. Anyone using this as a primary or secondary authoritative name server should investigate using BIND on Linux for System z.	**209-029** Feb. 24, 2009
DCE and DCE Security Server	Base Elements – IBM WebSphere Application Server, the IBM Network Authentication Service, and/or the IBM Directory Server as replacement strategies for each of the DCE technologies. **[Will be removed in next z/OS Release]**	**209-242** Aug. 18, 2009
DFS support that utilizes the DCE architecture	Base Element support – z/OS Network File System (NFS) implementation as the replacement **[Will be removed in next z/OS Release]**	**209-242** Aug. 18, 2009
z/OS UNIX Connection Manager and Process Manager	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.) . **[Will be removed in next z/OS Release]**	**209-242** Aug 8, 2009
SMP/E USERMOD for LE run-time options	IBM recommends using CEEPRMxx PARMLIB member to change Language Environment run-time options	**210-008** Feb. 9, 2010

Functions Withdrawn in z/OS Release 12		Announcement Letter
Msys for Setup	Base element	**209-242** Aug.18, 2009
Optional setting for RFC4301 compliance (from Communications Server)	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. **[Will be removed in next z/OS Release]**	**208-042** Feb. 26, 2008 **209-242** Aug 18, 2009
Language Environment underlying CSVRTLS services	Base Element support – LE RTLS support was removed in z/OS R5. Usage tracking assistance is provided in OA29019.	**209-242** Aug. 18, 2009
Discontinue delivery of software on 3480, 3480C and 3480E tape media	IBM recommends using Internet Delivery Service. Internet delivery is IBM's flagship delivery method; therefore future software delivery enhancements will be focused in this area.	**208-186** Aug. 5, 2008 **209-242** Aug. 18, 2009 **910-136** July 22, 2010

Functions Withdrawn in z/OS Release 11		Announcement Letter
BIND DNS 4.9.3 (from Communications Server)	Base Element - implement BIND 9.2.0 as a replacement (available since z/OS R4)	**209-029** Feb. 24, 2009 **203-266** Oct. 7, 2003 **204-017** Feb. 10, 2004 **208-042** Feb. 26, 2008
Network Database (NDB) function will be removed from Communications Server	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.	**209-029** Feb. 24, 2009 **207-175** Aug. 7, 2007 **208-042** Feb. 26, 2008
DHCP server function will be removed from the Communications Server component.	Customers who currently use or plan to use the z/OS DHCP server should investigate using a DHCP server on Linux for System z.	**209-029** Feb. 24, 2009 **207-175** Aug. 7, 2007 **208-042** Feb. 26, 2008
Boot Information Negotiation Layer (BINL) function will be removed from the Communications Server component	Customers using this function should investigate the use of IBM Tivoli(R) Provisioning Manager for OS Deployment for network based operating system installation services.	**209-029** Feb. 24, 2009 **207-175** Aug. 7, 2007 **208-042** Feb. 26, 2008
Attaching zSeries File System (zFS) multi-file system aggregates	**z/OS V1.10 is the last release** to allow attaching zSeries File System (zFS) multi-file system aggregates to be shared across systems in a sysplex. IBM has previously recommended 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	**205-034** Feb. 15, 2005 **208-186** Aug. 5, 2008

	environments. Note: Mounting was removed in z/OS 1.8	
Support for IPCS Problem management commands	**z/OS V1.10 is the last release** to include 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.	**208-186** Aug. 5, 2008
Integrated Security Services LDAP Server	**z/OS V1.10 is 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	**208-186** Aug. 5, 2008
Functions Withdrawn in z/OS Release 10		**Announcement Letter**
RMF LDAP replacement (from RMF)	Priced Feature - RMF LDAP interface is planned to be replaced with a CIM Monitoring Interface that is part of z/OS R7	**206-039** Feb. 28, 2006
Assignment of CPU affinity to a logical processor	**The release following z/OS V1.9** is planned to be the last release to provide support for the assignment of CPU affinity to a logical processor. Future releases will ignore any attempt to assign CPU affinity.	**207-175** Aug. 7, 2007
English and Japanese panels from DFSORT	Priced Feature - no replacement offered (z/OS Release 9 is the last release	**204-180** Aug. 10, 2004 **207-018** Feb. 6, 2007
Support for the configuration of Traffic Regulation (TR) policy as part of the Quality of Service (QoS) discipline from Communications Server	Base element - Implement the Intrusion Detection Services (IDS) policy configuration made available in z/OS V1.8 • z/OS V1.9 is planned to be the last release of z/OS Communications Server which will support the configuration of Traffic Regulation (TR) policy as part of the Quality of Service discipline. The TR configuration function remains supported, but IBM recommends that you implement it as part of the Intrusion Detection Services (IDS) policy configuration made available in z/OS V1.8. This change is only for the TR policy configuration. The TR policy functions themselves remain unaffected. For more information, refer to: o z/OS V1.8 Communications Server IP Configuration Guide, Chapter 16. Intrusion Detection Services (IDS) o z/OS V1.8 Communication Server IP Configuration Reference	**207-006** Feb. 6, 2007

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Key dates

- **September 10, 2010**: General availability of Cryptographic Support for z/OS V1R10-R12 Web deliverable. This Web deliverable will support z/OS V1.10 through z/OS V1.12.
- **September 10, 2010**: First date for ordering z/OS V1.12 ServerPac, SystemPac, CBPDO using CFSW configuration support or ShopzSeries, the Internet ordering tool. Most z/OS media (executable code) is shipped only through Customized Offerings (ServerPac, SystemPac, and CBPDO).
- **September 10, 2010**: DVD support for Custom Built Product Offerings (ServerPac, CBPDO, SystemPac, ProductPac, FunctionPac, SFS).
- **September 24, 2010**: z/OS V1.12 general availability via ServerPac, CBPDO, and SystemPac.
- **October 25, 2010**: Last date for 34xx tape media orders for all Custom Built Product Offerings
- **June 29, 2011**: Recommended last date for submitting z/OS V1.11 orders via the fee Customized Offering SystemPac. This date will allow for adequate order processing time.
- **July 26, 2011**: Last date for processing orders for z/OS V1.11 via SystemPac.
- **September 30, 2011**: End of service for z/OS V1.10 (5694-A01).
- **February 22, 2011**: Customized Offerings Driver on DVD.
- **February 22, 2011**: Service orders available on DVD.
- **February 21, 2011**: Last date for 34xx tape media orders for the Customized Offerings Driver.
- **February 21, 2011**: Last date for 34xx tape media orders for service.

To obtain the Web deliverable listed above, visit

http://www.ibm.com/systems/z/os/zos/downloads/

The end of service for a Web deliverable occurs at end of service for the release on which it runs.

It is very important to order the required z/OS release needed for migration, coexistence and fallback while it is still available. DO NOT WAIT until the last week to order. You need time for the order to get through the process without any problems.

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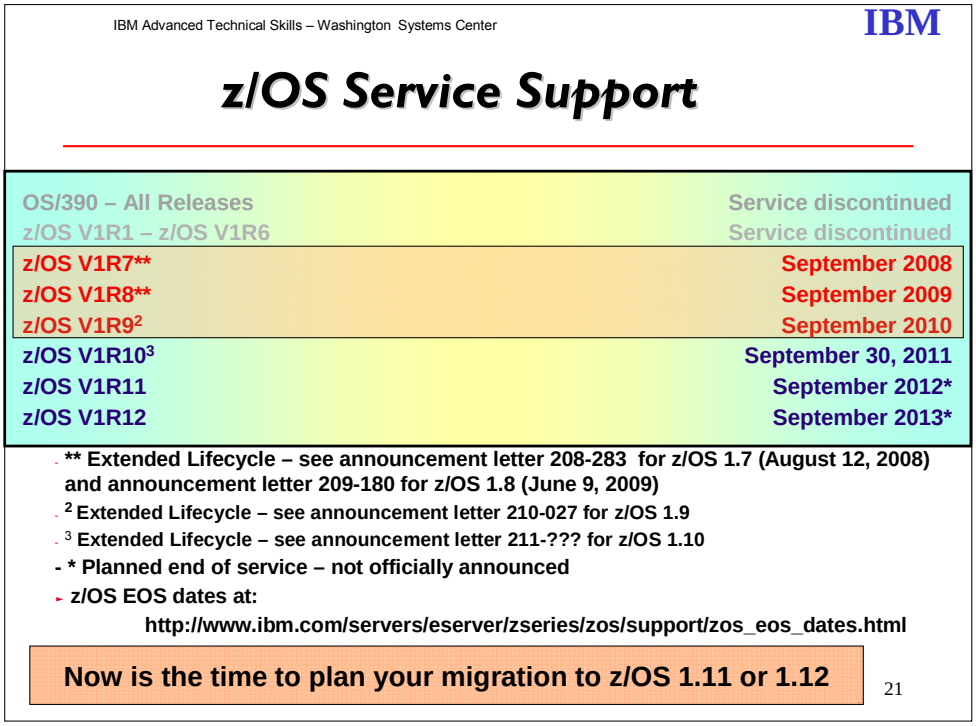

z/OS
IBM intends to market a given release until the next release becomes available. IBM may occasionally choose to continue to market a release beyond the availability of the next release.

All statements regarding the future direction and intent of IBM are subject to change or withdrawal without notice and represent goals and objectives only.

Statement of Direction: IBM intends to provide an IBM Lifecycle Extension for z/OS offering for future releases of z/OS. **This does not alter the z/OS coexistence, migration, fallback, or service policy.** The intention of this change is to provide an accommodation for customers who have not completed their migrations to newer z/OS releases within the service support period. All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

Notes:
- z/OS.e 1.8 was the last z/OS.e release.
- The end of service for a Web deliverable occurs at end of service for the release on which it runs.

z/OS Server Support by Release

OS level	z196	z10 EC	z10 BC	z9 EC (z9-109)	z9 BC	z990	z900	z890	z800	G5/G6 MP3000
OS/390 2.10	No	No	No	No	No	Yes Note 2	Yes	Yes Note 2	Yes	Yes Note 1
z/OS 1.1	No	No	No	No	No	No	Yes	No	Yes	Yes
z/OS 1.2	No	No	No	No	No	Yes Note 2	Yes	Yes Note 2	Yes	Yes
z/OS 1.3	No	No	No	No	No	Yes Note 2	Yes	Yes Note 2	Yes	Yes
z/OS 1.4	No	No	No	Yes Note 2	Yes Note 2	Yes Note 2	Yes	Yes Note 2	Yes	Yes
z/OS 1.5	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
z/OS 1.6	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.7	Yes Note 3	Yes	Yes Note 3	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.8	Yes Note 4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.9	Yes Note 5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
z/OS 1.12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Notes:

1. OS/390 2.10 also supported the following servers: Multiprise 2000; G4(R5), G3(R4), R3, R2 Parallel Enterprise Server s/390 server; RS/6000 with S/390 Server-on-Board, and S/390 Integrated Server.
2. Required z990 exploitation support for z/OS V1.4 and z/OS.e V1.4 Web deliverable
3. Required IBM Lifecycle Extension for z/OS V1.7 (5637-A01), available October 1, 2008 through September 30, 2010.
4. Requires IBM Lifecycle Extension for z/OS V1.8 (5638-A01) beyond the September 30th 2009 withdrawal of service date for z/OS V1.8.
5. Requires IBM Lifecycle Extension for z/OS V.19 (5646-A01) beyond the September 30th 2010 withdrawal of service date for z/OS V1.9

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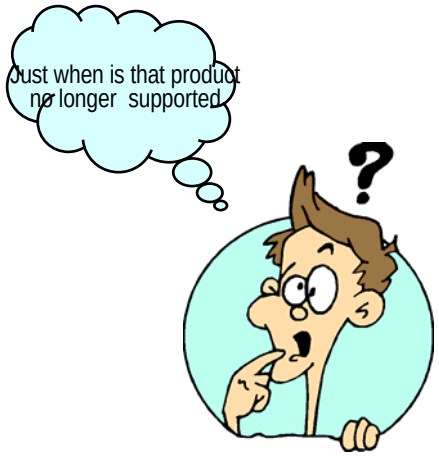
Service End Dates

- http://www.ibm.com/software/support/lifecycle



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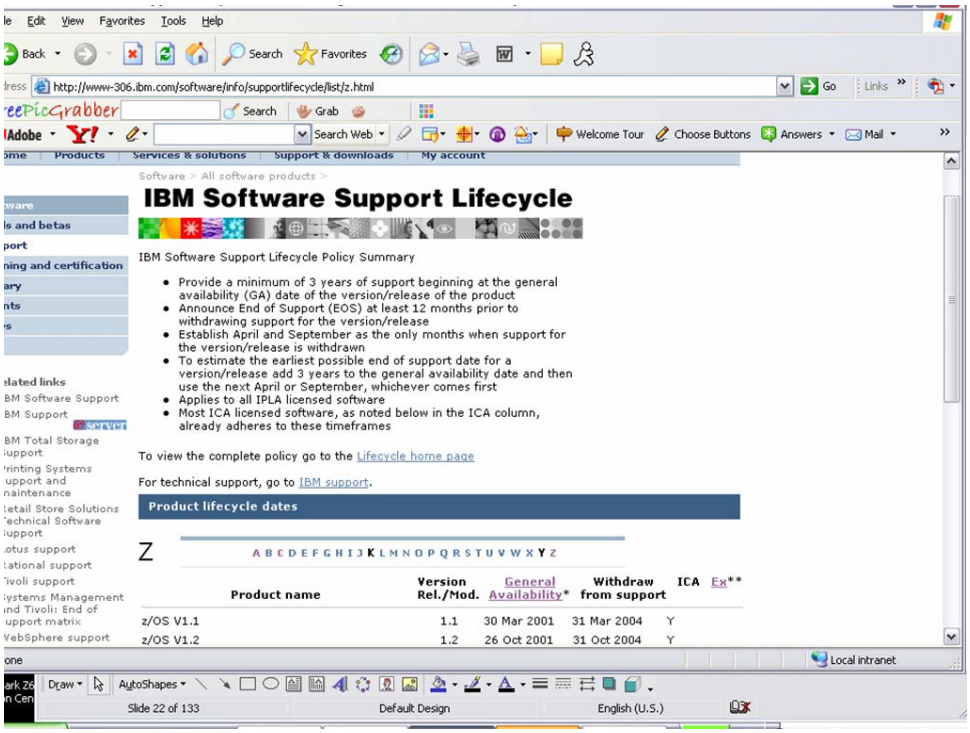

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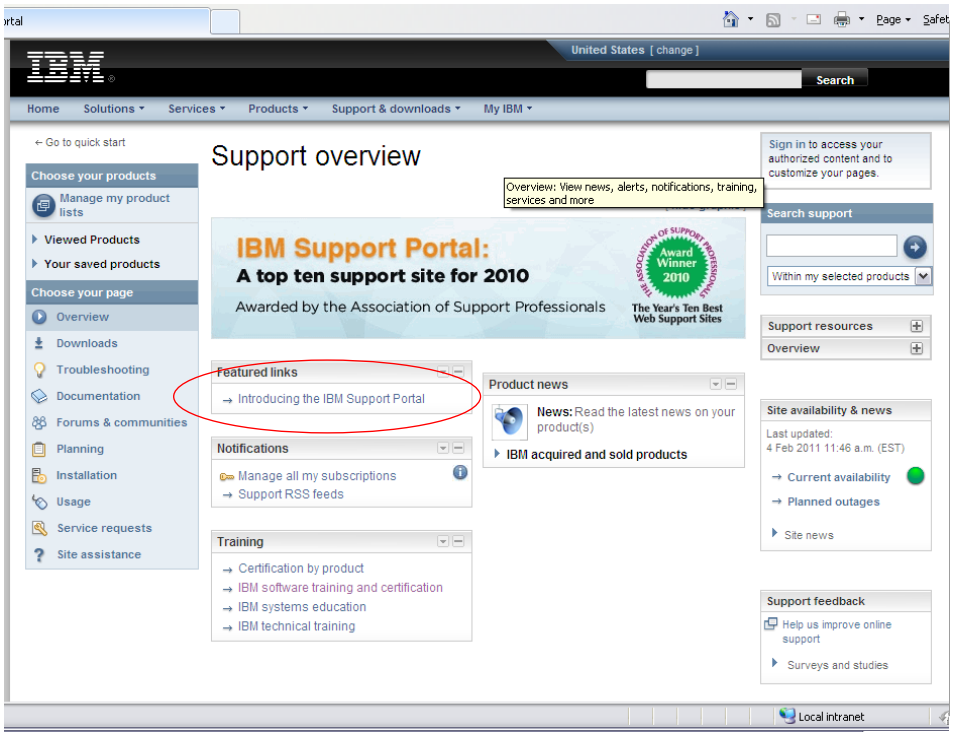

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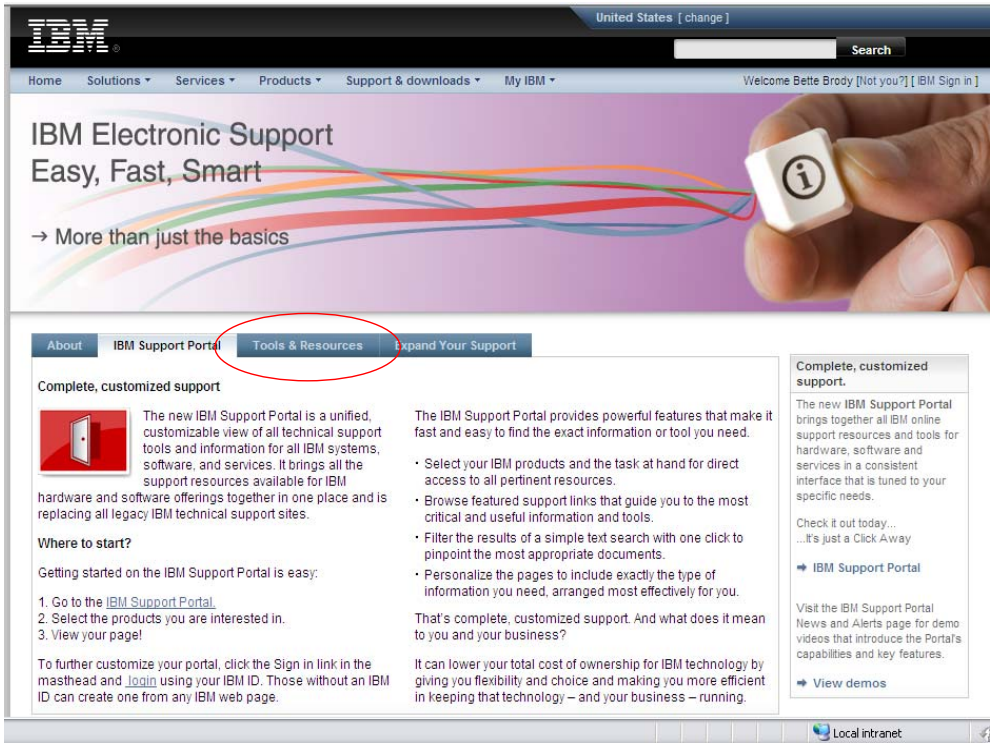

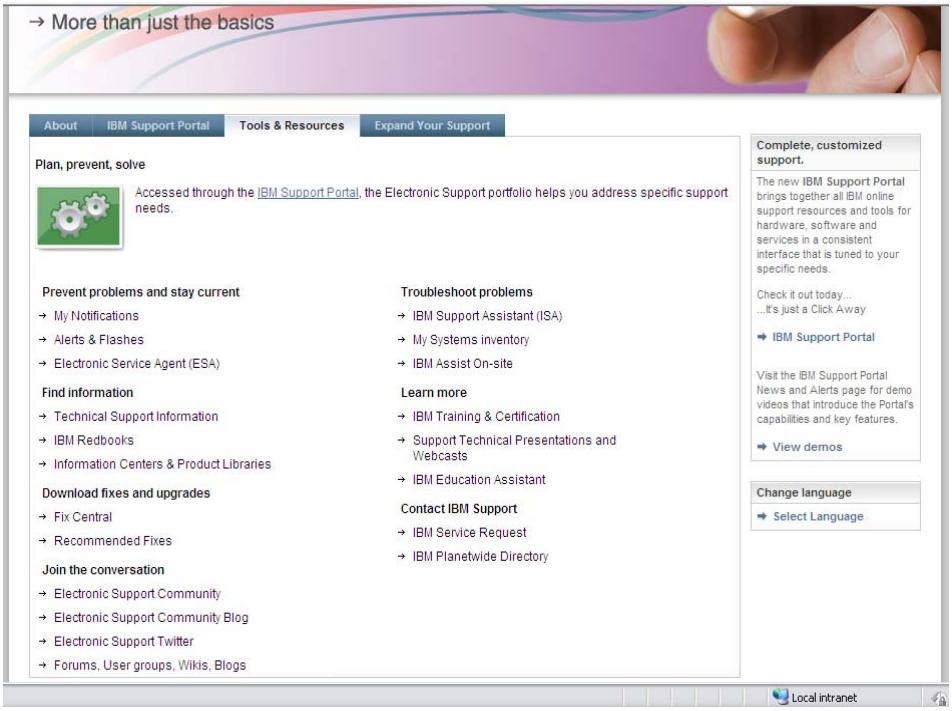
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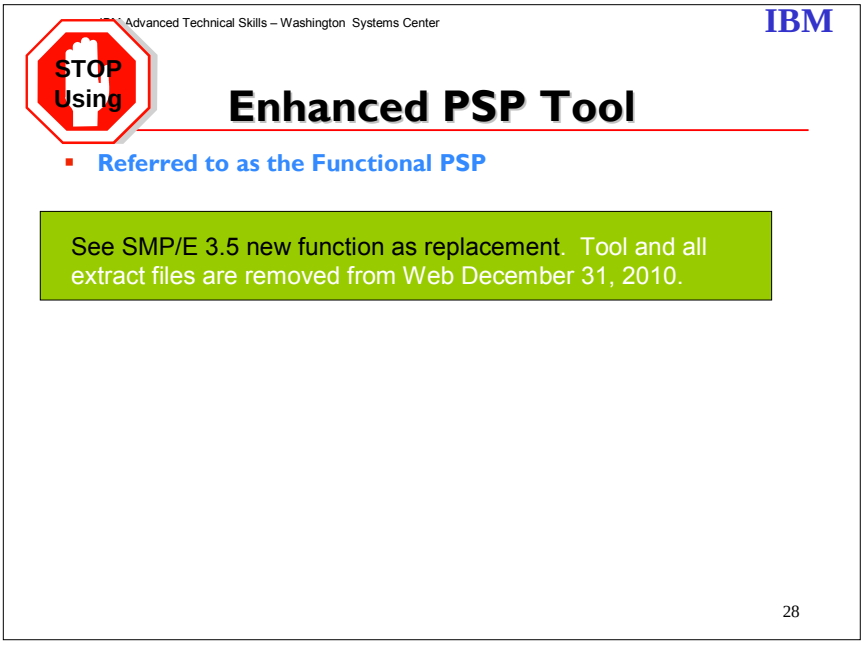

See announcement letter 208-269 dated August 5, 2008 titled IBM SMP/E for z/OS 3.5. This release provides new function designed to simplify various tasks for acquiring, installing and maintaining software.

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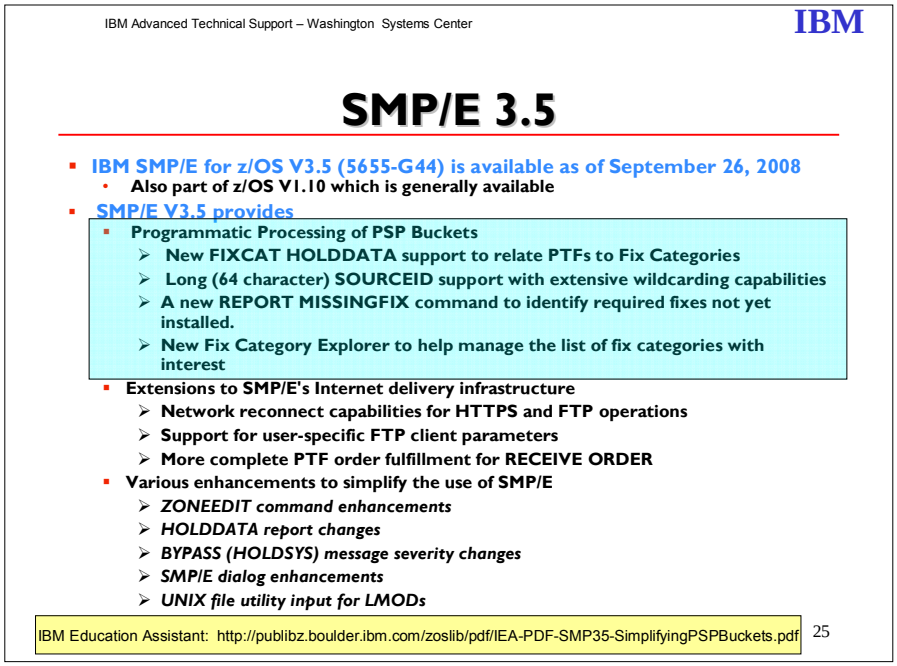

Programmatic Help with Coexistence PTFs for z/OS Release 10
SMP/E has been extended to help simplify the task of verifying required software fixes identified in Preventive Service Planning (PSP) buckets are installed. PSP buckets identify required software fixes for new hardware devices, toleration and 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**. The new type of ++HOLD statement is used to identify APARs, their fix categories, and the PTF resolving the APAR.

When FIXCAT HOLDDATA statements are received into a global zone, SMP/E assigns the fix category values as sourceids to the PTFs resolving the APARs. These sourceids then simplify selecting and installing required fixes. During APPLY and ACCEPT command processing 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 specify which Fix Categories are of interest using the new FIXCAT operand. This tells SMP/E to process only FIXCAT HOLDDATA for the categories specified, 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 determines which fixes (APARs) identified by the HOLDDATA are not yet installed. Only the fixes associated with the fix categories of interest, 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 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 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.

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Latest RSU

- Latest recommended Service Upgrade (RSU)

Month/Year	Service Available	RSU SOURCEID
Feb 2011 4th Quarter Quarterly report 1st Addendum	Based upon the quarter below, this addendum contains PE resolution or HIPER/Security/Integrity/Pervasive PTFs and their associated requisites and supersedes through December 2010.	RSU1101
January 2011 4th Quarter Quarterly report	All service through the end of September 2010 not already marked RSU. PE resolution and HIPER/Security/Integrity/Pervasive PTFs and their associated requisites and supersedes through November 2010.	RSU1012
December 2010 3rd Quarter Quarterly report 2nd addendum	Based upon the quarter below, this addendum contains PE resolution or HIPER/Security/Integrity/Pervasive PTFs and their associated requisites and supersedes through October 2010.	RSU1011
November 2010 3rd Quarter Quarterly report 1st addendum	Based upon the quarter below, this addendum contains PE resolution or HIPER/Security/Integrity/Pervasive PTFs and their associated requisites and supersedes through September 2010.	RSU1010

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As part of IBM's commitment to quality and continuous improvement, we established an additional service testing environment called Consolidated Service Test (CST). As a result, we're redefining our RSU (Recommended Service Upgrade) for the z/OS platform so that it contains service that has been through CST testing. Now, the CST team tests all the current PTFs for these products together, so that we can recommend PTF service for z/OS and key subsystems together in one RSU sourceid, free of charge to all z/OS customers. That means that when you order the current service deliverable (ShopzSeries) you'll receive and install tested service for all of the following products:

- CICS Transaction Gateway for z/OS
- CICS Transaction Server for z/OS
- DB2 for z/OS
- DB2 Connect
- Geographically Dispersed Parallel Sysplex (GDPS/PPRC)
- IMS
- IRLM
- JAVA
- WebSphere Application Server for z/OS
- WebSphere MQ for z/OS
- z/OS
- z/OS Problem Determination Tools
- IBM DB2 and IMS Tools
- IBM Tivoli

Note: For a complete list of products/tools and levels tested, please consult the CST Quarterly report, specifically the *What Service was Installed* section.

There are two ways you can find out what PTFs are in a given RSU:

- When you order a current preventive service deliverable, the list of PTFs will be included in the order. See Getting an RSU for complete information on getting and installing recommended service.

- Find the PTFs included in an RSU by selecting the RSUyymm.txt file for the RSU you're interested in. For complete information on ++ASSIGN statements and Enhanced HOLDDATA, see the Enhanced HOLDDATA for z/OS and OS/390 Web site.

Functions You Should be Using

Healthchecker
AutoIPL
Predictive Failure Analysis
HiperDispatch
Hardware Instrumentation
SMP/E 3.5 (*programmatic PSP buckets*)

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IBM Health Checker for z/OS

Turn it On!!

- **Objective: To identify potential problems before they impact availability or cause outages.**
- **The Health Checker is a tool that checks the current, active z/OS and sysplex settings and compares those values to either IBM suggested best practice values or user defined criteria.**
- **The tool produces reports to help customers analyze the values defined for a given system.**
- **The initial focus of the tool is the z/OS Base Control Program (BCP) element and related sysplex values.**
- **Can be run on a system configured as a parallel sysplex, monoplex, or XCF local environment running z/OS 1.4 and higher.**
- **Periodically updated with new checks.**
- ***Migration checks added for z/OS 1.10, z/OS 1.11 and z/OS 1.12***
- **http://www-03.ibm.com/systems/z/os/zos/hchecker/check_table.html**
  - table lists currently available IBM checks by check owning component or product and the APAR or z/OS release in which they were introduced.

Integrated in z/OS 1.7 Base

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IBM Health Checker for z/OS

Value

- **Compares** your active system settings with those recommended by IBM.
- Notifies when exceptions are found.
- Write your own checks.
- Can help to configure for **best practices**
- Can help to **reduce the skill level**
- Can help **avoid outages**
- Runs on all supported releases of z/OS.
- Supports Migration Checks (z/OS V1.10)

Over 100 Checks with more planned

ibm.com/servers/eserver/zseries/zos/hchecker/

Latest enhancements

- **For z/OS 1.8 -** easier for middleware/ ISVs to write checks with improved parmlib, parsing, and display.
- **New checks:** Communications Server, GRS, storage management (ASM), RACF®, BAM, DFSMS™, and Resource Recovery Services (RRS)
- **For z/OS V1.9 -** Supports System REXX™ checks
- **New Checks**: z/OS UNIX® System Services, TSO/E, the Virtual Storage Manager component of the z/OS BCP, and z/OS Communications Server
- **For z/OS V1.10 -** View historic data, save data across IPLs, integration with some migration checks
- **New Checks**: ICSF, SFM, z/OS UNIX System Services, RACF, CINET, XCF/XES, Comm Server.
- **For z/OS V1.11** – AutoIPL, DFSMS, static resource manager, DAE, SDSF.
- **New migration checks for z/OS V1.11** - IPSec filter rules, DNS, DFSMSrmm™, STP

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IBM Health Checker for z/OS is a base function for z/OS V1R7 and higher releases providing a foundation to help simplify and automate the identification of potential configuration problems before they impact system availability. It compares active values and settings to those suggested by IBM or defined by your installation. The IBM Health Checker for z/OS consists of:

- The framework, which manages functions such as check registration, messaging, scheduling, command processing, logging, and reporting. The framework is provided as an open architecture in support of check writing.

  IBM Health Checker for z/OS is available for z/OS V1.4, V1.5, and V1.6 as a z/OS Web download. Ensure that you review the PSP bucket as described in the Web download program directory. There is required service, such as PTF UA20418, you must install.

- Checks, which evaluate settings and definitions specific to products, elements, or components. Checks are provided separately and are independent of the framework. The architecture of the framework supports checks written by IBM, independent software vendors (ISVs), and users. You can manage checks and define overrides to defaults using the MODIFY command or the HZSPRMxx parmlib member.

  IBM-supplied checks can be integrated with the product, element, or component, or they can be provided as PTFs. The use of PTFs to provide checks facilitates the availability of checks on non-z/OS release boundaries. To easily identify checks that are provided as PTFs, you can use the Technical help database for mainframe Preventive Service Planning buckets. Once there, scroll down to the **Find the bucket by type, category, and release** heading, select Function for the Type field, select HCHECKER for the Category field, and click Go.

  You should review the check PTFs for specific releases supported.

You can find more information in the following manual: *IBM Health Checker for z/OS User's Guide* (SA22-7994-02)

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IBM Health Checker for z/OS Migration

Turn it On!!

- **Migration checks now part of the z/OS Health Checker**
  - checks added for z/OS 1.10 and z/OS 1.11and z/OS 1.12
- **Requires no changes to existing Health Checker**
- **z/OS Rxx "component" migration checks:**
  - **Follow a naming convention:**
    ZOSMIGVvvRrr_*component_program_name*

- **Review the z/OS R12 Migration book for details**

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IBM Health Checker for z/OS Migration

Turn it On!!

- **Migration checks now part of the z/OS Health Checker**
  - checks added for z/OS 1.10 and z/OS 1.11
- **Requires no changes to existing Health Checker**
- **z/OS R11 "component" migration checks:**
  - BCP
  - DFSMSdfp
  - DFSMSrmm (OA26947)
  - JES2
  - ISS LDAP (OA27843)
  - SDSF (PK68253)
  - Comm Server (OA28605)
  - zFS (OA27198)
  - Timer (OA28876)
  - General (OA28684,OA28631)
- **Review *z/OS R11 Migration* Book for details**

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

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

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

- By default, migration checks are inactive. This is because you might not want to know about migration actions during nonmigration periods. As stated previously, migration checks are intended to be used on your current z/OS release and then again after you have migrated to your new z/OS release.

You can find more information in the following manual: z/*OS Migration* for z/OS R10, R11and R12. Also, *IBM Health Checker for z/OS User's Guide* (SA22-7994-02).

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Simplified software, service verification/ installation

SMP/E programmatic PSP buckets (SMP/E V3.5, 5655-G44)

Value

- Can simplify the verification and installation tasks for required service for new hardware and software levels, or to enable new hardware or software functions
- Can be less manual and error-prone
- Can result in faster implementation of hardware and software functions
- ... and help provide ongoing verification of hardware as new software is introduced
- ... ongoing verification of software as new hardware is introduced.

Capabilities

- IBM to create metadata that associates PTFs with one or more fix categories. Such as fixes needed for:
  - Specific hardware levels
  - New software FMIDs
  - Enabling new hardware/software functions
- IBM to deliver the metadata with existing PTF and HOLDDATA acquisition procedures.
- Integrate verification and installation tasks within typical SMP/E operations.
  - Conditionally process the metadata based on your interest and what is currently installed.
  - Extend well known SMP/E functions RECEIVE, APPLY, ACCEPT and REPORT

http://www-03.ibm.com/systems/z/os/zos/smpe/

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SMP/E 3.5 – FIXCAT HOLDDATA

- **This support provides the capability to identify PSP service – including coexistence PTFs when installing new Software release**
  - Always install latest enhanced HOLDDATA from IBM
  - Run SMP/E 3.5 REPORT MISSINGFIX
  - FIXCAT categories are also SOURCEIDs
- **Coexistence PTFs**
  - Use FIXCAT "IBM.Coexistence.z/OS.V1Rxx" to identify missing coexistence service (xx is the release)
- **Healthchecker – Migration checks**
  - Use FIXCAT "IBM.Function.Healthchecker" to identify available checks for z/OS R9 and R10 not yet installed.
- **PSP Buckets**
  - Use FIXCAT "*categories*" (where category values are identified via SMP/E 3.5 Dialogs under Fix Category Explorer)
    - ➢ Use FIXCAT SOURCEID(*categories) on APPLY, ACCEPT and REPORT MISSINGFIX commands*

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Coexistence Service: Coexistence and fallback PTFs installed on pre-z/OS V1R11 systems allow those systems to coexist with z/OS V1R11 systems during your migration, and allow backout from z/OS V1R11 to the previous systems if necessary. Coexistence and fallback are important because they allow you to migrate systems in a multisystem configuration to z/OS V1R11 using rolling IPLs (one system at a time), allowing for continuous application availability.

Use the SMP/E V3R5 REPORT MISSINGFIX command in conjunction with the FIXCAT type of HOLDDATA, as follows:

- Order and install SMP/E V3R5 (which is the SMP/E level that is integrated in z/OS V1R11 and V1R10).
- Acquire and RECEIVE the latest HOLDDATA onto your pre-z/OS V1R11 or r10 systems. Use your normal service acquisition portals or download the HOLDDATA directly from http://service.software.ibm.com/holdata/390holddata.html.
- Run the SMP/E REPORT MISSINGFIX command on your pre-z/OS V1R11 or R10 systems and specify a Fix Category (FIXCAT) value of “IBM.Coexistence.z/ OS.V1Rxx”. The report will identify any missing coexistence and fallback PTFs for that system. For complete information about the REPORT MISSINGFIX command, see *SMP/E Commands*.
- Periodically, you might want to acquire the latest HOLDDATA and rerun the REPORT MISSINGFIX command to find out if there are any new coexistence and fallback PTFs.

Programmatic PSP-bucket processing
A new type of ++HOLD statement is used to identify SYSMODs associated with specific categories of fixes. Such categories identify support for new hardware devices and new releases of software, or enable selected new functions. The ++HOLD FIXCAT statement identifies those SYSMODs and their fix categories. When FIXCAT HOLDs are received, the fix category values are assigned as source IDs to the SYSMODs resolving the APARs. During APPLY and ACCEPT command processing, you can use the assigned source IDs to select the SYSMODs associated with a particular fix category. In addition, a new REPORT MISSINGFIX command identifies fixes associated with particular fix categories not installed and identifies whether any SYSMODs are available to satisfy those missing fixes.

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AutoIPL (z/OS 1.10)

- **This support provides the capability to request the system to automatically IPL SADMP, re-IPL z/OS or both when a disabled wait state is requested by a system component**
  - This function is under the control of PARMLIB DIAGxx member and a new Wait State Action Table (WSAT)
    - Together these facilities specify actions to be taken for various disabled wait states
    - In Sysplex, an SFM Policy can result in actions loading disabled wait states on systems to be partitioned out and these actions can also trigger AutoIPL processing (PTF UA45446 to enable)
    - V XCF command allows you to request a SADMP, z/OS IPL, or both, after the system has been removed from the sysplex
  - Improved serviceability and FFDC (First Failure Data Capture) via quick, automatic SADMP
  - Improved system availability via quick re-IPL of z/OS images
  - LPAR Firmware is required

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AutoIPL is an availability function, introduced in z/OS 1.10, designed to allow the system to automatically IPL stand-alone dump, z/OS, or both, when the system requests certain disabled wait states to be loaded, or when specified as part of a request to VARY the system out of a sysplex.

The use of AutoIPL in multisystem-capable sysplex configurations where a Sysplex Failure Management (SFM) policy is active was previously disabled by PTF UA43911 (APARs OA26371/OA26574), because the IPL actions performed by AutoIPL could prevent or delay the successful completion of system isolation (fencing) and system removal actions performed by SFM. With APARs OA26574 and OA26371, when AutoIPL is activated in these configurations where SFM is active, the automatic IPL actions are not performed.

This restriction has now been removed. The PTF for APARs OA26993/OA26995, along with underlying LPAR firmware support (identified below), now enables AutoIPL to be used in configurations where an SFM policy is active. With this support, requested AutoIPL actions will be performed in accordance with the DIAGxx parmlib member, even when an SFM policy is active in the sysplex.

Use of SFM and system isolation to quickly and automatically remove a failed system from the sysplex remains a highly-recommended "best practice" for sysplex availability. In multisystem sysplexes the prompt removal of failed systems from the sysplex to permit cleanup of shared resources is of primary importance, enabling the remaining systems in the sysplex to continue normal operation.

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Additionally, the use of AutoIPL on a system in a multisystem-capable Sysplex configuration where an SFM policy is active **requires** the following LIC levels be installed:

- For z9 Systems at Driver-67 MCL006 in EC Stream (LPAR) G40954 (Bundle 38)
  - Also requires Feature Code 9904. Refer to DOC APAR OA26446 For z10 Systems at Driver-73: MCL009 in EC Stream (LPAR) F85901 (Bundle 45b)
- For z10 Systems at Driver-76: MCL003 in EC Stream (LPAR) N10965 (Bundle 8)

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Recommendation:

Customers should install the PTF for APARs OA26993/OA26995 on all systems in the sysplex, via a rolling IPL.

This PTF will not be fully effective on the system for which it is being applied until the PTF is applied to all systems in the sysplex. An IPL is required to activate this fix on each system of the sysplex. However, a rolling IPL is sufficient to accomplish the activation.

Customers should also install the underlying LPAR firmware support on the servers where all such z/OS systems are running. The PTF and the underlying LPAR firmware support can be installed independently, in any order and with any timing. However**, the AutoIPL function must not be used in a sysplex with SFM active until both the LPAR firmware support and the software support have been installed on all affected systems.**

.

The AutoIPL support introduced in z/OS V1.10 is extended to multisystem-capable sysplex configurations with active Sysplex Failure Management (SFM) policies in z/OS V1.11, and available for z/OS V1.10 with the PTFs for APARs OA26993 and OA26995. New LPAR firmware support is also required. This new support is designed to perform the requested AutoIPL actions when an SFM policy is active in the sysplex. For information about the required microcode levels, refer to the text of APARs OA26993 and OA26995 for z/OS V1.10, or z/OS V1R11 Planning for Installation.

Two new checks are designed to report on your AutoIPL policy specification:

- One check will make sure an AutoIPL policy is established as a best practice whenever running on hardware supporting AutoIPL, when not in a GDPS configuration.
- The second check will validate the devices specified in the DIAGxx for SADMP and MVSTM AutoIPL policies. Devices will be checked to make sure they are available, are DASD, and are not defined as secondary devices in Metro Mirror (PPRC) pairs.

These checks are intended to help validate your AutoIPL configurations.

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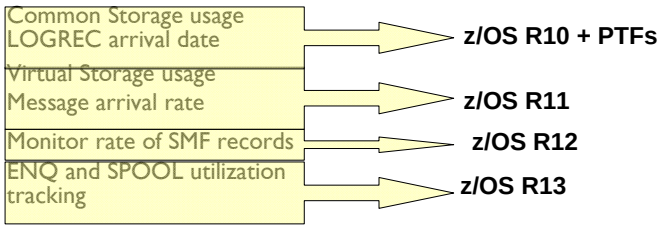
Predictive Failure Analysis

- **Designed to predict potential problems with your system before they occur**
- **Support provided via remote checks from IBM Health Checker**



- **Uses data to compare and model system behavior for future**
  - Identifies system trends
- **Publications**
  - z/OS Problem Management (G325-2564)
  - White paper **WP101454** : www.ibm.com/support/techdocs

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Predictive Failure Analysis (PFA) is designed to predict potential problems with your systems. It can help you avoid "soft" failures. PFA extends availability by going beyond failure detection to predict problems before they occur. PFA provides this support using remote checks from IBM Health Checker for z/OS to collect data about your installation. It uses the data to compare and model system behavior in the future and identifies when a system trend might cause a problem. PFA uses a z/OS UNIX System Services (z/OS UNIX) file system to manage the historical and problem data it collects.

PFA provides the following Checks:

- Common storage usage [detect increased use]
- LOGREC arrival rate [measure software failures using LOGREC to assist in determining if an address space or z/OS image is damaged.]
- Virtual Storage usage [Frame and slot usage checking]
- Message arrival rates [Monitor volume of messages]
- Monitor rate of SMF records [will issue an alert warning]

Predictive Failure Analysis is supported on z/OS 1.10 and later releases and requires:

• IBM SDK for z/OS, Java 2 Technology Edition, V1.4 or later
• IBM Health Checker for z/OS

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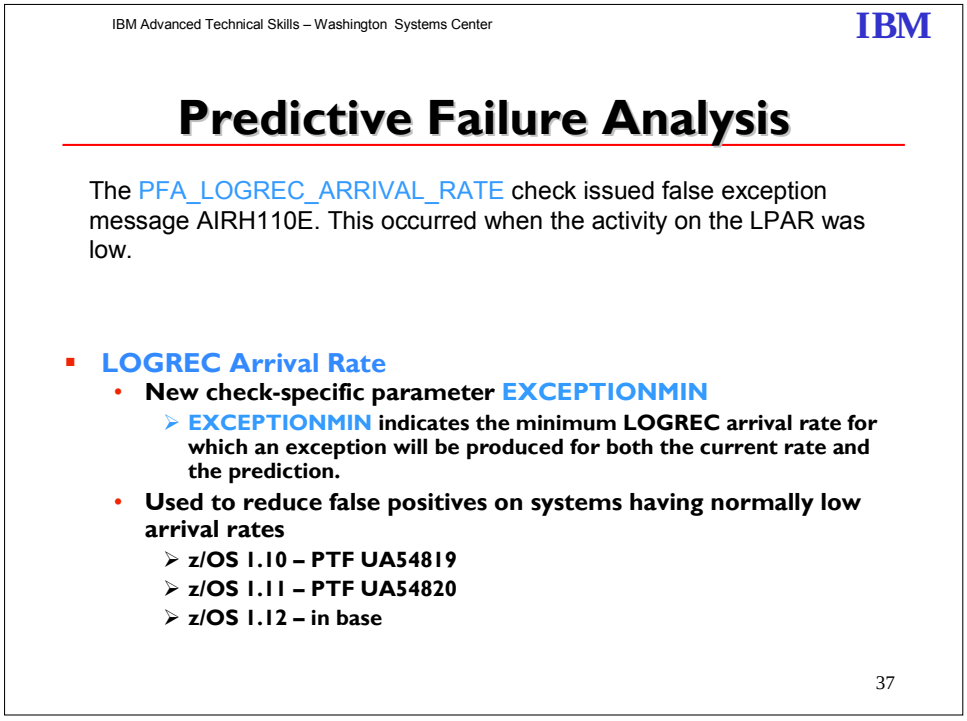

The **PFA_LOGREC_ARRIVAL_RATE** check issued false exception message AIRH110E. This occurred when the activity on the LPAR was low. Code has been added to have a new parameter **EXCEPTIONMIN** for the **PFA_LOGREC_ARRIVAL_RATE** check. The parameter EXCEPTIONMIN indicates the minimum LOGREC arrival rate for which an exception will be produced for both the current rate and the prediction. The value for EXCEPTIONMIN for PFA_LOGREC_ARRIVAL_RATE check is shown by the results of the **'MODIFY PFA,DISPLAY'** command when details are requested. The value for EXCEPTIONMIN can be updated using modify hzsproc,update command like the other configuration parameters.

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HiperDispatch

PR/SM

- **Supplies topology information/updates to z/OS**
- **Ties *high priority* logicals to physicals (gives 100% share)**
- **Distributes remaining share to *medium priority* logicals**
- **Distributes any additional service to unparked *low priority* logicals**

z/OS

- **Ties tasks to small subsets of logical processors**
- **Dispatches work to *high priority* subset of logicals**
- **Parks *low priority* processors not in need or will not get service**

Hardware cache optimization occurs when a given unit of work is consistently dispatched on the same physical CPU

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HiperDispatch

- HIPERDISPATCH=NO (default)
  - Partition is managed horizontal
  - Two levels of Dispatching
    - z/OS dispatches any task on any processor
    - PR/SM dispatches Logical Processors
- HIPERDISPATCH=YES
  - Partition is managed vertical
  - PR/SM dispatching is reduced
  - z/OS dispatches work with affinity to a small sets of processors

IBM Recommends Turning it ON!
Enabled via IEAOPTxx member of PARMLIB

Changes in z/OS R12 when running on a z196

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HiperDispatch was introduced with IBM's z10 server, and is available (via PTFs) on z/OS V1R7, z/OS V1R8, and z/OS V1R9. HiperDispatch was designed to minimize the z10 hardware performance degradation caused by processor cache misses, and maximize the amount of CPU processing power associated with any single logical processor. To achieve these design objectives, HiperDispatch implemented new designs within z/OS and PR/SM, and implemented a regular exchange of information between PR/SM and z/OS.

In z/OS V1.10, HiperDispatch was directed toward improving cache management in multiprocessing LPARs. For z/OS V1.11 HiperDispatch design improves the performance for large-scale z/OS systems include zIIP processors. These changes can improve system performance for LPARs with a large number of zIIPs.

Just as important as the scale of the system, is how it performs with that scalability. For example, HiperDispatch can provide intelligent dispatching of z/OS workloads and help improve the performance for higher n-way System z servers.

When more than 64 logical CPUs are defined for the LPAR, the message IRA865I is issued and HIPERDISPATCH is forced.

HiperDispatch cache and affinity node changes
This function is enhanced to exploit the z196 architecture and now allows three physical CPs from same chip to form affinity node. A z10 uses HiperDispatch book cache support and four physical CPs from same book. To realize the benefits of HiperDispatch, z/OS has been changed to force HiperDispatch=YES for LPARs with greater than 64 CPUs. On LPARs with greater than 64 CPUs defined on a z196 server with IEAOPT*xx* specifying HIPERDISPATCH=NO during IPL (or SET OPT=*xx* after IPL), the system generates a message but continues to run with HIPERDISPATCH=YES. The new message is IRA865I HIPERDISPATCH=YES FORCED DUE TO GREATER THAN 64 LPS DEFINED.

On LPARs in which HIPERDISPATCH=NO is specified with less than 64 CPUs, you can dynamically add more CPUs and continue to run in HIPERDISPATCH=NO. However, you may see the new message ISN012E HIPERDISPATCH MUST BE ENABLED TO CONFIGURE CPU IDS GREATER THAN 3F ONLINE.

Any attempt to configure CPUs greater than 64 CPUs online in HIPERDISPATCH=NO will be rejected with message IEE241I CPU(x) NOT RECONFIGURED ONLINE - REQUIRES HIPERDISPATCH ENABLED. An LPAR with greater than 64 CPUs that dynamically changed to HIPERDISPATCH=YES cannot go back to HIPERDISPATCH=NO. It will be treated as if it was IPLed with HIPERDISPATCH=YES after HIPERDISPATCH=YES is activated.

To assist with warning when you are getting close to 64 CPUs and running with HIPERDISPATCH=NO, the IBM Health Checker for z/OS check, SUP_HiperDispatchCPUConfig, is added in z/OS V1R12 and available on z/OS V1R11 and z/OS V1R10 with APAR OA30476. The check always succeeds for LPAR in HIPERDISPATCH=YES (all CPU configurations supported). When an LPAR is running with HIPERDISPATCH=NO, the check raises an exception when the number of CPUs is close to forcing the LPAR to IPL with HIPERDISPATCH=YES. The CPUSLEFTB4NEEDHD parameter indicates the minimum number of CPUs that can be installed and activated on an LPAR running in HIPERDISPATCH=NO. When CPUSLEFTB4NEEDHD=0, the check always succeeds. The default is 8, with values 0-63

accepted. The system redrives the check when the HIPERDISPATCH state changes or CPUs are dynamically added. Possible IBM Health Checker for z/OS messages:
– IEAVEH080I CPU configuration supported with HiperDispatch *curstate*
– IEAVEH081E CPU configuration supported with HiperDispatch disabled.
numcpus more CPU(s) can be added with HiperDispatch disabled.

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Publications

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z/OS Softcopy Collection

Product	*z/OS V1Rx Collection*	z/OS V1Rx and Software Products DVD Collection	z/OS Licensed Collection
z/OS V1R12	N/A	SK3T-4271-28	n/a
z/OS V1R11	N/A	SK3T-4271-24	n/a
z/OS V1R10	SK3T-4269-22	SK3T-4271-22	n/a
z/OS V1R9	SK3T-4269-20	SK3T-4271-20	n/a

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IBM Advanced Technical Skills – Washington Systems Center

IBM

z/OS V1R12 Migration

- **Path-specific migration documentation tailored to your migration path**
  - z/OS V1.11 → V1.12
  - z/OS V1.10 → V1.12 http://www.ibm.com/servers/eserver/zseries/zos/bkserv/zos_migration_manuals.html
  - Comprehensive
- **z/OS Summary of Messages and Changed Interfaces**
  - SA22-7505-16
  - The title has been changed to reflect the document's new scope
  - Enhanced to include not only message changes, but all interface changes for z/OS elements and features
    - Message changes are presented in Part 2
    - Interface changes are in Part 1

z/OS 1.9 is NOT a supported migration path to z/OS 1.12

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IBM Advanced Technical Support – Washington Systems Center

IBM

z/OS V1R11 Migration

- **Path-specific migration documentation tailored to your migration path**
  - z/OS V1.10 → V1.11
  - z/OS V1.9 → V1.11 http://www.ibm.com/servers/eserver/zseries/zos/bkserv/zos_migration_manuals.html
  - Comprehensive
- **z/OS Summary of Messages and Changed Interfaces**
  - SA22-7505-14
  - The title has been changed to reflect the document's new scope
  - Enhanced to include not only message changes, but all interface changes for z/OS elements and features
    - Message changes are presented in Part 2
    - Interface changes are in Part 1

z/OS 1.8 is NOT a supported migration path to z/OS 1.11

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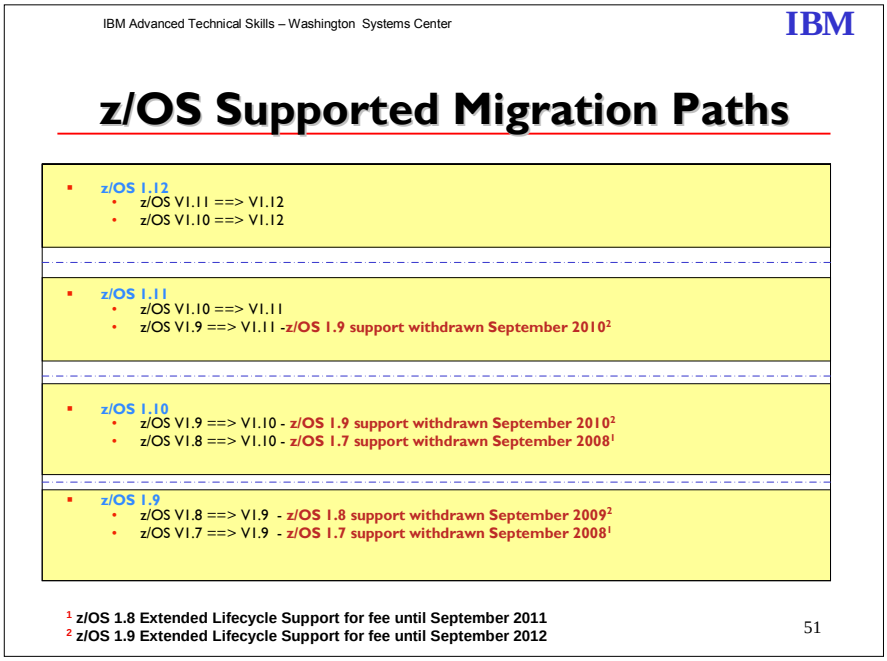

Notice z/OS 1.10 is **NOT** a supported migration path to z/OS 1.13. Plan on ordering z/OS 1.12 before it is removed from Marketing in October 2011. Start planning your migration from z/OS 1.10 now.

The z/OS 1.7, 1.8, 1.9 and 1.10 Extended Lifecycle Support for fee does NOT provide toleration, coexistence or fallback support when migrating to any z/OS release. Nor will it provide support to exploit new function.

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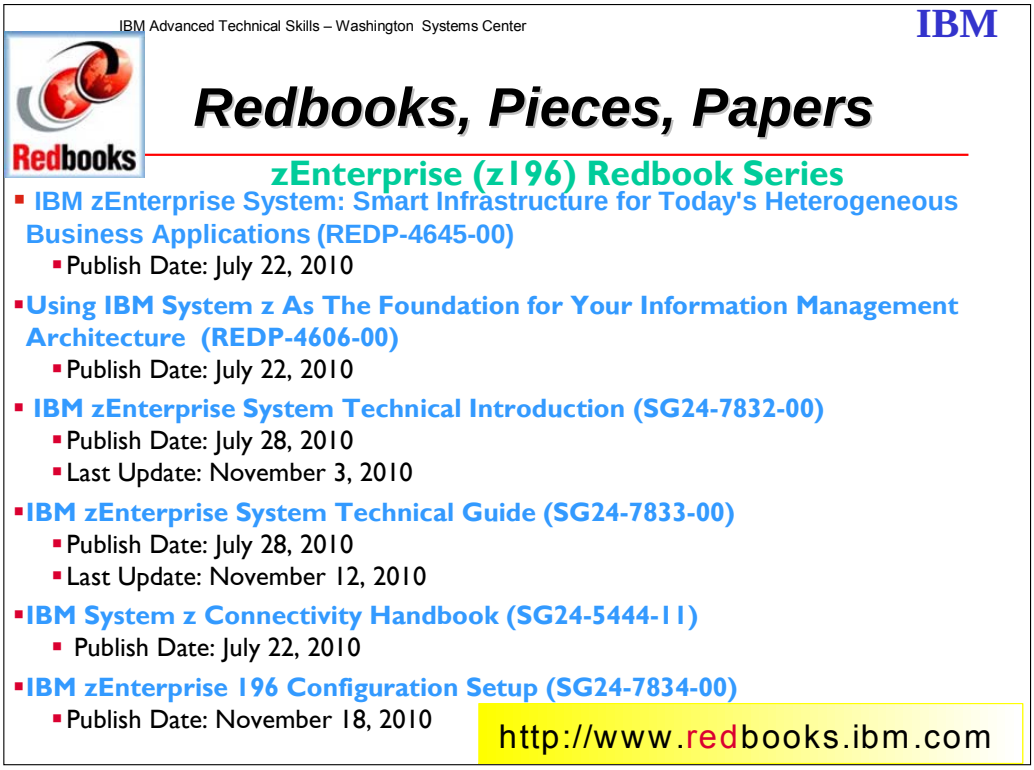


IBM zEnterprise System: Smart Infrastructure for Today's Heterogeneous Business Applications (REDP-4645-00): Do you find yourself focusing too much on your IT infrastructure these days - and not enough on providing value to your business?
Increasingly, business applications span heterogeneous platforms, appliances and devices, and this wide range of resources creates real issues for IT shops trying to meet business objectives. Simply adding servers, routers, and other IT equipment ultimately will not solve your IT challenges, and may even make them worse. Even using virtualization techniques can only go so far in helping you to manage a massive number of servers, routers, and other devices. The ability to manage resources for these heterogeneous applications as one logical entity has been lacking - until now.

The IBM® zEnterprise System technology, referred to as zEnterprise, combines scalable computing power with a groundbreaking new architecture that is able to manage heterogeneous workloads from a single point of control. It combines faster and more powerful IT infrastructures with innovative ways to take advantage of IT resources in an efficient and dynamic manner. zEnterprise is designed with a new vision in mind, in which scalable computing power, world class Quality of Service, virtualization, provisioning, and resource management are layered on top of a multiplatform architecture, connected through a dedicated and highly secure network.

This IBM Redguide™ publication shows you sample application topologies that illustrate the zEnterprise value in solving your most urgent IT challenges. Read on and discover how zEnterprise could become a game changer in managing your complex IT landscape!

Using IBM System z As The Foundation for Your Information Management Architecture (REDP-4606-00): Many companies have built data warehouses (DWs) and have embraced business

intelligence (BI) and analytics solutions. Even as companies have accumulated huge amounts of data, however, it remains difficult to provide trusted information at the right time and in the right place. The amount of data collected and available throughout the enterprise continues to grow even as the complexity and urgency of receiving meaningful information continues to increase.
Producing meaningful and trusted information when it is needed can only be achieved by having a proper information architecture in place and a powerful underlying infrastructure. The amounts of data to mine, cleanse, and integrate are becoming so large that increasingly the infrastructure is becoming the bottleneck. This results in low refresh rates of the data in the data warehouse and in not having the information available in time where it is needed.

And even before information can become available in a BI dashboard or a report, many preceding steps must take place: the collection of raw data; integration of data from multiple data stores, business units or geographies; transformation of data from one format to another; cubing data into data cubes; and finally, loading changes to data in the data warehouse. Combining the complexity of the information requirements, the growing amounts of data, and multiple layers of the information architecture requires an extremely powerful infrastructure.

This IBM® Redguide™ publication explains how you can use IBM System z® as the foundation for your information management architecture. The System z value proposition for information management is fueled by the traditional strengths of the IBM mainframe, the specific strengths of DB2® for z/OS®, and the broad functionality of the IBM information management software portfolio. For decades, System z has proven its ability to manage vast amounts of mission-critical data for many companies throughout the world; your data is safe on System z.

The available information management functionality on System z has grown from database management systems to a full stack of solutions including solutions for content management, master data management, information integration, data warehousing, and business intelligence and analytics. The availability of Linux® on System z provides an excellent opportunity to place certain components in an easy-to-manage and scalable virtualized Linux server, while benefitting from the System z hardware strengths. DB2 on z/OS can remain the operational data store and the underlying database for the data warehouse.

The next generation of System z is growing into a heterogeneous architecture with which you can take advantage of System z-managed “accelerators” running on IBM System x® or IBM Power Blades. The first of these accelerators is the IBM Smart Analytics Optimizer for DB2 for z/OS V1.1, an “all-in-one” solution in which System z, z/OS, DB2 on z/OS, an IBM BladeCenter®, and IBM storage work together to accelerate certain queries by one to two orders of magnitude.
With the IBM Smart Analytics Optimizer, slices of data are periodically offloaded from DB2 on z/OS to the BladeCenter. After a query is launched against that data, it will automatically run against the data kept on the BladeCenter. The BladeCenter will process the query an order of magnitude faster than DB2 on z/OS, because all data is cached in internal memory on the BladeCenter and special compression techniques are used to keep the data footprint small and efficient.

As a solid information management architecture ready for the future, System z has it all.

IBM zEnterprise System Technical Introduction (SG24-7832-00): Recently we have seen an explosion in applications, architectures, and platforms. With the generalized availability of the Internet and the appearance of commodity hardware and software, several patterns have emerged that have gained center stage. Workloads have changed. Many applications, including mission-critical ones, are deployed in heterogeneous infrastructures and the System z design has adapted to this change. IBM has a holistic approach to System z design, which includes hardware, software and procedures. It takes into account a wide range of factors, including compatibility and investment protection, thus ensuring a tighter fit with the IT requirements of the entire enterprise.

This IBM® Redbooks® publication introduces the revolutionary scalable IBM zEnterprise System, which consists of the IBM zEnterprise 196 (z196) and the IBM zEnterprise BladeCenter® Extension (zBX). IBM is taking a bold step by integrating heterogeneous platforms under the well-proven System z hardware management capabilities, while extending System z qualities of service to those platforms. The z196 is a general-purpose server that is equally at ease with compute-intensive workloads and with I/O-intensive workloads. The integration of heterogeneous platforms is based on IBM's BladeCenter® technology, allowing improvements in price and performance for key workloads, as well as enabling a new range of heterogeneous platform solutions. The z196 is at the core of the enhanced System z platform that is designed to deliver technologies that businesses need today along with a foundation to drive future business growth.

This book provides basic information about z196 and zBX capabilities, hardware functions and features, and its associated software support. It is intended for IT managers, architects, consultants, and anyone else who wants to understand the new elements of the zEnterprise System. For this introduction to the zEnterprise System, readers are not expected to be generally familiar with current IBM System z technology and terminology.

IBM zEnterprise System Technical Guide (SG24-7833-00): The popularity of the Internet and the affordability of IT hardware and software have resulted an in explosion of applications, architectures, and platforms. Workloads have changed. Many applications, including mission-critical ones, are deployed on a variety of platforms and the System z design has adapted to this change. It takes into account a wide range of factors, including compatibility and investment protection, to match the IT requirements of an enterprise.

This IBM® Redbooks® publication discusses the IBM zEnterprise System, an IBM scalable mainframe server. IBM is taking a revolutionary approach by integrating different platforms under the well-proven System z hardware management capabilities, while extending System z qualities of service to those platforms. The zEnterprise System consists of the IBM zEnterprise 196 central processor complex, the IBM zEnterprise Unified Resource Manager, and the IBM zEnterprise BladeCenter Extension. The z196 is designed with improved scalability, performance, security, resiliency, availability, and virtualization. The z196 Model M80 provides up to 1.6 times the total system capacity of the z10 EC Model E64, and all z196 models provide up to twice the available memory of the z10 EC. The zBX infrastructure works with the z196 to enhance System z virtualization and management through an integrated hardware platform that spans mainframe and POWER7 technologies. Through the Unified Resource Manager, the zEnterprise System is managed as a single pool of resources, integrating system and workload management across the environment.

This book provides an overview of the zEnterprise System and its functions, features, and associated software support. Greater detail is offered in areas relevant to technical planning. This book is intended for systems engineers, consultants, planners, and anyone wanting to understand the zEnterprise System functions and plan for their usage. It is not intended as an introduction to mainframes. Readers are expected to be generally familiar with existing IBM System z technology and terminology.

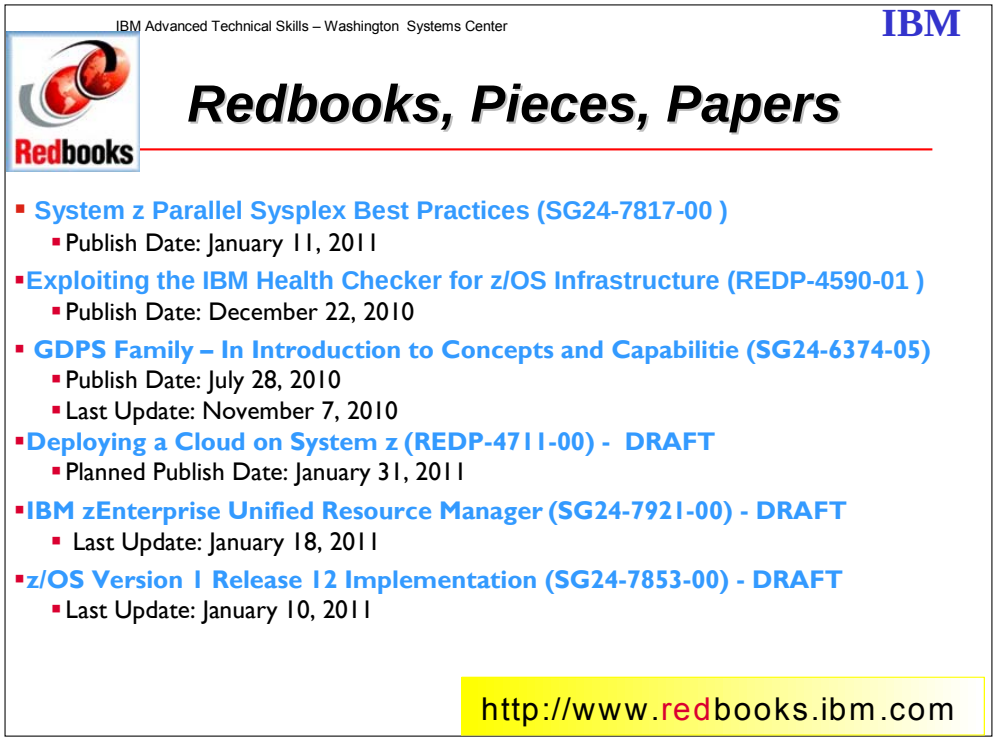
IBM System z Connectivity Handbook (SG24-5444-11): This IBM® Redbooks® publication discusses the connectivity options available for use within and beyond the data center for the following IBM System z® family of mainframes:
- zEnterprise™ 196 (z196)
- System z10™ Enterprise Class (z10 EC)

- System z10 Business Class (z10 BC)
- System z9® Enterprise Class (z9 EC)
- System z9 Business Class (z9 BC)

This book highlights the hardware and software components, functions, typical uses, coexistence, and relative merits of these connectivity features. It will assist readers in understanding the connectivity alternatives available when planning and designing their data center infrastructure. The changes to this edition are based on the System z hardware announcement dated July 22, 2010.

This book is intended for data center planners, IT professionals, system engineers, technical sales staff, and network planners who are involved in the planning of connectivity solutions for System z servers.

IBM zEnterprise 196 Configuration Setup (SG24-7834-00): This IBM® Redbooks® publication helps you install, configure, and maintain the IBM zEnterprise 196 server. The z196 offers new functions requiring a comprehensive understanding of the available configuration options. This book presents configuration setup scenarios, and discusses implementation examples in detail. This book is intended for systems engineers, hardware planners, and anyone who needs to understand IBM System z® configuration and implementation. Readers should be generally familiar with current IBM System z technology and terminology. For details about the z196 server, see *IBM zEnterprise System Technical Introduction*, SG24-7832 and *IBM zEnterprise System Technical Guide*, SG24-7833.



System z Parallel Sysplex Best Practices: This IBM® Redbooks® publication pulls together diverse information regarding the best way to design, implement, and manage a Parallel Sysplex® to deliver the levels of performance and availability required by your organization. This book should be of interest to system programmers, availability managers, and database administrators who are interested in verifying that your systems conform to IBM best practices for a Parallel Sysplex environment. In addition to z/OS® and the sysplex hardware configuration, this book also covers the major IBM subsystems:

CICS®
DB2®
IMS™
MQ
WebSphere® Application Server

To get the best value from this book, readers should have hands-on experience with Parallel Sysplex and have working knowledge of how your systems are set up and why they were set up in that manner.

Exploiting the IBM Health Checker for z/OS Infrastructure: The IBM® Health Checker for z/OS® (also identified in this book as IBM Health Checker) is a key component of the z/OS operating system, whose objective is to identify potential problems before they impact the system's availability. To do this it continuously checks many current, active z/OS and sysplex settings and compares them with those suggested by IBM or defined by you.

The IBM Health Checker for z/OS is made of two parts:
- A framework that provides check management and execution services. It supports check development by IBM, independent software vendors (ISVs), and users.
- Individual checks that look for specific z/OS settings and definitions, checking for potential problems.
Customers can use the IBM Health Checker for z/OS infrastructure to run their own checks, extending the reach of IBM Health Checker for z/OS to environment-specific settings.

This IBM Redpaper™ publication introduces the IBM Health Checker and describes how to activate and use it. It teaches you how to exploit the IBM Health Checker infrastructure to run custom checks and how to identify good candidates for writing your own checks. This publication also provides a number of sample checks to give you a good start creating custom checks for your environment.

GDPS Family – In Introduction to Concepts and Capabilities : This IBM® Redbooks® publication presents an overview of the GDPS® family of offerings and the role they play in delivering a business IT resilience solution. This book begins with a discussion of general concepts of business IT resilience and disaster recovery along with some issues related to high application availability, data integrity, and performance. These topics are considered within the framework of government regulation, increasing application and infrastructure complexity, and the competitive and rapidly changing modern business environment. Next, it describes the GDPS family of offerings with specific reference to how they can achieve your defined goals for disaster recover and high availability. Also covered are the features that simplify and enhance data replication activities, the prerequisites for implementing each offering, and some hints for planning for the future as well as immediate business requirements. Tables provide an easy-to-use summary and comparison of the offerings, and the additional planning and implementation services available from IBM are explained. Finally, a number of practical customer scenarios and requirements are described, along with the most suitable GDPS solution for each case. The intended audience for this book includes Systems Programmers, Technical Support Managers, Operations Managers, Availability Managers, and Disaster Recovery Planners.

Deploying a Cloud on System z: Cloud has become the new reality for IT shops. Lines of businesses bypass their own IT shops to take advantage of external providers of cloud offerings. However, many of the users that leverage public cloud services often have not considered concerns involving security, compliance, and availability. Cloud represents a new business model that requires a process discipline as well as the use of a corresponding set of technology. The new model requires an understanding of the hardware configuration, software images, a virtualized storage infrastructure, and network management. For many IT organizations that have mainframe resources, the mainframe organization manages these different disciplines and aspects of resources as part of their overall management of the platform as a whole. The mainframe's proven capacity to efficiently and securely provide virtualization contributes to the mainframe's position as the best contender to be that first cloud environment . Many IT shops are thinking of using their mainframe to pilot cloud. This paper describes the steps we took to create an environment that can efficiently deploy and manage a cloud in a Linux-based Infrastructure as a Service (IAAS).

IBM zEnterprise Unified Resource Manager: The zEnterprise System is the first system of its kind. It was purposefully designed to help overcome fundamental problems of today's IT infrastructures and simultaneously provide a foundation for the future. The zEnterprise System represents both a revolution and an evolution of mainframe technology. IBM is integrating

heterogeneous platforms under the well-proven System z hardware management capabilities, while extending System z qualities of service to those platforms. The three main components of the zEnterprise System are the z196 CPC, the zBX, and the Unified Resource Manager (zManager). This IBM Redbooks publication discusses the zManager component, including how to plan and implement your system. This book assumes a knowledge of IT systems, networks, and storage devices.

z/OS Version 1 Release 12 Implementation: Customers have grown accustomed to the annual z/OS Implementation IBM Redbooks publication providing information about all the new features in the latest z/OS release. This book will provide information on the new functions and enhancements in z/OS R12.

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Chapter 37. Capacity provisioning
Chapter 38. RRS enhancements
Chapter 39. Parallel subsystems initialization
Chapter 40. z/OS Management Facility

Appendix A. SDSF Java API example
Appendix B. WTOR messages on Auto-Reply
Appendix C. z/OS Upload Utility
Appendix D. BCPii Metal C-example

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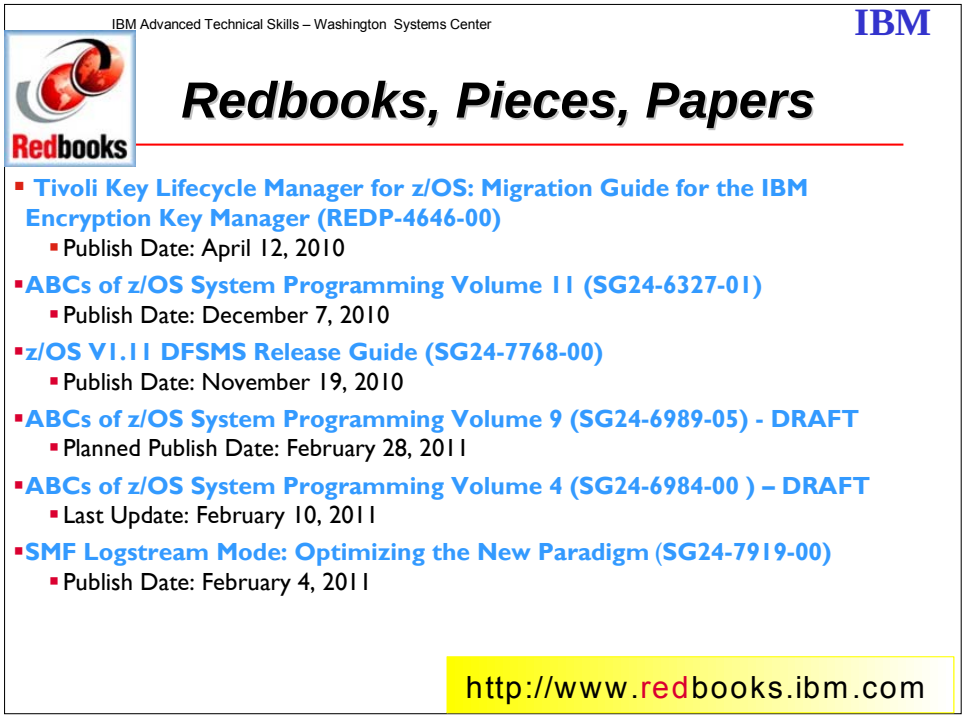

Tivoli Key Lifecycle Manager for z/OS: Migration Guide for the IBM Encryption Key Manager: IBM® currently addresses key management in its self-encrypting tape storage solutions with the standards-based IBM Encryption Key Manager or Tivoli® Key Lifecycle Manager. Tivoli Key Lifecycle Manager is the latest generation of Encryption Key Manager that includes not only support for self-encrypting disk and tape solutions, but it also includes a graphical user interface to simplify ongoing management tasks. It is designed to help manage the growing volume of encryption keys across the enterprise with simplified deployment, configuration, and administration of key generation, as well as key life-cycle management.

The IBM Encryption Key Manager can be regarded as the predecessor of Tivoli Key Lifecycle Manager, and although both Encryption Key Manager and Tivoli Key Lifecycle Manager serve encryption keys to tape drives, the ways in which they do so differ.

In this IBM Redpaper™, we discuss the required actions to migrate an existing Encryption Key Manager installation on z/OS® to a Tivoli Key Lifecycle Manager on z/OS.

ABCs of z/OS System Programming Volumes 4, 9 and 11: The ABCs of z/OS System Programming is a thirteen-volume collection that provides an introduction to the z/OS operating system and the hardware architecture. Whether you are a beginner or an experienced system programmer, the ABCs collection provides the information that you need to start your research into z/OS and related subjects. If you want to become more familiar with z/OS in your current environment, or if you are evaluating platforms to consolidate your e-business applications, the ABCs collection will serve as a powerful technical tool.
The contents of the volumes are:
Volume 1: Introduction to z/OS and storage concepts, TSO/E, ISPF, JCL, SDSF, and z/OS

delivery and installation
Volume 2: z/OS implementation and daily maintenance, defining subsystems, JES2 and JES3, LPA, LNKLST, authorized libraries, Language Environment, and SMP/E
Volume 3: Introduction to DFSMS, data set basics, storage management hardware and software, VSAM, System-Managed Storage, catalogs, and DFSMStvs
Volume 4: Communication Server, TCP/IP and VTAM
Volume 5: Base and Parallel Sysplex , System Logger, Resource Recovery Services (RRS), global resource serialization (GRS), z/OS system operations, automatic restart management (ARM), Geographically Dispersed Parallel Sysplex (GPDS), availability in the zSeries environment
Volume 6: Introduction to security, RACF , Digital certificates and PKI, Kerberos, cryptography and z990 integrated cryptography, zSeries firewall technologies, LDAP, Enterprise Identity Mapping (EIM), and firewall technologies
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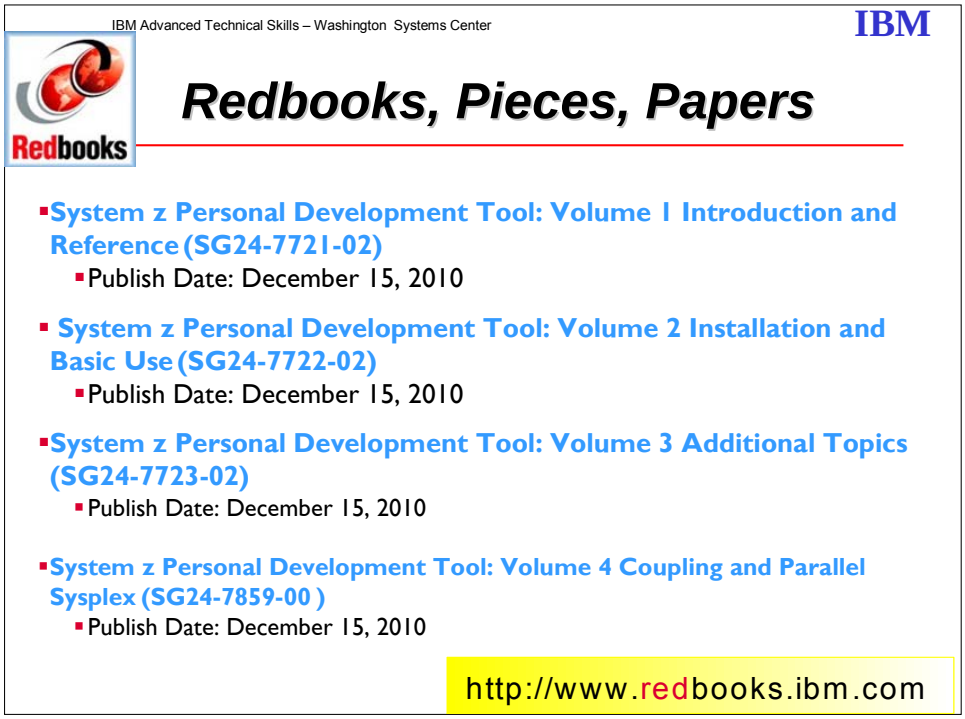
Volume 10: Introduction to z/Architecture, zSeries processor design, zSeries connectivity, LPAR concepts, HCD, and HMC
Volume 11: Capacity planning, performance management, RMF, and SMF
Volume 12: WLM
Volume 13: JES3

z/OS V1.11 DFSMS Release Guide: Each release of data facility storage management subsystem (DFSMS) builds upon the previous version to provide enhanced storage management, data access, device support, program management, and distributed data access for the z/OS® platform in a system-managed storage environment.

This IBM® Redbooks® publication provides a summary of the functions and enhancements in z/OS V1R11 DFSMS. It provides you with the information needed to understand and evaluate the content of this DFSMS release, along with practical implementation hints and tips. Also included are enhancements made available through an enabling PTF integrated into z/OS DFSMS V1R11.

This book was written for storage professionals and system programmers who have experience with the components of DFSMS. It provides sufficient information to start prioritizing the implementation of new functions and evaluating their applicability in your DFSMS environment.

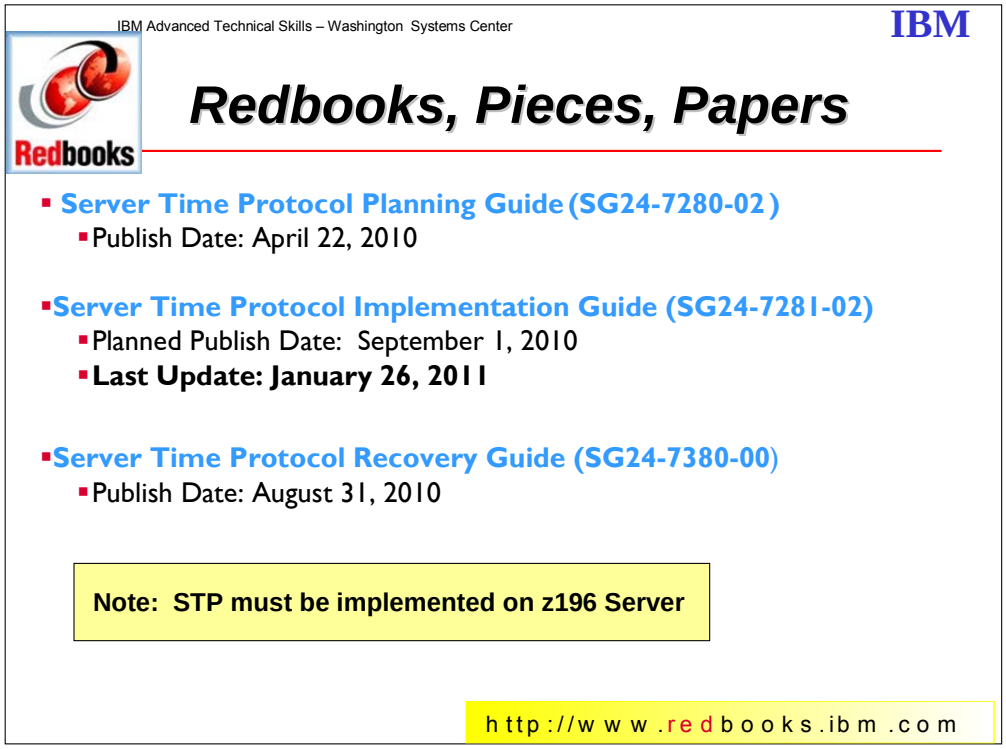
SMF Logstream Mode: Optimizing the New Paradigm: This IBM® Redbooks® publication positions the use of System Logger log streams as a repository for System Management Facilities (SMF) data against the previous use of Virtual Storage Access Method (VSAM) data sets for SMF data. This book expands on existing material by covering not just the implementation steps, but also by looking at how you use SMF data today, and using that information to help you identify the most appropriate repository for your SMF data. If it transpires log streams are appropriate for some or all of your SMF data, this book provides all the guidance you are likely to require for a successful migration to this new paradigm. The target audience for this document is system programmers and anyone who uses SMF data.



System z Personal Development Tool: Volume 1 Volume 2 and Volume 3
These IBM® Redbooks® publications introduces the IBM System z® Personal Development Tool (zPDT), which runs on an underlying Linux® system based on an Intel® processor. zPDT provides a System z system on a PC capable of running current System z operating systems, including emulation of selected System z I/O devices and control units. It is intended as a development, demonstration, and learning platform and is not designed as a production system. This book, providing specific installation instructions, is the second of three volumes. The first volume describes the general concepts of zPDT and a syntax reference for zPDT commands and device managers. The third volume discusses more advanced topics that may not interest all zPDT users. The IBM order numbers for the three volumes are SG24-7721, SG24-7722, and SG24-7723.
The systems discussed in these volumes are complex, with elements of Linux (for the underlying PC machine), z/Architecture® (for the core zPDT elements), System z I/O functions (for emulated I/O devices), and z/OS® (providing the System z application interface), and possibly with other System z operating systems. We assume the reader is familiar with the general concepts and terminology of System z hardware and software elements and with basic PC Linux characteristics.

System z Personal Development Tool: Volume 4: This IBM® Redbooks® publication describes the usage of Coupling Facility (CF) functions with the IBM System z® Personal Development Tool (zPDT). It describes the System z Coupling Application Developer

Controlled Distribution, which is a Parallel Sysplex® "starter system" based on the AD-CD package and lists the exact steps taken to turn the normal AD-CD z/OS® system into a Parallel Sysplex base. This document assumes the reader is familiar with basic zPDT usage and terminology, with z/OS, with the z/OS AD-CD system, with basic z/VM® usage, and with general Parallel Sysplex concepts. It is not intended as an introduction to any of these topics.



Server Time Protocol Planning Guide: Server Time Protocol (STP) is a server-wide facility implemented in the Licensed Internal Code (LIC) of the System z10 Enterprise Class (z10 EC), System z10 Business Class (z10 BC), IBM System z9 Enterprise Class (z9 EC), System z9 Business Class (z9 BC), zSeries z990 and z890 servers. It provides improved time synchronization in a sysplex or non-sysplex configuration. This document is intended for infrastructure architects and system programmers who need to understand the IBM STP functions . Readers are expected to be generally familiar with System z technology and terminology. The book provides planning information for Server Time Protocol functions and associated software support. For more detailed installation information, refer to the companion IBM Redbook, Server Time Protocol Implementation Guide, SG24-7281.

Server Time Protocol Implementation Guide: Server Time Protocol (STP) is a server-wide facility that is implemented in the Licensed Internal Code (LIC) of the IBM® System z10and

IBM System z9®, and IBM eServer™ zSeries® z990 and z890 servers. It provides improved time synchronization in a sysplex or non-sysplex configuration.
This IBM Redbooks® publication will help you configure a Mixed or STP-only Coordinated Timing Network. It is intended for technical support personnel requiring information about:
- Installing and configuring a Coordinated Timing Network
- Using STP functions and operations
- Migrating to a Coordinated Timing Network from various timing environments

Readers are expected to be familiar with IBM System z® technology and terminology. For planning, refer to our companion book, Server Time Protocol Planning Guide, SG24-7280. For information on how to recover your STP environment functionality, refer to Server Time Protocol Recovery Guide, SG24-7380.

Server Time Protocol Recovery Guide: This IBM Redbooks® publication will help you plan for and recover from a failure affecting your Mixed or STP-only Coordinated Timing Network. It is intended for technical support personnel requiring information about:
- Recovery concepts and definitions
- Identifying and taking appropriate actions for recovering from a failed component in a Coordinated Timing Network

Readers are expected to be familiar with IBM System z® technology and terminology. For planning information, refer to our companion book, Server Time Protocol Planning Guide, SG24-7280, and for implementation details refer to Server Time Protocol Implementation Guide, SG24-7281.

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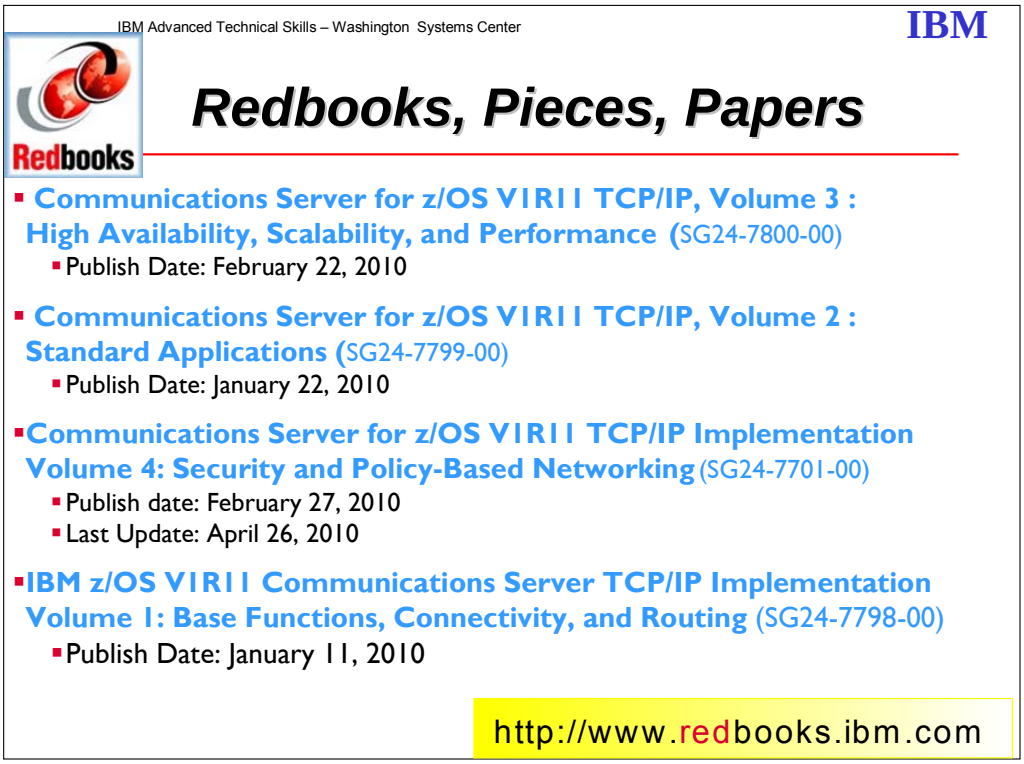

IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 1: Base Functions, Connectivity, and Routing

This IBM Redbooks publication provides an introduction to z/OS Communications Server TCP/IP and discusses the system resolver. It also presents implementation scenarios for TCP/IP Base functions, Connectivity, Routing, Virtual MAC support, and sysplex subplexing. For more specific information about z/OS Communications Server standard applications, high availability, and security, refer to the other volumes in the series.

Table of contents

Chapter 1. Introduction to z/OS Communications Server IP
Chapter 2. The resolver
Chapter 3. Base functions
Chapter 4. Connectivity
Chapter 5. Routing
Chapter 6. VLAN and Virtual MAC support
Chapter 7. Sysplex subplexing
Chapter 8. Diagnosis
Appendix A. IPv6 support
Appendix B. Additional parameters and functions
Appendix C. Examples used in our environment
Appendix D. Our implementation environment

IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 2: Standard Applications
This IBM Redbooks® publication provides useful implementation scenarios and configuration recommendations for many of the TCP/IP standard applications that z/OS Communications Server supports. For more specific information about z/OS Communications Server standard applications, high availability, and security, refer to the other volumes in the series:
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 1: Base Functions, Connectivity, and Routing, SG24-7798
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 3: High Availability, Scalability, and Performance, SG24-7800
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 4: Security and Policy-Based Networking, SG24-7801

For comprehensive descriptions of the individual parameters for setting up and using the functions described in this book, along with step-by-step checklists and supporting examples, refer to the following publications:
-- z/OS Communications Server: IP Configuration Guide, SC31-8775
-- z/OS Communications Server: IP Configuration Reference, SC31-8776
-- z/OS Communications Server: IP User's Guide and Commands, SC31-8780
This book does not duplicate the information in those publications. Instead, it complements them with practical implementation scenarios useful in your environment. To determine at what level a specific function was introduced, refer to *z/OS Communications Server: New Function Summary*, GC31-8771. For complete details, we encourage you to review the documents referred to in the additional resources section at the end of each chapter.
Table of contents
Chapter 1. The syslog daemon
Chapter 2. TN3270E Telnet server
Chapter 3. File Transfer Protocol
Chapter 4. Simple Network Management Protocol
Chapter 5. IP printing
Chapter 6. INETD
Chapter 7. z/OS mail servers
Chapter 8. z/OS UNIX Telnet server
Chapter 9. Remote execution
Chapter 10. Domain Name System
Appendix A. Environment variables
Appendix B. Sample files provided with TCP/IP
Appendix C. Configuration files: TN3270E stand-alone started task scenario
Appendix D. Multiple TN3270E Telnet servers and sysplex distribution using the LUNS and LUNR scenario
Appendix E. FTP and translation tables
Appendix F. Our implementation environment

IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 3: High Availability, Scalability, and Performance
This IBM Redbooks® publication begins with a discussion of Virtual IP Addressing (VIPA), a TCP/IP high-availability approach introduced by the z/OS Communications Server. Then shows how to use VIPA for high availability, both with and without a dynamic routing protocol. Also discussed is a number of different workload balancing approaches to use with the z/OS Communications Server. An explanation of the optimized Sysplex Distributor intra-sysplex load

balancing is provided. This function represents improved multitier application support using optimized local connections together with weight values from extended Workload Manager (WLM) interfaces. Finally, tuning parameters are highlighted and suggested parameter values that we observed to maximize performance in many client installations.

For more specific information about z/OS Communications Server base functions, standard applications, and security, refer to the other volumes in the series:
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 1: Base Functions, Connectivity, and Routing, SG24-7798
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 2: Standard Applications, SG24-7799
-- IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 4: Security and Policy-Based Networking, SG24-7801

For comprehensive descriptions of the individual parameters for setting up and using the functions described in this book, along with step-by-step checklists and supporting examples, refer to the following publications:
-- z/OS Communications Server: IP Configuration Guide, SC31-8775
-- z/OS Communications Server: IP Configuration Reference, SC31-8776
-- z/OS Communications Server: IP User's Guide and Commands, SC31-8780
This book does not duplicate the information in those publications. Instead, it complements them with practical implementation scenarios that can be useful in your environment. To determine at what level a specific function was introduced, refer to z/OS Communications Server: New Function Summary, GC31-8771. For complete details, we encourage you to review the documents referred to in "Related publications" on page 303.

Table of contents
Chapter 1. Introduction to z/OS Communications Server high availability technologies
Chapter 2. Virtual IP addressing
Chapter 3. VIPA without dynamic routing
Chapter 4. VIPA with dynamic routing
Chapter 5. Internal application workload balancing
Chapter 6. External application workload balancing
Chapter 7. Intra-sysplex workload balancing
Chapter 8. Performance and tuning
Appendix A. HiperSockets Multiple Write
Appendix B. Our implementation environment

IBM z/OS V1R11 Communications Server TCP/IP Implementation Volume 4: Security and Policy-Based Networking
Table of contents
Part 1. SAF-based security
Chapter 1. RACF demystified
Chapter 2. Protecting network resources
Part 2. Managing security
Chapter 3. Certificate management in z/OS
Part 3. Policy-based networking
Chapter 4. Policy agent
Chapter 5. Central Policy Server
Chapter 6. Quality of Service

Chapter 7. IP filtering
Chapter 8. IP Security
Chapter 9. Network Security Services for IPSec Clients
Chapter 10. Network Security Server for WebSphere DataPower appliances
Chapter 11. Network Address Translation traversal support
Chapter 12. Application Transparent Transport Layer Security
Chapter 13. Intrusion Detection Services
Chapter 14. IP defensive filtering
Chapter 15. Policy-based routing
Part 4. Application-based security
Chapter 16. Telnet security
Chapter 17. Secure File Transfer Protocol
Appendix A. Basic cryptography
Appendix B. Telnet security advanced settings
Appendix C. Configuring IPSec between z/OS and Windows
Appendix D. zIIP Assisted IPSec
Appendix E. z/OS Communications Server IPSec RFC currency
Appendix F. Our implementation environment

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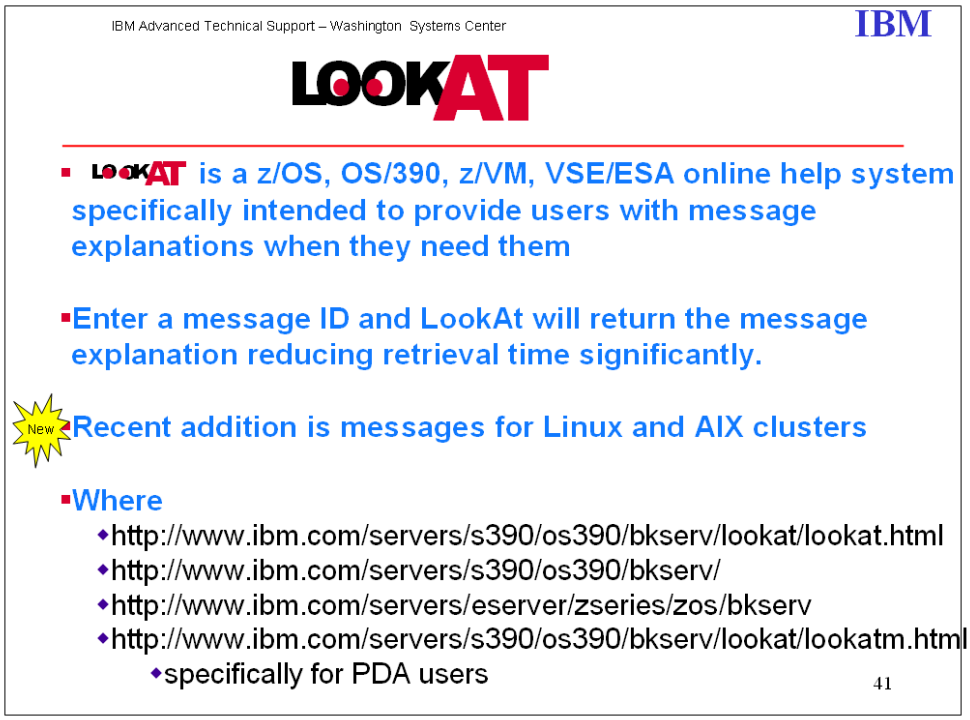

Starting with LookAt V2.12 a new feature has been added to give you even more function with this S/390 message portal. In the event the message ID for which you are seeking more information is not found by LookAt, an automatic bookshelf search will be conducted on the Messages and Codes Bookshelf at the version/release level that you selected from the pull down on the LookAt main page.

LookAt support includes z/OS 1.2 through the latest release, z/VM V4R3 through the latest release, and VSE/ESA V2R5 through the current release. If you select a release prior to the level listed, you will be passed directly to a bookshelf search at that version/release level for your message ID. If you select a level in the list, LookAt will attempt to pinpoint your message ID in the correct publication and open to the exact spot.

Some publications in the early stages of LookAt support may not be LookAt-enabled. This is why the bookshelf search is offered - to help you find the information you need whether or not the publication is LookAt enabled.

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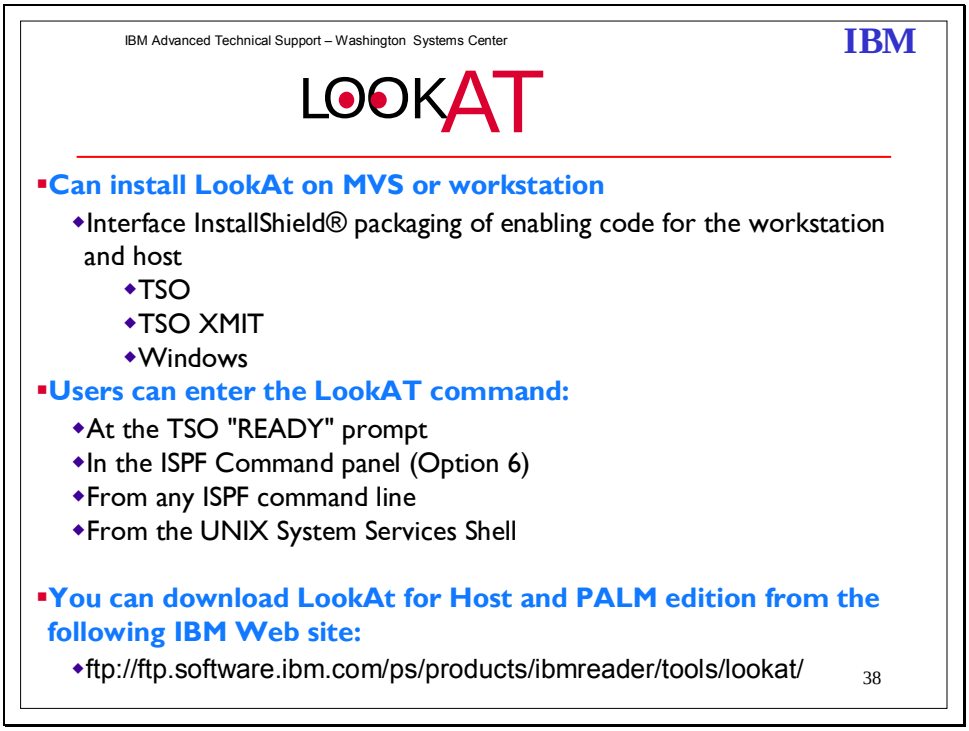

LookAt, is a tool that lets you look up IBM messages quickly and easily on Microsoft Windows, z/OS, OS/390, Palm™ VIIx, and the Web, without having to know their origins. (See z/OS Hot Topics Newsletter #5, August 2001,GA22-7501-01 and z/OS Hot Topics Newsletter #6, February 2002,GA22-7501-02.)

Using the simple command, LOOKAT, on your host system, you can retrieve the explanation and any other information associated with any message you might receive on the host. It uses BookManager READ/MVS and the messages and codes books to locate and display message information. LOOKAT is a Rexx EXEC that runs under TSO.

Locate the LookAt code. You can find it in either of the following locations:

A direct link to the LookAt FTP site has been added to the LookAt home page. This should help you access this site to download the LookAt code that will run on your OS/390, z/OS, or z/VM host systems.
From this IBM Web site:

ftp://ftp.software.ibm.com/ps/products/ibmreader/tools/lookat

Don't have a Web connection nearby? It doesn't matter! Have a Palm™VIIx in your pocket? Great! Because now you can LookAt messages wherever you happen to be.

LookAt is now easier to install!
LookAt now includes an InstallShield® interface that installs the program files on your workstation and customizes your LookAt profile. It also keeps track of the files for you, and automatically replaces them when you install an updated version of LookAt. So, instead of

copying and updating files by hand, the installation program does it for you in a fraction of the time. The Windows version even checks to see whether you are running the IBM Object REXX for Windows Runtime Library, and can launch the REXX Runtime Library installation program for you.

You can install LookAt on your MVS system or on your workstation. In both cases, the installation program copies the LookAt program files to your workstation. There are three versions of the installation program: TSO, TSO XMIT and Windows. They are available on the disc containing the LookAt code in IBM's Online Library Collection for OS/390 for March 2003 or later, or z/OS for June 2003 or later. You can also find them on the LookAt FTP site: ftp://ftp.software.ibm.com/ps/products/ibmreader/tools/lookat/.

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LOOKAT

- **LookAt Mobile Edition**
  - Access message information from anywhere using your wireless handheld device
  - Works with
    - PocketPC
    - Palm OS
    - Linux handhelds

- **Add LookAt to Mozilla Firefox search bar**
- **Link to Twitter**
- **Add as a Widget in Lotus Notes 8 sidebar**
- **Search "APAR for *message id*"**

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Adding LookAt to the Mozilla Firefox search bar
If you use LookAt often and would like to add it to the Mozilla Firefox search bar it is now possible. Doing so is a quick two step process.
First, install the Add to Search Bar plug-in for Firefox:

1. Open your Mozilla Firefox Web browser.
2. Go to the web page that allows you to install the Add to Search Bar plug-in into your Firefox location bar by clicking here: Add Search Bar plug-in.
3. Install the Add to Search Bar plug-in by clicking Add to Firefox. In the confirmation window, click Install Now. **Note:** The Add to Search Bar plug-in works with Firefox 2.0 and above and needs to be installed only once.
4. After the plug-in is installed, restart Firefox to make the plug-in available.

Next, add the LookAt Web site to your Firefox search bar:

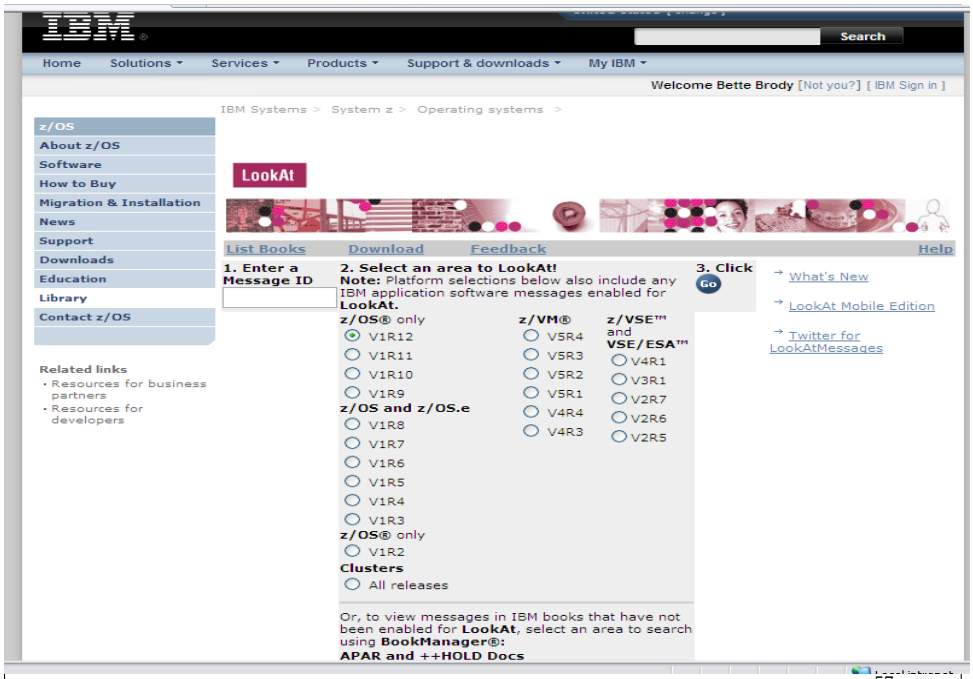
1. Go to the LookAt Web page by clicking on the the following link: LookAt Web page.
2. Right-click in the Message ID input box.
3. From the list of options, select Add to Search Bar.
4. In the confirmation window, click OK to make LookAt active on your Firefox search bar

LookAt can be added as a Widget in the Lotus Notes 8 sidebar
Lotus Notes 8 allows the user to add widgets in the My Widgets sidebar. This new feature will all

users to perform business actions in a quick and efficient way. These widgets can be standalone or launched from Live Text in Lotus Notes documents. If you use Lotus Notes 8, make sure to add LookAt as a widget so that it will always be at your fingertips.

Link to Twitter has been included on the LookAt home page!
The LookAt home page has been updated to include a link to Twitter so that you can share your knowledge or ask questions in regards to message explanations for IBM z/OS, z/VM, z/VSE and Clusters through the use of real-time feed. Once you sign up for an account with Twitter, you can do a search for LookAtMessages and subscribe to it as a blog to follow. If you have any further questions in regards to the way Twitter works, you can go to their website and check out the sections for "About Us" and "Blog".

APAR Search: Now you can perform a search on an APAR to a message. For example, if you look up message IEE459I, you get back the message details for that message. Let's say when you look up the message, you realize some of the details might not be as up-to-date as they should be. If that is the case, you can do a search on "apar for IEE459I". If an APAR happens to be associated with that message, the APAR information also appears. As a reminder, messages can be searched from either the LookAt Mobile Edition or from the LookAt homepage at the following Web site: ibm.com/systems/z/os/zos/bkserv/lookat/



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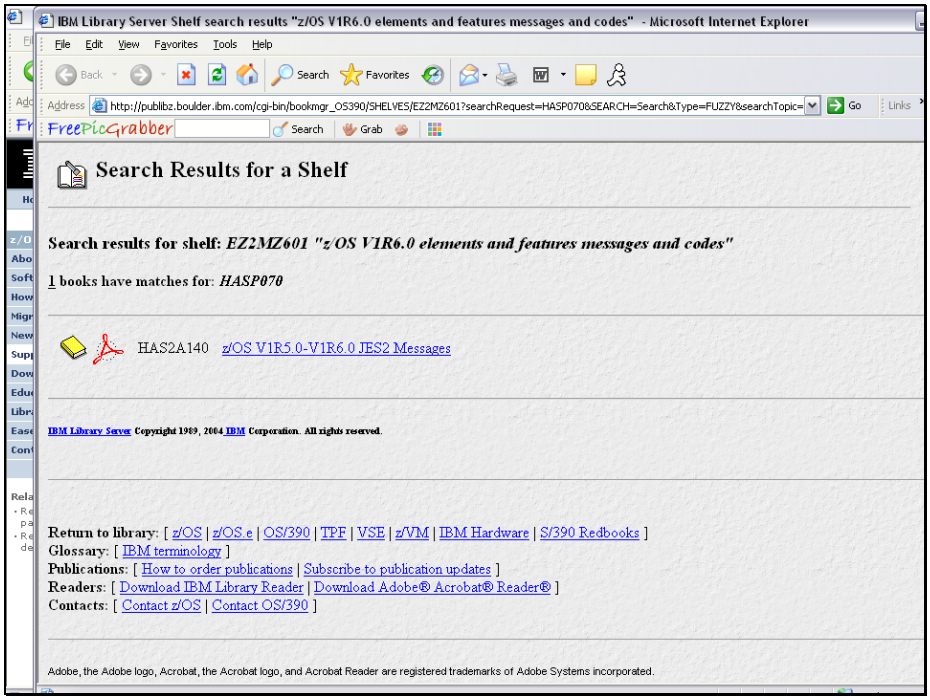
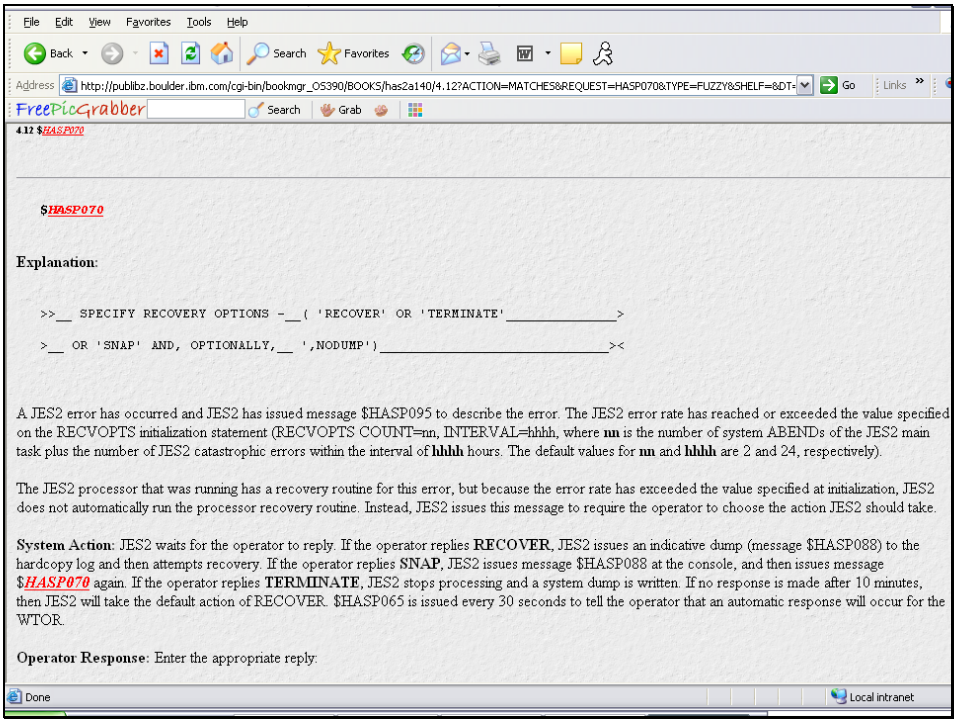
In the event the message ID for which you are seeking more information is not found by LookAt, an automatic bookshelf search will be conducted on the OS/390 Messages and Codes Bookshelf at the version/release level you selected from the pull down on the LookAt main page.

The "message ID" entered can be one of the following:
The complete message ID for a message to see a specific message. Or "APAR for *message-id*"

Part of a message ID with an asterisk (*) as a wild-card character if you don't know the entire ID or if you want to see a set of related message IDs. The "*" can represent zero or more character positions. You can place a wild-card at the beginning, in the middle, or at the end of a message ID. However, we do not recommend putting an "*" at the beginning of an ID as it will probably return a very large number of possible combinations. You can use more than one wild-card character in a message ID. As an example, try: $HASP*71

A "Latest Alerts" box will appear on the LookAt home page whenever there is a significant change or addition to LookAt that requires special attention on your part. These alert boxes will include the date the alert was originally issued and a link to a "LookAt Alerts" page, which will describe the changes. Alert boxes will be retained for a period of 30 days from the date of issue and then be removed. The information in the alerts will be retained in "LookAt News" for future reference.





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New

Publication News – z/OS 1.12

- **New Books**
  - *IBM z/OS Management Facility, SA38-0652*
  - *IBM Tivoli Directory Server Messages and Codes for z/OS, SA23-2262*
- **Changed Books for z/OS 1.12**
  - *z/OS Support for Unicode: Using Unicode Services* has been retitled to *z/OS Unicode Services User's Guide and Reference.*
- **Deleted books for z/OS 1.12**
  - *z/OS MVS™, JES2 and JES3 Data Areas*, will not be produced as formal books, but will be posted to the z/OS Library Web site.
    - *z/OS MVS™ Data Areas*, Volumes 1–6
    - *z/OS JES2 Data Areas*, Volumes 1–5
    - *z/OS JES3 Data Areas*, Volumes 1–3

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New

Publication News – z/OS 1.11

- **New Books**
  - *z/OS V1R11 Communications Server: SNA ACF/TAP Trace Analysis Handbook (GC23-8588)*
  - *System z9 and eServer zSeries Open Systems Adapter-Express Integrated Controller 3215 Support (SA23-2247)*
- **Changed Books for z/OS 1.11**
  - *DFSMSdss Storage Administration Guide* has been retitled to *DFSMSdss Storage Administration.*
  - *DFSMShsm Storage Administration Guide* has been retitled to *DFSMShsm Storage Administration.*
  - *DFSMS Storage Administration Reference* has been retitled to *DFSMSdfp Storage Administration.* Additionally, some information from this book has been moved:
    - DFSMSdss section (Part 2) is moved into *DFSMSdss Storage Administratio*
    - DFSMShsm section (Part 3) is moved into *DFSMShsm Storage Administration.*
    - DFSMSdfp section (Part 1) remains in the current book, *DFSMSdfp Storage Administration*
- **Deleted books for z/OS 1.11**
  - *C/C++ Legacy Class Libraries Reference,* SC09-7652.
  - *IBM Open Class Library Transition Guide,* SC09-4948.
  - *z/OS Integrated Security Services LDAP Client Programming,*SC24-5924
  - *z/OS Integrated Security Services LDAP Server Administration and Use,*SC24-5923

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Publication News

- **Latest Publications**
  - http://www.ibm.com/servers/eserver/zseries/zos/bkserv/
  - Links to the latest editions of publications when an edition of a publication becomes available superseding the edition available on a current CD collection kit bookshelf
- **z/OS Hot Topics Newsletter**
  - Obtain from z/OS Library
  - Published in February and August
  - New issue February 2011
  - New Hot Spotlight
    - Features web articles not in the latest Newsletter

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Information Center

- **Information Centers are the new IBM strategic mechanism for delivering product documentation**
- **z/OS R11 Delivered using the IBM Eclipse Help System framework**
  - The content of the z/OS Information Center is identical to what is in the traditional BookManager and PDF formats, however the presentation may differ to some degree
- **Information centers are strategic, IBM will continue investing in enhancements. Over time, the degree of search capability will be refined.**

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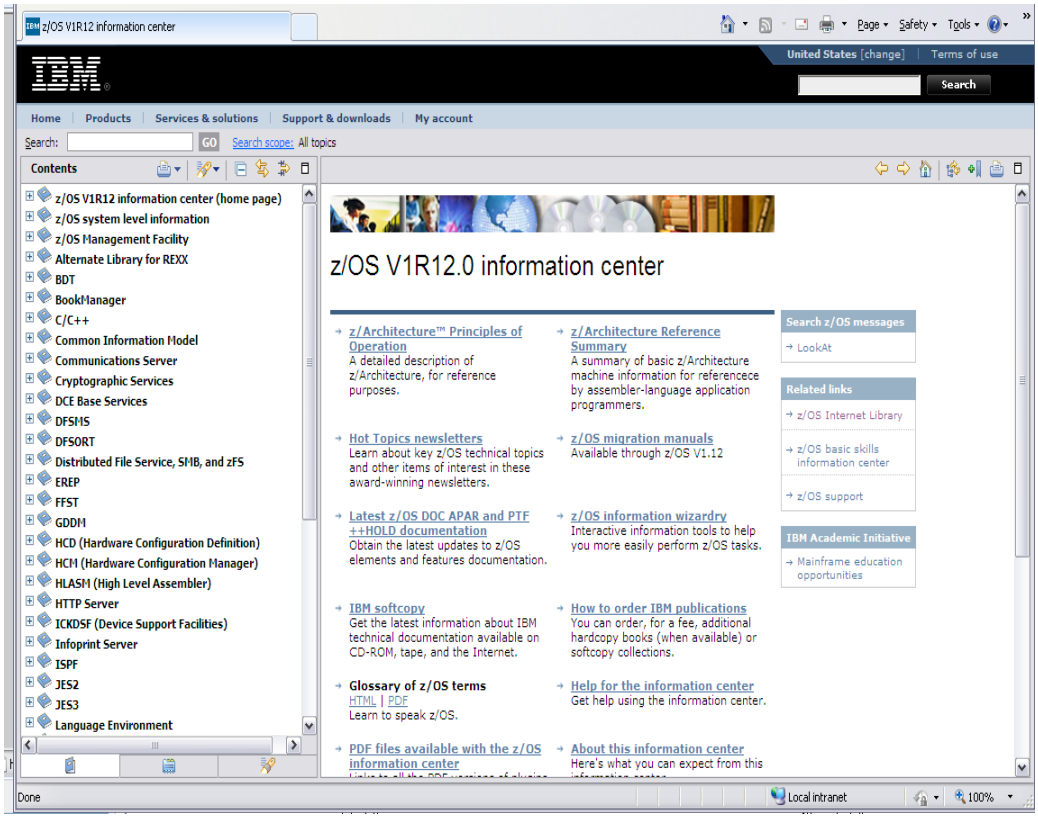
For the first time IBM is offering z/OS product documentation in an information center, delivered using the IBM Eclipse Help System framework. The content of the z/OS V1R9, z/OS V1R10 and V1R11 Information Center (information for z/OS base elements and optional features) is identical to what is in the traditional BookManager and PDF formats, however the presentation may differ to some degree.

Information Centers are the new IBM strategic mechanism for delivering product documentation. Some advantages are:
They are indexed by Google and other internet search engines, so locating information should be easier.

You can create custom search scopes that include only the information you need for a particular task or job role.

Because information centers are strategic, IBM will continue investing in enhancements. Over time, the degree of search capability will be refined.

A hot link to the z/OS Information Center for z/OS release 1.9 – 1.12 is on the z/OS Book Serv web page.
http://www-03.ibm.com/systems/z/os/zos/bkserv/



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Information Centers

- **Advantages:**
  - Are Internet friendly (easily accessed by Google)
  - Are non-proprietary (HTML and XML)
  - Can use just compressed HTML and navigation maps
  - Can take advantage of growing technologies (Semantic Web)
  - Can easily incorporate
    - Interactive elements wizards calculators, dynamic tables multimedia
  - Is more likely to be used interactively with a system
  - Have extensible function due to plug-in architecture
  - HTML article based rather than book-based so information can be more easily combined for solutions
- **Considerations for z/OS customers**
  - Information will no longer be available in the green screen native z/OS environment.
  - Primary delivery will be the internet/intranet through a web browser
  - No LookAt or hand-held support yet

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Did you know?

- z/OS and z/OS.e DOC APAR and PTF ++HOLD Documentation (Web only)
- **Updated weekly (with closures from prior week)**
  - DOC APARs and ++HOLD for documentation changes from PTF cover letters
  - Facilitates:
    - Searching for changes (IBM BookManager BookServer Search facility)

http://publibz.boulder.ibm.com/cgi bin/bookmgr_OS390/BOOKS/ZIDOCMST/CCONTENTS

Or from the z/OS library page:

Latest z/OS DOC APARs and PTF ++HOLD DOC data

Obtain the latest updates to z/OS elements and features documentation.

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This online collection of DOC APARs and ++HOLD for documentation changes from PTF coverletters can make it easier for you to obtain the latest updates to the z/OS library. The APARs are listed according to their closing date. APARs closed most recently will appear first. IBM has gathered these updates so you can:

- Search all changes using the IBM BookManager BookServer Search facility
- Print a documentation update
- Obtain weekly updates of this information

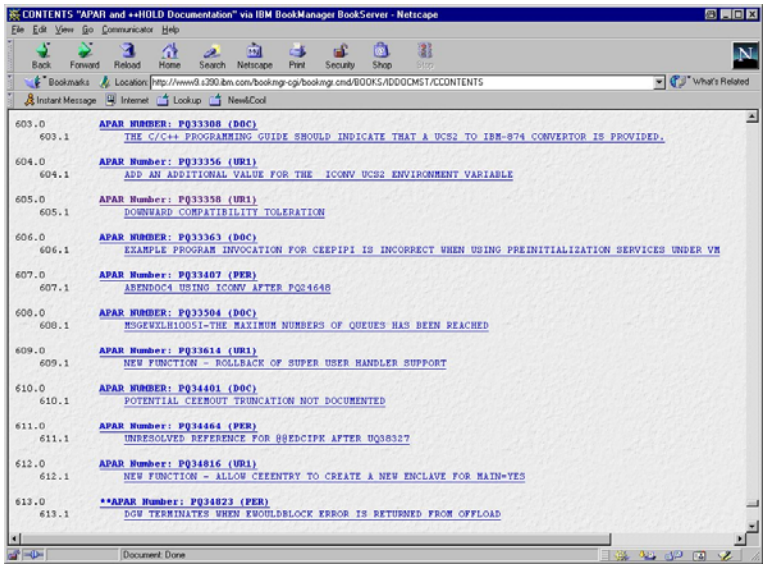
Each APAR lists:

APAR Number
Closing Date
Closing Code
Failing Component
Associated PTF number
Problem Summary
Problem Conclusion

All severity 1 APARs and DOC APARs considered high impact are identified with two asterisks (**) prior to the APAR number in the heading. For example:

**APAR Number: OW37334 (PER)

Sample List



You can get to this information via the book serv web site or from the z/OS home page.

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z/OS Basics Textbooks

- **z/OS Basics (SG24-6366-01) – *Updated August 24, 2009***
  - An Introduction to mainframe computing
  - Overview of z/OS environment
  - Developed for the z/OS Academic curriculum
- **z/OS Networking Basics**
  - Concepts of mainframe-based data communications
  - Methods for implementing TCP/IP and SNA on the z/OS operating system
  - Basic skills in network operations, security, and problem determination

For z/OS Basics:
- **http://www.redbooks.ibm.com/redbooks/pdfs/sg246366.pdf**

For Networking Basics:
- **http://publibz.boulder.ibm.com/zoslib/pdf/znetwork.pdf**

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The *z/OS Basics* provides students information on systems technology with the background knowledge and skills necessary to begin using the basic facilities of a mainframe computer.

For optimal learning, students are assumed to have successfully completed an introductory course in computer system concepts, such as computer organization and architecture, operating systems, data management, or data communications. They should also have successfully completed courses in one or more programming languages, and be PC literate.

Note that this text can also be used as a prerequisite for courses in advanced topics such as compiler algorithms, or for internships and special studies.

Others who will benefit from this text include data processing professionals who have experience with non-mainframe platforms, or who are familiar with some aspects of the mainframe but want to become knowledgeable with other facilities and benefits of the mainframe environment.

When moving through this text, instructors are encouraged to alternate between text, lecture, discussions, and hands-on exercises. The instructor-led discussions and hands-on exercises are an integral part of the learning experience, and can include topics not covered in this text.

After reading this text, students will have received:

- A general introduction to mainframe concepts, usage, and zSeries® architecture
- A comprehensive overview of z/OS®, a widely used mainframe operating system
- An understanding of mainframe workloads and an overview of the major middleware applications in use on mainframes today
- The basis for subsequent course work in more advanced, specialized areas of z/OS, such as system administration or application programming.

This text is organized in four parts, as follows:

_ **Part 1. "Introduction to z/OS and the mainframe environment"** provides an overview of the types of workloads commonly processed on the mainframe, such as batch jobs and online transactions. This part of the text helps students explore the user include TSO/E and ISPF, UNIX® interfaces, job control language, file structures, and job entry subsystems. Special attention is paid to the users of mainframes and to the evolving role of mainframes in today's business world.

_ **Part 2. "Application programming on z/OS"** introduces the tools and utilities for developing a simple program to run on z/OS. This part of the text guides the student through the process of application design, choosing a programming language, and using a runtime environment.

_ **Part 3. "Online workloads for z/OS"** examines the major categories of real time workloads processed by z/OS, such as transaction processing, database management, and Web-serving. This part of the text includes discussions of network communications and several popular middleware products, including DB2®, CICS®, and WebSphere Application Server®.

_ **Part 4. "System programming on z/OS"** provides topics to help the student become familiar with the role of the z/OS system programmer. This part of the text includes discussions of system libraries, starting and stopping the system, security, and the clustering of multiple systems. Also provided is an overview of mainframe hardware systems, including processors and I/O devices.

Introduction to the New Mainframe: Networking Basics

Part 1: Introduction to networking on the mainframe
Part 2: TCP/IP implementation on the mainframe
Part 3: SNA and SNA/IP implementation on the mainframe
Part 4: Network operations and administration

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Links and Downloads

- **Internet Library and LibraryCenter**
  - http://www-03.ibm.com/systems/z/os/zos/bkserv
- **LookAt**
  - http://www-03.ibm.com/systems/z/os/zos/bkserv/lookat
- **Softcopy Website**
  - http://www.ibm.com/servers/eserver/zseries/softcopy
  - What's New
  - Known problems
- **Softcopy Reader V3.7 for Windows**
  - http://www.ibm.com/software/office/bkmgr/softcopyread.html
- **Softcopy Reader V3.7 for Linux**
  - http://www.ibm.com/support/docview.wss?doc=4000251&org=SW&rs=4
- **Adobe Acrobat**
  - http://www.adobe.com/support/downloads/main.html

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Education

z/OS Basics Skills Info Center
IBM Education Assistant
Parallel Sysplex Training Environment

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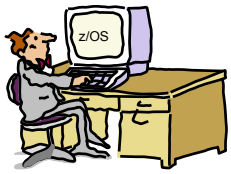
z/OS Basics Skills Info Center

- **Information for "on-the-job" training**
  - z/OS Basics
  - Application Development Basics
  - Systems Programmer Basics
  - Networking Basics
  - Security Basics
  - Currently working on
    - Software maintenance
    - Enhances Security Basics
- **Interactive exercises to reinforce learning and test knowledge**
- **http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp**



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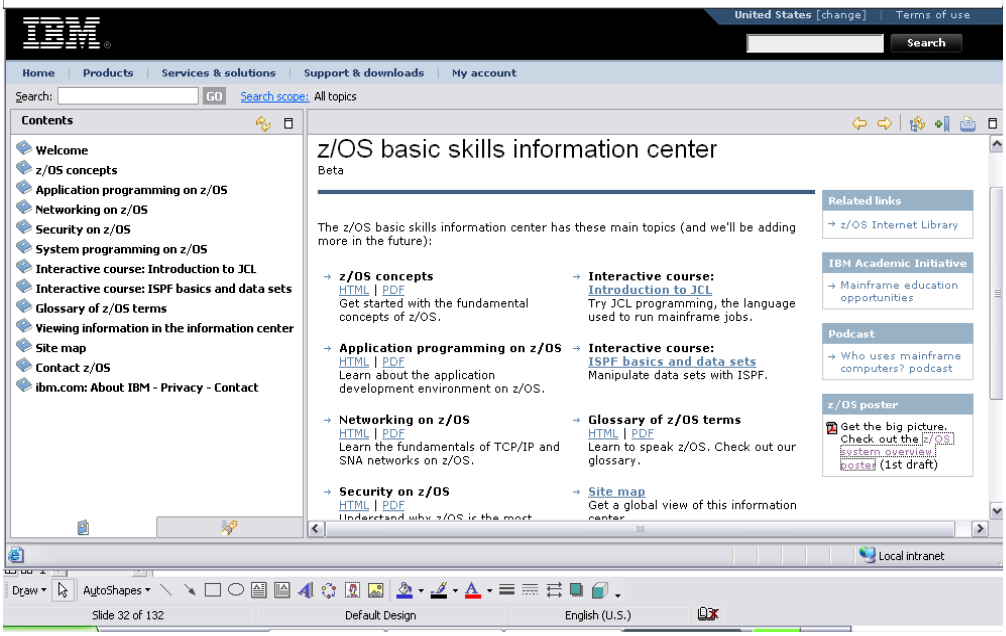
With the information center, users can view, browse, and search online information. The information center is built upon open source software developed by the Eclipse Project (www.eclipse.org). It can display content that has been packaged as an Eclipse documentation plug-in.

The information center uses an embedded web application server to handle content requests in the system. This embedded web server uses a random port to avoid port conflicts between applications.

Product or application developers can create their own documentation plug-ins and integrate them in the information center for viewing by their users. To learn about creating and packaging documentation plug-ins, see the Eclipse Project's Web site: www.eclipse.org

http://publib.boulder.ibm.com/infocenter/zoslnctr/v1r7/index.jsp



From this page you can learn about:

z/OS Concepts: Introduction to z/OS and the mainframe environment

Application Programming: Introduce the tools and utilities for developing a simple program to run on z/OS. The topics that follow guide the student through the process of application design, choosing a programming language, and using a runtime environment.

Networking on z/OS: In this course, we use simplified examples and focus mainly on basic system functions. Hands-on exercises are provided throughout the course to help students explore the mainframe style of computing.
At the end of this course, you will know:

- Concepts of mainframe-based data communications
- Methods for implementing TCP/IP on the z/OS operating system
- Methods for implementing SNA on the z/OS operating system
- Basic skills in network problem determination

z/OS Security: In this part we examine the mechanisms in z/OS that provide security for its users and applications.

Systems Programming on z/OS: In this part we reveal the inner workings of z/OS with discussions of system libraries, change management, and procedures for starting (IPLing) and stopping a z/OS system. This part also includes topics on hardware details and virtualization, and the clustering of multiple z/OS systems in a sysplex.

The **Introduction to JCL** course consists of several units to help you learn about and use JCL on the job.

IBM Advanced Technical Support – Washington Systems Center

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IBM Education Assistant

- **Collection of multimedia educational modules**
- **Modules consist of the following types of content:**
  - Presentations (many with audio) - provide an overview of a product or technology or a more in-depth look at a particular product component or feature.
    - Presentations are available in both Flash and PDF formats
  - Demonstrations - show you how to complete a specific task or configuration (in Flash format) and provide background information to help you understand the options available
  - Tutorials - provide instructions and all files necessary to complete a practice lab scenario in your own environment
  - Additional resources - provide links to relevant external content

http://www-306.ibm.com/software/info/education/assistant

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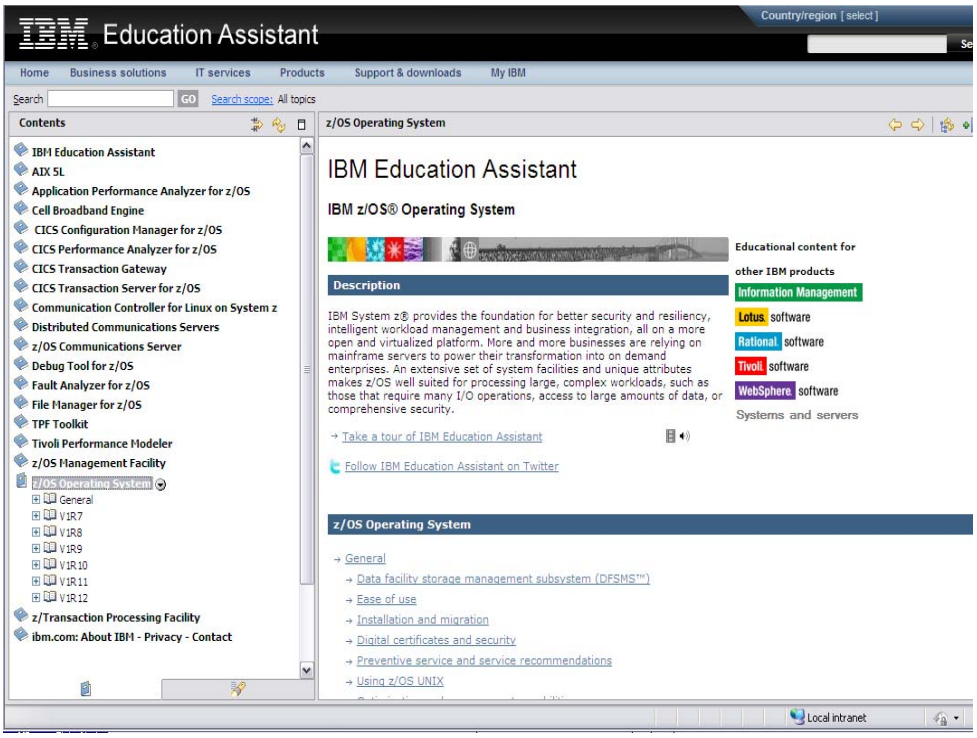

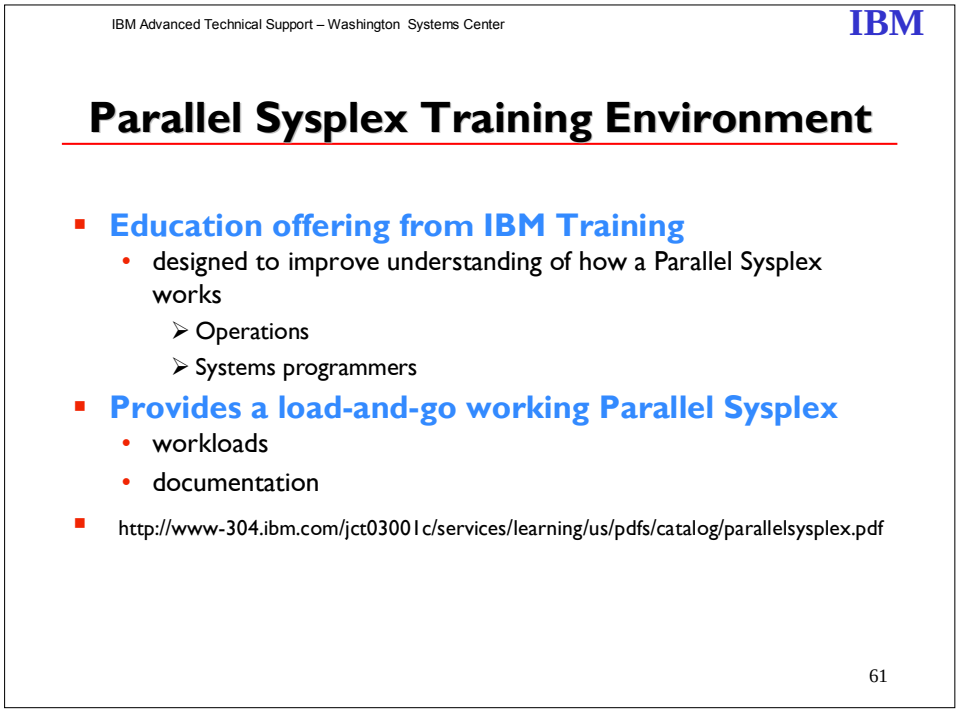

Parallel Sysplex Training Environment
An education offering to augment your Parallel Sysplex training! Now, System Programmers and Operators can have their own "sand box" to play in as they learn and understand, in a risk-free environment, how a Parallel Sysplex works.

What is it?
The Parallel Sysplex Training Environment (PSTE) is an education offering from IBM Training which provides a load-and-go working Parallel Sysplex, complete with workloads and documentation. The offering is designed to improve understanding of how a Parallel Sysplex works, both for Operations personnel and System Programmers. The Parallel Sysplex Training Environment:

- Provides Operators and System Programmers with an environment where they can do destructive testing and do things they would never do in a production or even in a normal test environment
- Provides detailed exercises, stepping the user through various management and failure scenarios related to the use of Coupling Facility structures
- Helps the user understand why things happen the way they do in a Parallel Sysplex.

What are the benefits?
An IBM analysis of multi-system outages indicates roughly 40% of outages are caused by Operator or System Programmer error. It is critical that the people managing the system have a thorough understanding of how the sysplex works. Even in highly automated installations, there will always be a requirement for highly skilled individuals to design the automation and intervene in situations that the automation cannot handle. Because the PSTE provides a real Parallel Sysplex with real z/OS operating systems (no simulations), you can do anything on the PSTE that you could to in a real sysplex.

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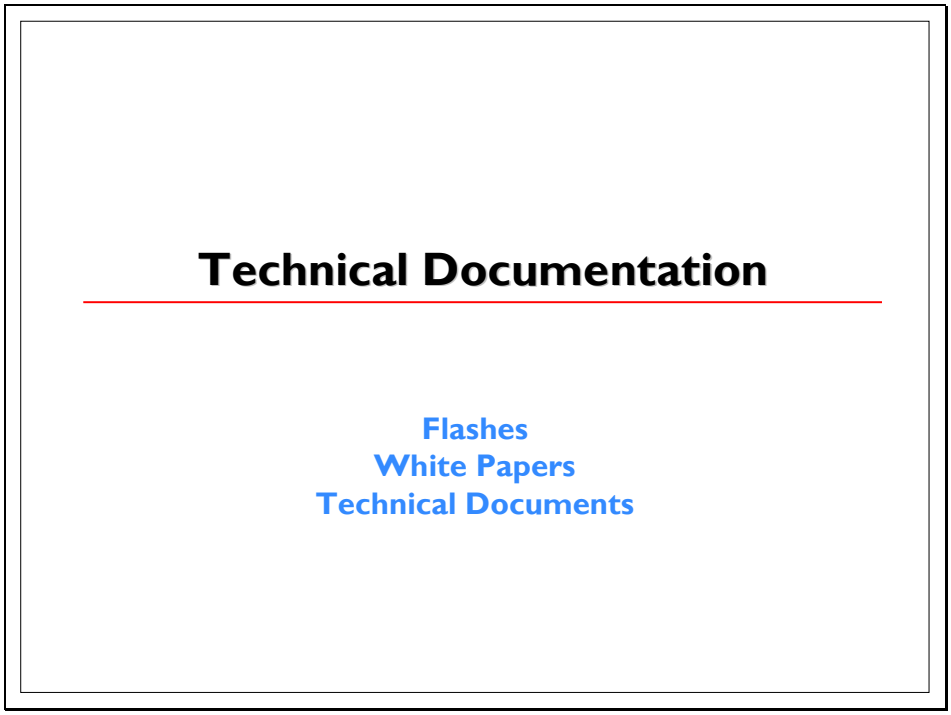
- The PSTE provides excellent descriptions of how things actually work
- The PSTE provides access to new facilities faster than you would normally have, and with minimal work on behalf of the System Programmers
- The PSTE may be used to drive further sysplex exploitation in all your sysplexes
- The PSTE can be used for basic Operator training.



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WSC Flashes

Flash	Title
10736	CCF with PCICC CKDS HCR7770/780 Reencipher problem Cryptographic Support for z/OS V1R10-V1R12 (HCR7780)
10716	Cryptographic Support for z/OS V1R10-V1R12 (HCR7780)
10733	Configuring z/OS to Ensure Successful DASD Swap Using the CRITICALPAGING Function
10731	zFS R11 APAR OA33451 Storage Requirements
10729	Changes to the CSNDSYG API on the Crypto Express3 on zEnterprise 196

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FLASH10736: With the restructuring work implemented in HCR7770 a problem was introduced into the process for reenciphering the CKDS. If performing a reencipher of the CKDS
• on a CCF based machine - z800 (2066) / z900 (2064) or earlier
• that also has a PCICC card (FC #0861) installed
• and running with either HCR7770 (Cryptographic Support for z/OS V1R9-VR11) or HCR7780 (Cryptographic Support for z/OS V1R10-V1R12) some key tokens stored in the CKDS could be reenciphered incorrectly. This flash will describe the environment where the problem may have been introduced, and the steps to recover from the problem.

FLASH10716: The newest version of ICSF, FMID HCR7780, was announced on July 22, 2010 and is scheduled to be generally available on September 10, 2010. On that date it will be available via web download from http://www.ibm.com/systems/z/os/zos/downloads/. This flash will provide some details on the new facility.

FLASH10733: Enable CRITICALPAGING function in DASD Swap environments. IBM DASD Swap environments are Basic HyperSwap and GDPS HyperSwap Manager.

FLASH1073: zFS APAR OA33451 on z/OS V1R11 (PTF UA55765) fixes a performance problem which occurs because of too many storage obtains and releases in zFS.

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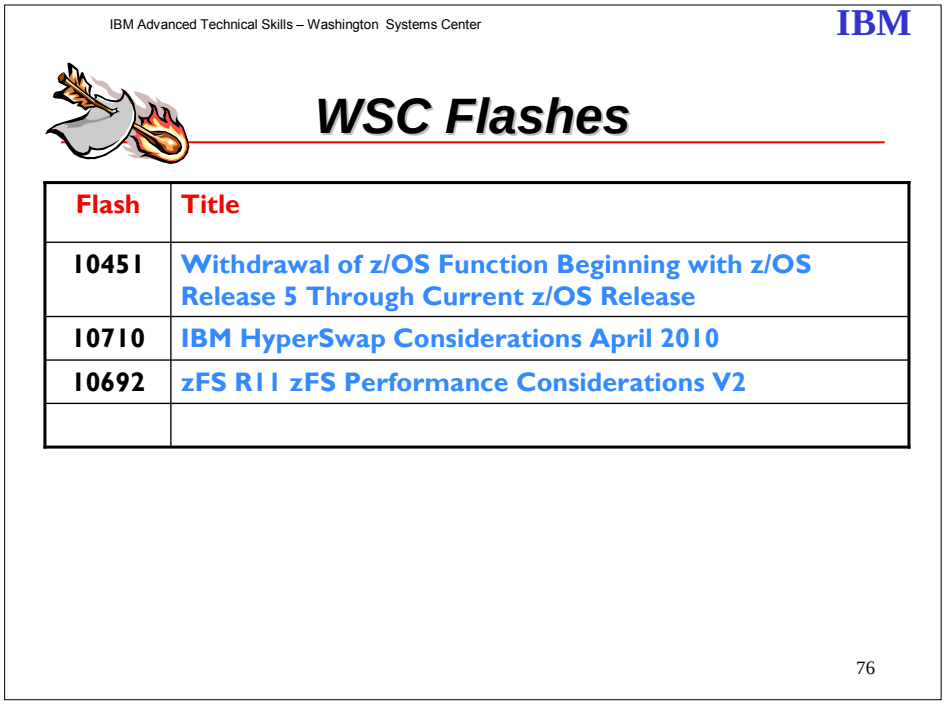
FLASH10729: The Driver 86 microcode that supports the Crypto Express3 card on the zEnterprise 196 introduced a change to the Symmetric Key Generate API which MAY require application changes. This Flash is for account teams and customers that plan to install a zEnterprise as it describes the applications and products that need to be reviewed before migrating to the 196.



FLASH10451: This flash lists those items IBM has announced intention for removal in a specific z/OS release. These items have already been announced in previous IBM z/OS announcement letters. This is a collection of those items being removed. Consideration should be given to this list when planning your migration to a z/OS release.

FLASH10710: This Storage Flash outlines various HyperSwap considerations when deploying HyperSwap with various z/OS Volume types and sizes.

FLASH10692: z/OS Release 11 contains a new feature to enable the zSeries File System (zFS) to run sysplex-aware for zFS read-write mounted file systems. This article outlines the conditions which will enable significant performance and management benefits for the zFS and avoid performance issues. Additionally, enhanced support is provided by APAR OA29619 and is the preferred method of running zFS in a shared file system environment. IBM recommends running zFS with sysplex=filesys on all systems in your z/OS V1R11 shared file system environment, even if you don't want to mount any zFS read-write file systems as sysplex-aware.

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Washington Systems Center flashes, technical papers and presentations all can be found at URL:
www.ibm.com/support/techdocs
How to Subscribe to Flashes:
IBM will publish an e-mail to you based on the product selections made within the MY SUPPORT profile.

The pre-req is that you will need to obtain an IBM Registration (IR) ID and password in order to use this facility. So if you do not have one, you will be guided through obtaining one after you access the website location below, click on MY SUPPORT and/or try to use its "profile" update process.

After logging into My Support at http://www.ibm.com/support/mysupport :

1. select "Customize content" in the left hand navigation bar. This is where you decide on which products you would like see a FLASH notice on.
2. select product family from the "Select a product family" pull down in the center of the page
3. next, select one or all (but at least one), of the topics found under the product family you selected (make the selection by putting a check in the box beside it).
4. scroll to the bottom of the page and click on "Save & return"
5. go to the bottom of the page that you returned to, under the blue bar header of "Select mail preferences", and check the box beside "Yes, you may send me this information by e-mail"
6. click on "Submit"

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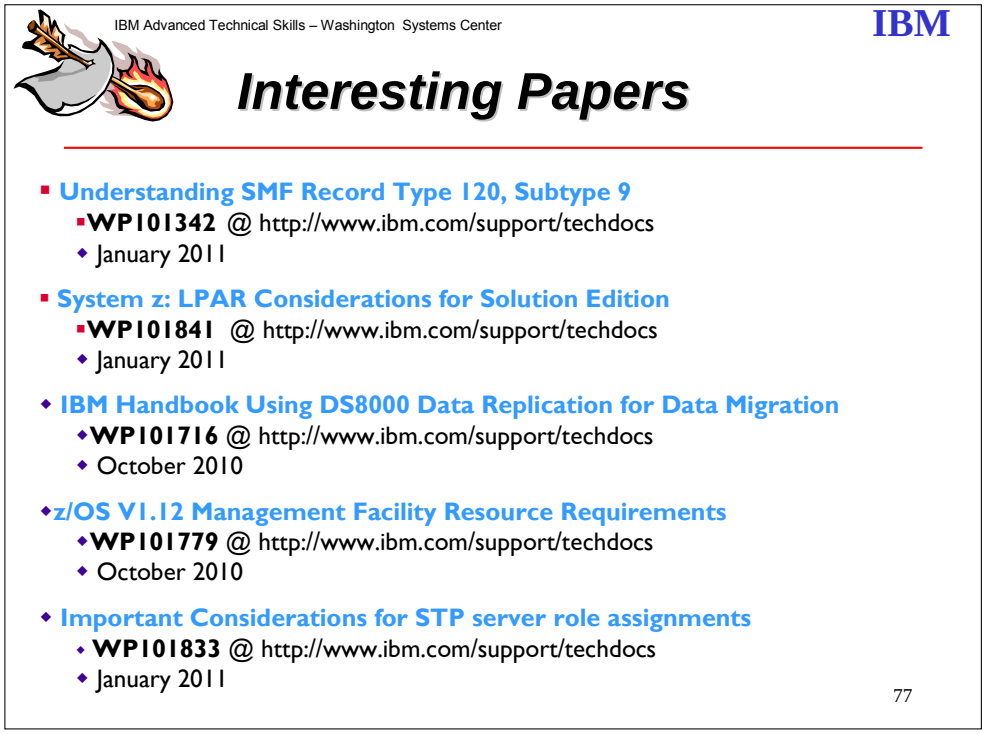

Understanding SMF Record Type 120, Subtype 9: In WebSphere Application Server for z/OS Version 7, we introduce subtype 9, a new subtype that presents a unified picture of the server activity. The subtype 9 record collects most of the data currently spread across the other subtypes, plus new information, such as how much zAAP CPU the server uses in processing a request. WebSphere creates one subtype 9 record for every request that the server processes — for both external requests (application requests) and internal requests, such as when the controller "talks to" the servant regions.

In designing the subtype 9 record, we consulted many z/OS customers. Most of you told us that you would prefer to have all of the server activity data collected in one record. Thus, was born the subtype 9 record, which is intended to provide you with all of the server activity data you need in one place. The other record 120 subtypes still work as before, but we hope you will not need them any longer.

In this IBM White Paper, we take a closer look at the new subtype 9 record. We examine its structure and content, its related operational issues, and explain how you can make the best use of it.

System z: LPAR Considerations for Solution Edition: This document describes the considerations needed to implement IBM z/OS Solution edition in an LPAR environment.

IBM Handbook Using DS8000 Data Replication for Data Migration: This white paper outlines various DS8000 Data Replication functions and methods that can be used when migrating data from an ESS, D6K or DS8K to another DS8K disk subsystem. Also outlines are some recent client data center migration scenarios.

z/OS V1.12 Management Facility Resource Requirements: A new browser based interface for system management. It was first introduced in z/OS V1.11 and runs on z/OS V1.10 and above. It is designed for systems programmers to easily manage z/OS by simplifying administration and day to day operation. It is especially useful for increasing the productivity of new and experienced systems programmers.

Performance measurement data was collected in a laboratory environment with one z/OSMF user and again with 5 users while they executed various management tasks using z/OSMF V1.12. z/OSMF is designed for systems programmers and not a general audience. Therefore the number of concurrent users is expected to be relatively small. The results of these tests are described in this paper.

Important Considerations for STP server role assignments: The recommendations in this White Paper apply only if you have configured a Server Time Protocol (STP) Coordinated Timing Network (CTN) with three or more servers, and have assigned the roles listed below. Recommendations for reassigning STP server roles when any of the assigned role servers has a planned or unplanned outage are documented.

NOTE: The recommendations, if not followed, MAY result in all the servers in the CTN becoming unsynchronized, a condition that results in a sysplex wide outage.

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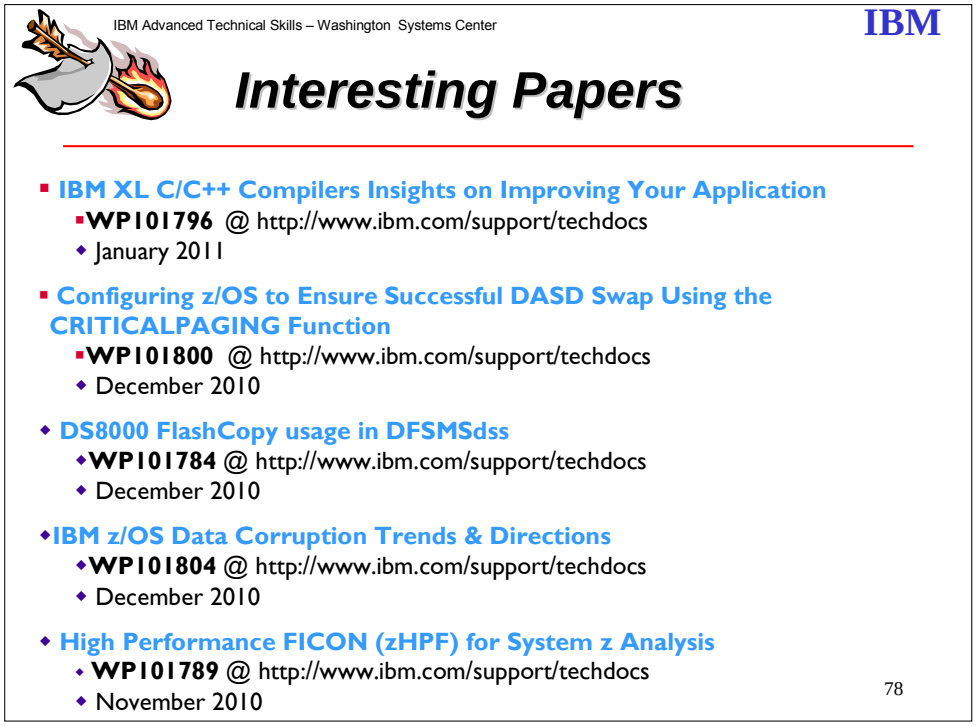


IBM XL C/C++ Compilers Insights on Improving Your Application: This document is for a technical C/C++ application programmer audience and is intended to explain some of the newest performance characteristics of the z/OS® XL C/C++ V1R12 compiler, an optionally priced feature of z/OS V1R12. This document is not meant to be a comprehensive guide to tuning applications and it does not cover runtime/ Language Environment related tuning either.

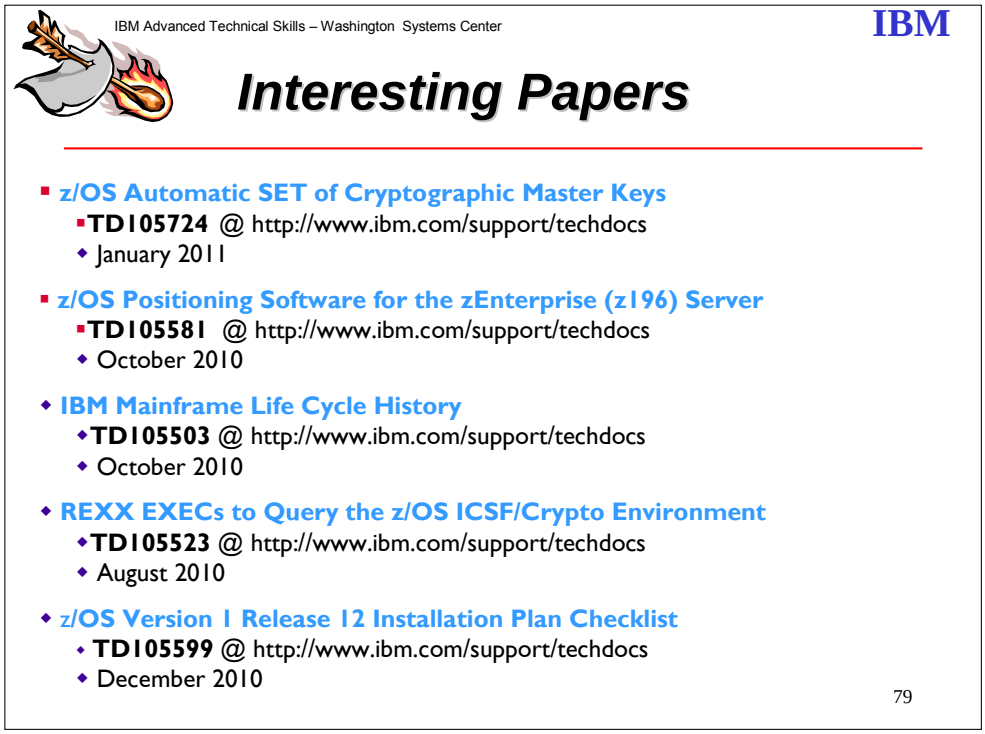
Configuring z/OS to Ensure Successful DASD Swap Using the CRITICALPAGING Function: Many customers use a DASD Swap technology to maximize availability. Typically, one set of DASD is referred to as the primary DASD and the other set referred to as the secondary. If maintenance is required on the primary, a swap to the secondary may be manually initiated. Another benefit of having secondary DASD is the system may swap to the secondary if there is a failure on the primary DASD. The swap technology may not be able to achieve its goal, or a system outage may occur, if a code path critical to the DASD Swap or system function takes a page fault while a DASD Swap is taking place. IBM strongly recommends the CRITICALPAGING function be enabled to strengthen DASD Swap processing. The IBM DASD Swap technologies are Basic HyperSwap and GDPS HypserSwap Manager. Other DASD Swap technologies may also be configured to benefit from the CRITICALPAGING function.

DS8000 FlashCopy usage in DFSMSdss: In this White Paper we want to show some usage examples for FlashCopy in a z/OS environment using DFSMSdss.

IBM z/OS Data Corruption Trends & Directions: This white paper explores current customer trends and directions used to address recovery from various data corruption

scenarios. How can a z/OS customer improve how they perform backups today and in many cases eliminate their existing DB2 and IMS backup windows.

High Performance FICON (zHPF) for System z Analysis: High Performance FICON for System z is a new FICON protocol and system I/O architecture which is optionally utilized for accessing data from the IBM DS8000 Storage Subsystem. zHPF improves the resilience by allow systems to better handle work load spikes and path failures. This paper will explain the High Performance FICON analysis in detail and show if zHPF is feasible and if a channel consolidation is possible for the customer.



z/OS Automatic SET of Cryptographic Master Keys: Current release of ICSF provide a means to automatically SET the Cryptographic Master Keys without requiring a manual CHANGE or SET. This is especially useful when using a TKE to load keys to a Control Domain of a yet unused LPAR.

z/OS Positioning Software for the zEnterprise (z196) Server: IBM zEnterprise System is a first-of-a-kind workload-optimized multi-platform technology offering. The system consists of the IBM zEnterprise 196 (z196) central processor complex (CPC), the IBM zEnterprise Unified Resource Manager, and built-in support for the IBM zEnterprise BladeCenter Extension (zBX) Model 002. The IBM zEnterprise 196 is designed with improved scalability, performance, security, resiliency, availability, and virtualization. The z196 Model M80 provides up to 1.6 times

the total system capacity of the z10 EC Model E64, and all z196 models provide up to twice the available memory of the z10 EC. The zBX deliver an integrated hardware platform spanning System z mainframe and POWER7 technologies. The IBM zEnterprise Unified Resource Manager, delivered with the z196, is designed to deliver end to-end virtualization and management along with the ability to optimize technology deployment according to individual workload requirements.

The software support for the z196 server, like the IBM z10 EC and z10 BC, differs by z/OS release level and is provided by a combination of FMIDs and PTFs.

The z196 servers requires a System z196 Systems Assurance and the Systems Assurance Confirmation Form (filled out by IBM) must be completed before the System z196 will ship. See your IBM Representative for details. Chapter 2 in the z196 Systems Assurance Guide describes all software considerations and can be obtained from your IBM Representative.

IBM Mainframe Life Cycle History: System z mainframe hardware product marketing and service life cycle history since 1994.

REXX EXECs to Query the z/OS ICSF/Crypto Environment: This document provides two REXX EXECs that can query the ICSF environment using the CSFIQF, ICSF Query Facility and CSFIQA, Query Algorithm APIs.

z/**OS Version 1 Release 12 Installation Plan Checklist**: z/OS 1.12 Installation Plan checklist is for installing and migrating to z/OS 1.12 from z/OS release 10 or release 11. To be used as a supplement to existing product publications.

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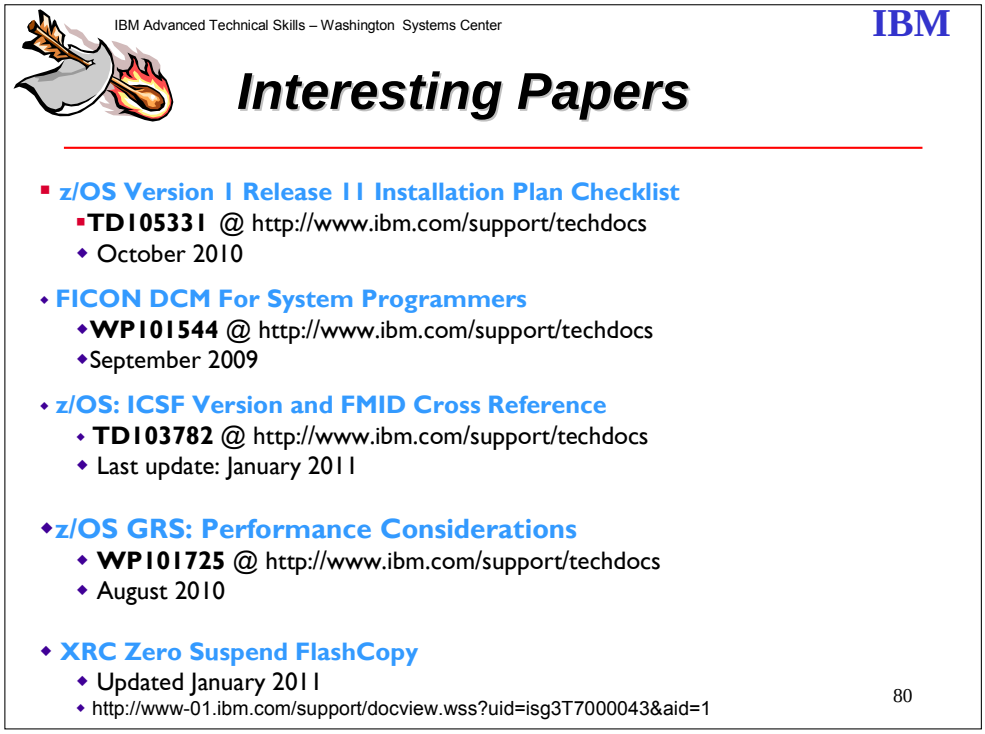


z/OS Version 1 Release 11 Installation Plan Checklist: z/OS 1.11 Installation Plan checklist is for installing and migrating to z/OS 1.11 from z/OS release 9 or release 10. To be used as a supplement to existing product publications.

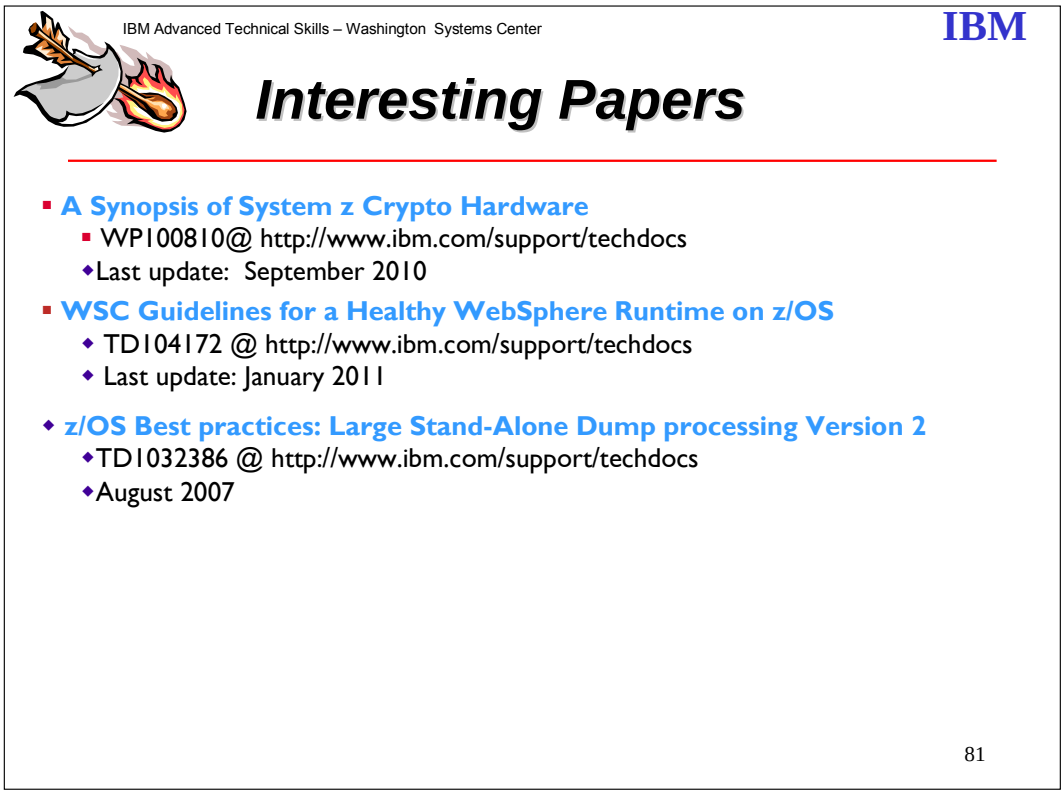
FICON DCM For System Programmers: FICON Dynamic Channel Path Management (DCM) provides the ability for the system to manage FICON channel path assignment dynamically based on current workload conditions and availability characteristics. This document instructs system programs how to setup and manage this environment in their shop.

z/OS: ICSF Version and FMID Cross Reference: ICSF is a component of z/OS and ships with the base product. It is the software component that provides access to the System z crypto hardware. As new hardware becomes available, updates and functionality are added to ICSF outside of the z/OS release cycle. This document provides a history of the ICSF versions, the supported hardware and operating system releases and highlights the new capability within each version, through z/OS 1.12.

z/OS GRS: Performance Considerations: This document is intended to describe how to identify the root cause of performance issues associated with GRS. First, this paper explores the common set of reasons for increases in GRS CPU consumption. Next, the paper examines reasons jobs are "hung" waiting to be granted access to a resource. The paper will also investigate the potential impacts due to delays accessing the ISGLOCK structure or an undersized structure. Information is included on performance impacts to GRS when there are

XCF signaling delays in an environment. Finally, this paper contains suggestions for how to resolve some of the typical performance issues associated with GRS via Case Studies.

XRC Zero Suspend FlashCopy: The Zero Suspend FlashCopy function, provided by GDPS/XRC, provides the ability to FlashCopy XRC secondary devices without interrupting disaster recovery protection. This document describes the JCL needed to invoke the function. For details about invoking the function via GDPS scripts, see the XRC Installation and Customization Guide for the current GDPS release. For details about related messages, see the Zero Suspend FlashCopy Message and Return Code Reference, available from IBM Techdoc T7000043.



A Synopsis of System z Crypto Hardware

The IBM System z cryptographic hardware provides a rich array of encryption capabilities. The functionality available depends on the specific platform and the hardware that has been installed. This document begins with a brief introduction of crypto functions, and issues common to all the platforms, and then provides a synopsis of the System z crypto hardware.

WSC Guidelines for a Healthy WebSphere Runtime on z/OS
This paper is a high-level guide to help you configure WebSphere Application Server (WAS), and improve the management, reliability, security, and performance of your runtime on z/OS. It provides general recommendations based on our experiences and provides a roadmap to other papers for detailed information, with hyperlinks to access them directly on the web.

Included are both the PowerPoint presentation and PDF document to help you access these hyperlinks.

z/OS Best Practices: Large Stand-Alone Dump Processing Version 2
This document defines comprehensive "current best practices" when taking and handling large stand-alone dumps in the z/OS environment. The document focuses on optimizing stand-alone dump data capture and optimizing problem analysis time. This information is critical for large z/OS environments reporting problems to IBM. The ability to handle large stand-alone dumps appropriately will speed IBM problem resolutions.

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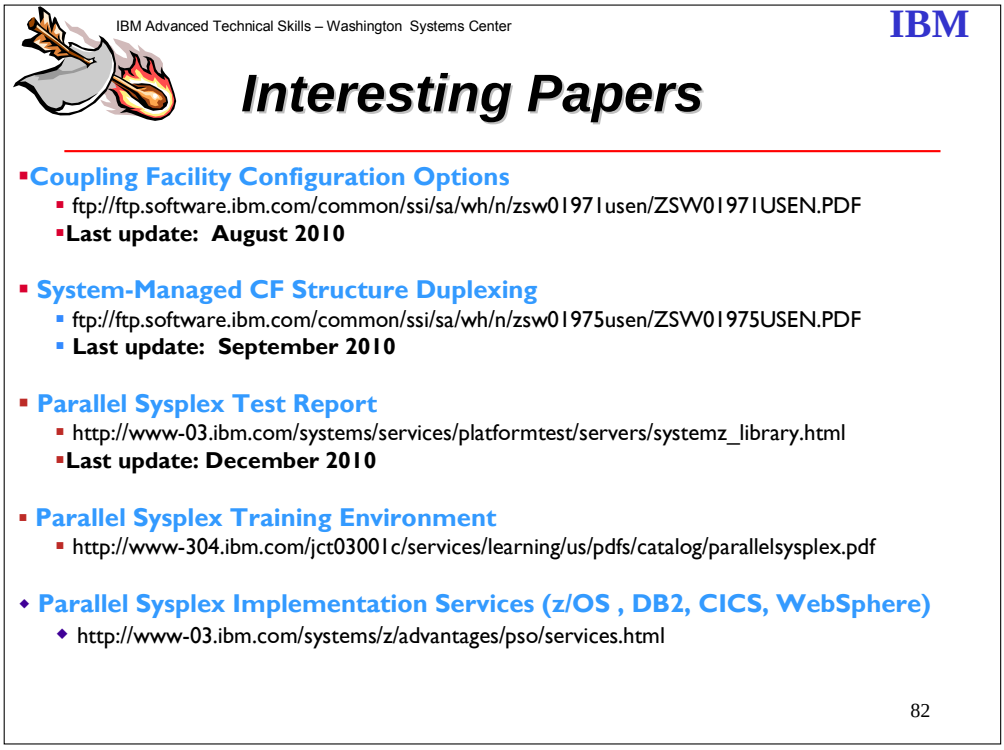

Coupling Facility Configuration Options
Learn how configuration options for the coupling facility can make the most of resource and data sharing with improved availability and performance. In this paper, various *Coupling Facility* technology alternatives will be examined from several perspectives. Characteristic comparisons of each CF option in terms of function, inherent availability, performance and value will be made. We will also look at CF structure placement requirements based on an understanding of CF exploitation by z/OS® components and subsystems.

System-Managed CF Structure Duplexing
Find out how coupling facility duplexing can help you manage your Parallel Sysplex and improve recovery. System-Managed Coupling Facility (CF) Structure Duplexing is designed to provide a general purpose, hardware assisted, easy-to-exploit mechanism for duplexing CF structure data. This can provide a robust recovery mechanism for failures such as loss of a single structure or CF, or loss of connectivity to a single CF, through rapid failover to the other structure instance of the duplex pair.

Parallel Sysplex Test Report: IBM test reports offer information based on IBM experiences with installing, migrating, and testing new releases of z/OS and Linux for System z and various elements, features, and products that run on each.

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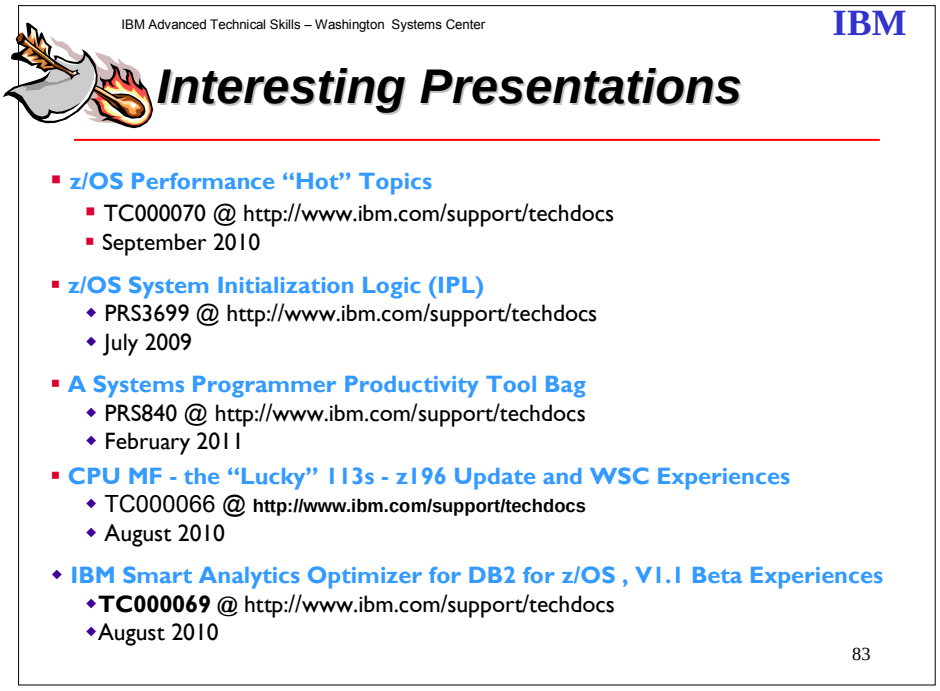
Parallel Sysplex Training Environment
An education offering to augment your Parallel Sysplex training! Now, System Programmers and Operators can have their own "sand box" to play in as they learn and understand, in a risk-free environment, how a Parallel Sysplex works.

IBM Implementation Services for Parallel Sysplex
To assist with the assessment, implementation, operation, and maintenance of a System z Sysplex environment, IBM Global Technology Services is releasing today the IBM Implementation Services for Parallel Sysplex. IBM Implementation Services for Parallel Sysplex is designed with eight selectable modules to help you with your System z Sysplex environment. Each is a stand-alone module that can be individually acquired. The first module is an infrastructure assessment module, followed by seven modules which address the following System z Sysplex disciplines:

1. Infrastructure planning, design, and implementation
2. Availability and performance assessment
3. Configuration and migration assistance
4. Operator training
5. Maintenance strategy
6. Maintenance environment design and implementation
7. Production cut over and deployment planning



z/OS Performance "Hot" Topics: This presentation covers current Hot Topics in System z and the z/OS environment.

z/OS System Initialization Logic (IPL): This presentation describes general processing involved initializing z/OS System from the IPL process until the system is ready to start JES2 or JES3.

A Systems Programmer Productivity Tool Bag: This is a presentation given at SHARE in February 2011. It is designed to point to and describe various information to assist in planning, aid in finding pertinent information, tools which are available to make a systems programmer job a bit easier.

CPU MF - the "Lucky" 113s - z196 Update and WSC Experiences: This document contains a recent SHARE presentation that overviews the CPU Measurement Facility: what it is, how to enable it, why you should use it, along with the latest updates for z10 and zEnterprise 196 (z196). It also covers 2010 WSC performance experiences and uses of CPU MF COUNTERS, and how CPU MF data may be used as an optional "hint" to help characterize your workloads to the latest LSPR workloads with the Relative Nest Intensity (RNI) metric.

IBM Smart Analytics Optimizer for DB2 for z/OS , V1.1 Beta Experiences: This document contains a recent SHARE presentation that provides an overview of the IBM Smart Analytics Optimizer used with DB2 for z/OS V9 on a z10. The overview is followed by ATS WSC Beta experiences with query workloads constructed to explore query offload, data mart definition, data mart loading, and offloaded query performance.

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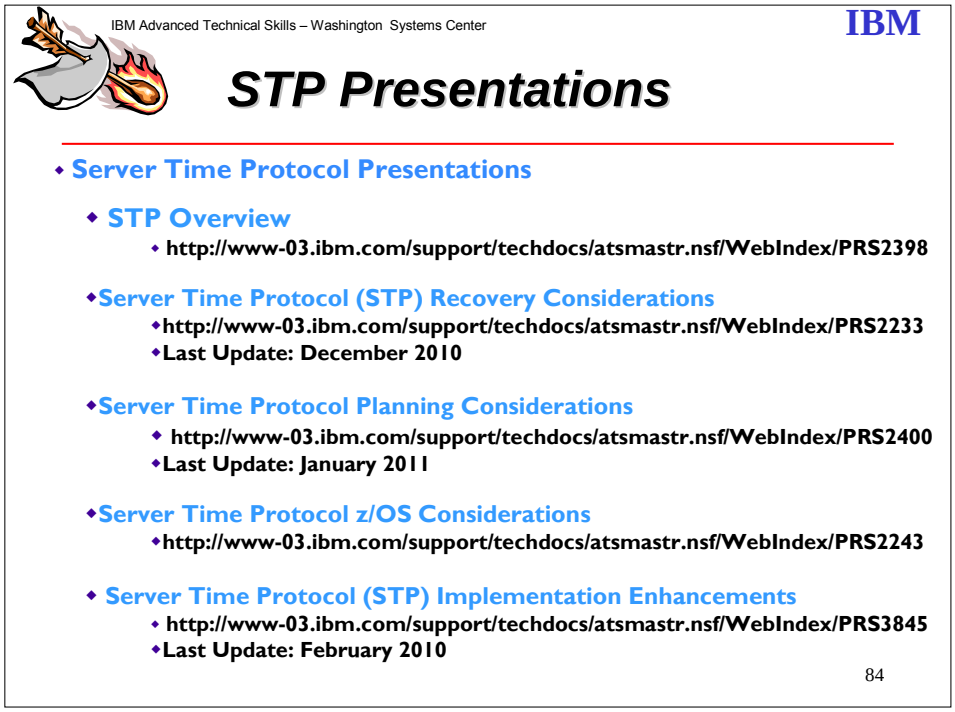

The Server Time Protocol feature is designed to provide the capability for multiple servers and Coupling Facilities to maintain time synchronization with each other, without requiring a Sysplex Timer. The servers and Coupling Facilities that are capable of supporting Server Time Protocol are the z890, z990, and later servers.

Server Time Protocol is a server-wide facility that is implemented in the Licensed Internal Code (LIC) and presents a single view of time to Processor Resource/Systems Manager™ (PR/SM™). STP uses a message-based protocol in which timekeeping information is passed over externally defined Coupling Links - InterSystem Channel-3 (ISC-3) links configured in peer mode, Integrated Cluster Bus-3 (ICB-3) links, Integrated Cluster Bus-4 (ICB-4) links. and Parallel Sysplex InfiniBand (PSIFB) links. These can be the same links that already are being used in a Parallel Sysplex for Coupling Facility (CF) message communication.
By using the same links to exchange timekeeping information and Coupling Facility messages in a Parallel Sysplex, STP can scale with distance. Servers exchanging messages over short distance links such as ICB-3 and ICB-4 are designed to meet more stringent synchronization requirements than servers exchanging messages over long distance links such as ISC-3 (distances up to 100 km, longer distances possible with RPQ 8P2263), where the synchronization requirements are less stringent. This is an enhancement over the current Sysplex Timer implementation, which does not scale with distance.

The STP design has introduced a new concept called Coordinated Timing Network (CTN). A Coordinated Timing Network (CTN) is a collection of servers and Coupling Facilities that are time synchronized to a time value called Coordinated Server Time.
STP supports the following functions:

- Initialize the time manually or by dialing out to a time service, so that Coordinated Server Time can be set to within 100 milliseconds of an international time standard such as Coordinated Universal Time (UTC).
- Schedule periodic dial-outs to a time service so that Coordinated Server Time may be gradually steered to an international time standard.
- Initialize Time Zone offset, Daylight Saving Time (DST) offset, Leap seconds offset.
- Schedule changes to offsets listed above. STP can automatically schedule Daylight Saving Time, based on the selected Time Zone, a capability that did not exist on the Sysplex Timer.
- Adjust Coordinated Server Time by up to +/- 60 seconds. This improves upon the Sysplex Timer's capability of adjusting time by up to +/- 4.999 seconds.

STP FAQs can be seen at:
ftp.software.ibm.com/common/ssi/sa/st/n/zsq03004usen/ZSQ03004USEN.PDF (49.3KB)

New Face of zOS

z/OS Management Facility (ZOSMF)

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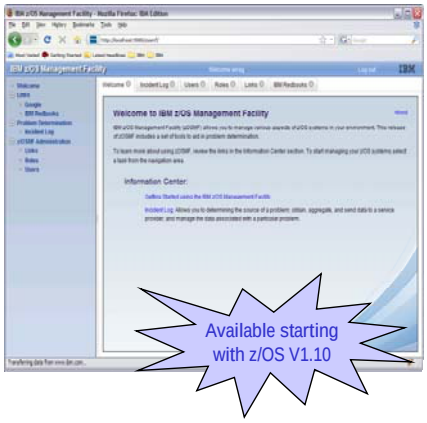
IBM z/OS Management Facility (5655-S28)

- **The IBM z/OS Management Facility helps system programmers to more easily manage and administer a mainframe system.**
- **More than a 'screen scraper' or an 'installation shield', the z/OS Management Facility is more:**
  - Automated tasks can help reduce the learning curve and improve productivity.
  - Embedded active user assistance (such as wizards) guides you through tasks and helps provide simplified operations.
- **A separate product from z/OS, but a new release of z/OSMF with every release of z/OS**



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The z/OS Management Facility (5655-S28), available since z/OS V1R11, is the new face of z/OS and it provides support for a modern, Web-browser based management console for z/OS. More than just a screen scraper or an install shield, the z/OS Management Facility (z/OSMF) is intelligent and delivers real value. Automated tasks can help reduce the learning curve and improve productivity. For example, system programmers may require only a few weeks to become proficient on z/OSMF management tasks. In addition, embedded active user assistance, such as wizards, can guide users through tasks and provide simplified operations, potentially reducing hours of tasks down to minutes, or minutes worth of tasks down to seconds.

Who should use the z/OS Management Facility? Everyone. The z/OS Management Facility is intended to enable system programmers to more easily manage and administer a mainframe system by simplifying day to day operations and administration of a z/OS system. It is more than just a graphical user interface, the z/OS Management Facility is intelligent. Automated tasks can help reduce the learning curve and improve productivity. In addition, embedded active user assistance (such as wizards) guides users through tasks and helps provide simplified operations.

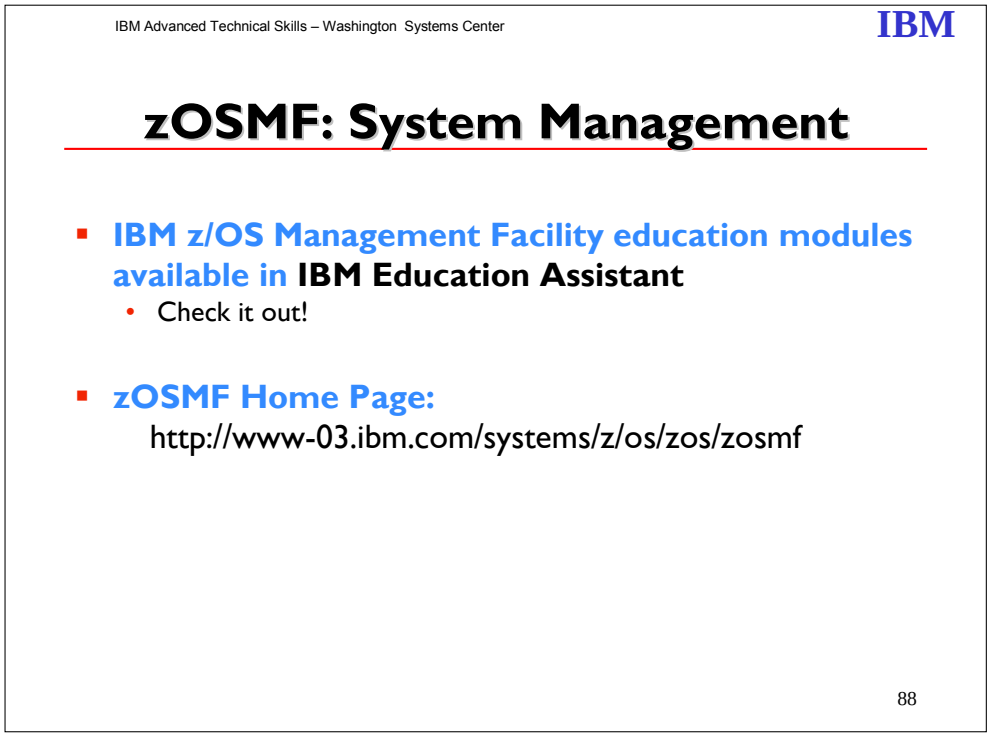
IBM z/OS Management Facility (z/OSMF), a new product, and will simplify, optimize and modernize the z/OS **system programmer** experience. The intent is to reduce the number of manual steps required to perform a task and where possible also provide end to end flow, preferably automated or guided, with the end user task in mind.

z/OSMF V1.13 is the next release and it is previewed February 15, 2011 and is planned to be available September 2011 (together with z/OS V1.13). For R13, z/OSMF adds several new tasks

(Capacity provisioning, Software deployment, and Storage Management) as well as new base capabilities, and other z/OSMF enhancements.

z/OSMF V1.12 is the current release.

z/OSMF Version 1 Release 11 was the first release, announced and available with z/OS V1.11, in 2009. z/OSMF is aligned very closely with z/OS itself -- it leverages the function and capabilities of that release as well as the same naming convention.



Downloads

CFSIZER / SIZER
Logrec Viewer
Cryptographic Support
IBM Configuration Assistant for z/OS Communications Server
Dumpwrite Utility

http://www.ibm.com/server/eserver/zseries/zos/downloads

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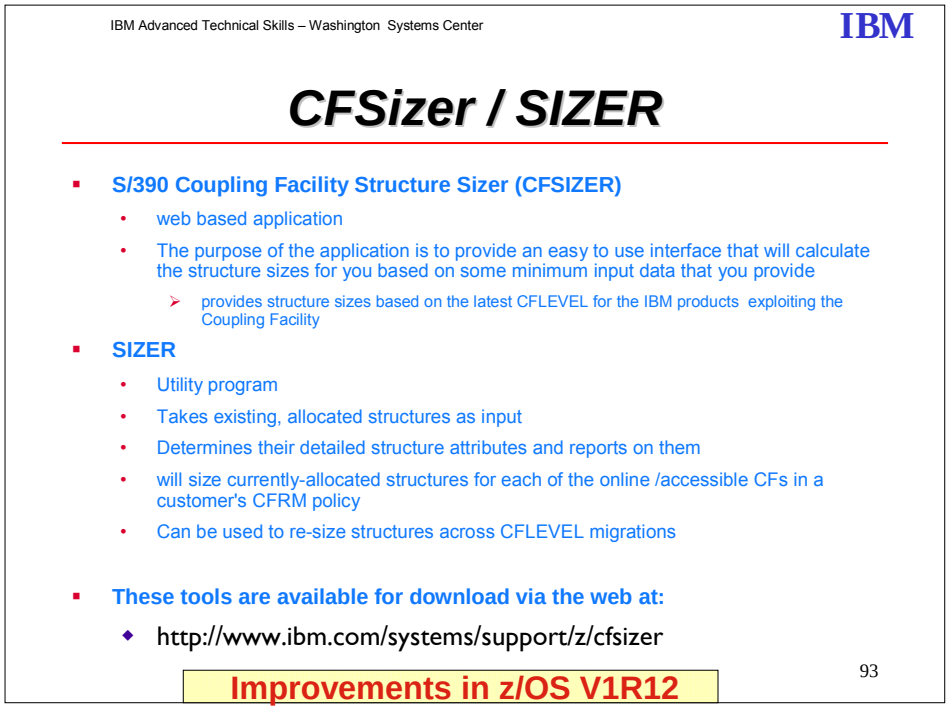

CFSizer is a web-based application returning structure sizes based on the latest CFLEVEL for the IBM products exploiting the coupling facility.

Any use of the CFSizer Coupling Facility Sizer Tool indicates you have read the disclaimer and accept the terms.

The purpose of the application is to provide an easy-to-use interface which calculates the structure sizes based on some minimum input data provided representing your expected usage of the structure-owning product. The inputs supplied should correspond to your expected peak usage of the product. It is generally good practice to slightly overspecify your peak values, to produce a sizing recommendation slightly larger than absolutely necessary. This will provide some room for growth, and help avoid failures caused by insufficient structure sizes.

CFSizer uses your input to calculate the number of structure objects the structure must contain, based on algorithms provided by the structure owners modeling their use of the structure. Using these results and structure attribute information provided by the structure owners, CFSizer then submits a calculation request to a coupling facility, using the IXLCSP interface. The coupling facility itself calculates the structure size required to accommodate the specified input.

Structure sizes therefore correspond to the CFLEVEL installed on the coupling facility performing the calculations. The CFLEVEL for which the recommendations were calculated is displayed on the output page and is not selectable. Structure sizes are displayed in units of 1KB, as they would be entered in your CFRM policy.
To size a structure, click on one of the product links in the left side navigation bar (e.g. XCF, Tape, JES, etc.) to access that product page. From that product page, select one or more

structures to size by clicking the product's checkbox. At least one structure must be checked to submit a request for a structure size.

For product help, click on the help link provided on each product page. A help window will open providing some additional detail about the product and the input fields.

If you are upgrading your CFCC microcode on one or more CFs, and your existing structures appear to be adequately sized, you may be able to use the current structure sizes to calculate the sizes required by the new CFLEVEL. However, IBM recommends periodically recalculate structure sizes through CFSizer, based on expected usage and structure attributes.

CFSizer Alternate Sizing Techniques

The following methods can be used to calculate required structure sizes based on existing structure sizes :
If a CF at the new CFLEVEL is accessible in your configuration and is defined in the CFRM policy, and OW54685 is applied (or you are running z/OS V1R5 or above), then structure rebuilds from lower level CFs to higher level CFs will re-size the structure automatically based on its current structure object counts. The CFRM policy can then be adjusted according to the size of the structure when it is actually allocated in the higher level CF.

Rebuild will not re-size the structure (i.e., will attempt to allocate it at the size specified in the CFRM policy or by the structure connectors) under the following circumstances:
When a CFRM policy change is pending
When a connector has changed the structure attributes on its IXLCONN REBUILD request.

There is a utility called SIZER available for download as a zipped package containing the following files:

sizer.obj	Sizer utility executable (binary, FB 80)
runsize.jcl	JCL to invoke the utility, as a started task (binary, FB 80)
linksize.jcl	Linkedit JCL (binary, FB 80). Update this JCL to install the utility in an authorized library.
The Sizer Utility Program.doc	Utility documentation (Microsoft Word document)

This utility, provided as is and not supported by IBM, will size currently-allocated structures for each of the online /accessible CFs in a customer's CFRM policy.

The utility is useful in an upgrade scenario similar to the following:

1. Move all structures out of the first CF to be upgraded.
2. Upgrade the CF to the desired CFLEVEL.
3. Run the Sizer utility with all structures allocated in a CF at the original CFLEVEL.
4. Using the utility output, update the CFRM policy to reflect the sizes required at the higher CFLEVEL.
5. Upgrade the rest of the CFs and distribute the structures as desired.

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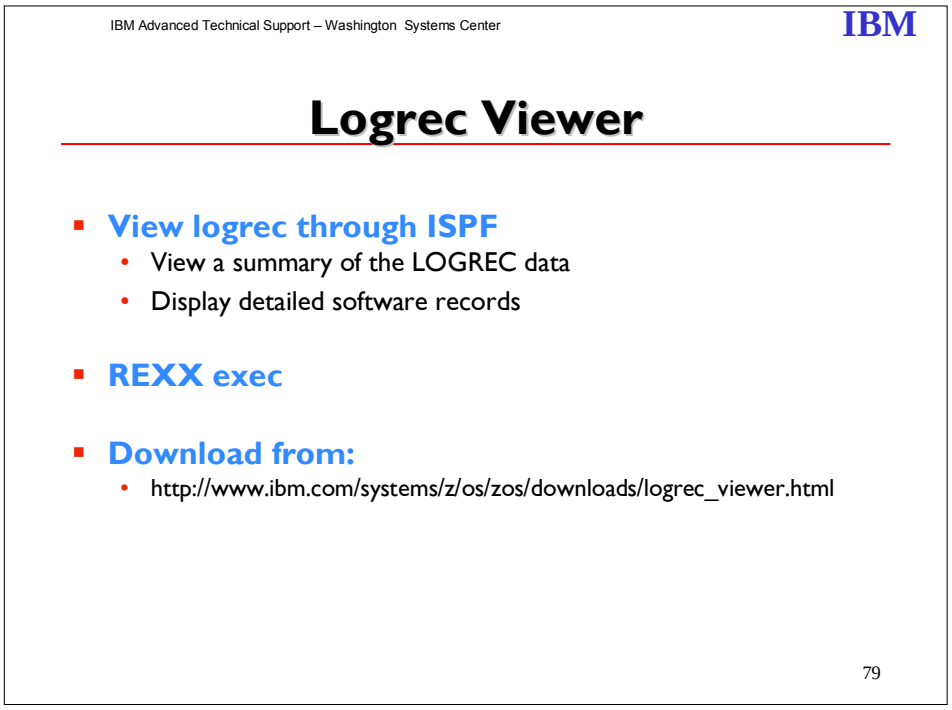

The Logrec Viewer is an ISPF application that obtains an EREP report for the Logrec stream (for a Logger-resident stream, or SYS1.LOGREC). From the panel, you can navigate to view a summary of the LOGREC data, or display detailed software records. The logrec source is based on the EREP JCL (SERLOG DD statement). From the ISPF panel, you can enter one of the following options:

S = Summarize LOGR LOGREC data
D = Detailed LOGR Software Records
I = LOGR Logrec Inventory
O = User EREP Input from dataset

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IBM Configuration Assistant for z/OS Communications Server

- **IBM Configuration Assistant for z/OS Communications Server is a GUI tool providing centralized configuration of Policy Agent configuration flat-files for:**
  - Application Transparent Transport Layer Security (AT-TLS)
  - IP Security (IPSec)
  - Network Security Services (NSS)
  - Policy Pased Routing (PBR)
  - Quality of Service (QoS)
  - Intrusion Detection Services (IDS)
- **Reduces configuration complexity**

Included in IBM z/OS Management Facility V1R11, V1R12, V1R13

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IBM Configuration Assistant for z/OS Communications Server provides centralized configuration of AT-TLS, IP Security, NSS, PBR, QoS, and IDS policies.

IBM provides a configuration Graphical User Interface (GUI) that you can use to generate configuration files for Application Transparent-Transport Layer Security (AT-TLS), IP Security (IPSec), Network Security Services (NSS), Policy Based Routing (PBR), Quality of Service (QoS), and Intrusion Detection Services (IDS). The Configuration Assistant is a stand-alone application that runs on the Windows® operating system and requires no network connectivity or setup to begin using it. Through a series of wizards and on-line help panels, you can use the Configuration Assistant to create configuration files for any number of z/OS images with any number of TCP/IP stacks per image.

The Configuration Assistant can dramatically reduce the amount of time required to create configuration files, contributing to ease of configuration and maintenance. Because of the inherently complex nature of z/OS, use of the Configuration Assistant is encouraged to ensure you have a consistent and easily manageable interface for implementing AT-TLS, IPSec, NSS, PBR, QoS, and/or IDS. If you plan to configure manually, you cannot take advantage of the Configuration Assistant.

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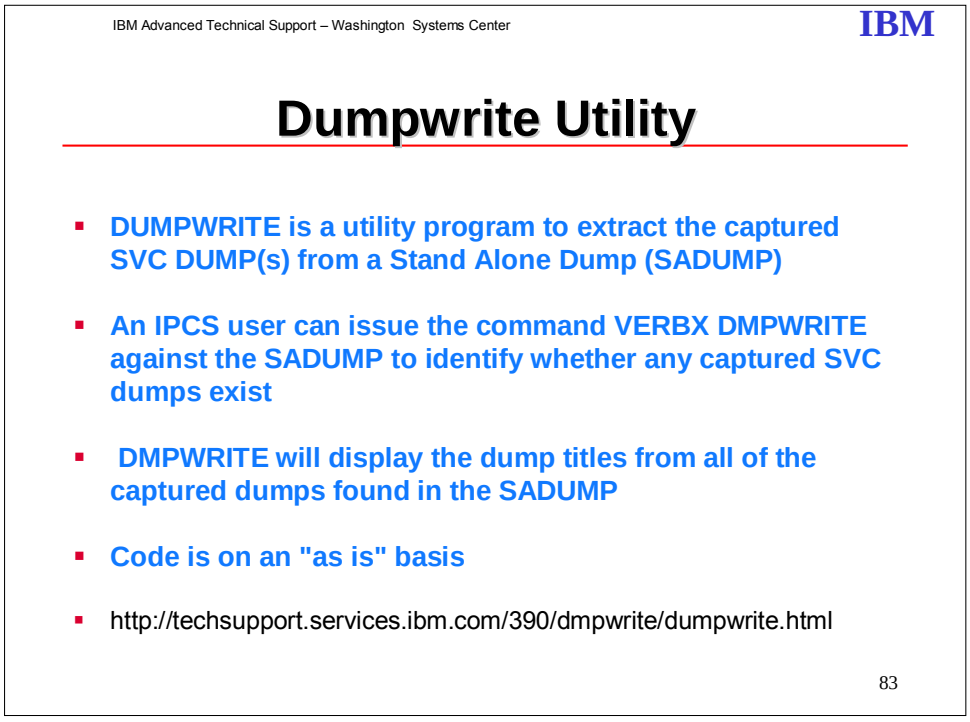

DUMPWRITE is a utility program to extract the captured SVC DUMP(s) from a Stand Alone Dump (SADUMP).

There are two levels of DUMPWRITE depending upon your level of OS/390 or z/OS:

- DMPWRITE for systems prior to OS/390 Release 10.
- DMPWRIT2 for OS/390 Release 10 and z/OS.

There are two steps to required to use the DUMPWRITE utility:

1. Download file for the appropriate z/OS or OS/390 Release.
2. Install the utility.

Once DUMPWRITE (DMPWRITE or DMPWRIT2) is installed, you need to utilize a steplib, TSOLIB or LNKLSTxx to make this dataset accessible on the system.

Once the DUMPWRITE program is in the normal module search list, an IPCS user can issue the command VERBX DMPWRITE against the SADUMP to identify whether any captured SVC dumps exist. DMPWRITE will display the dump titles from all of the captured dumps found in the SADUMP.

If one of the captured dumps is needed, the following steps should be used to extract the dump:

1. Allocate a dataset with RECFM=FB LRECL=4160 BLKSIZE=4160 DSORG=PS with CYL PRI=100 SEC=100 (i.e &SYSUID..DUMPZn).

2. Associate the DDNAME DUMPDD to the dataset allocated in step 1. (i.e ALLOC FI(DUMPDD) SHR DA('&SYSUID..DUMPZn')).
3. Issue VERBX DMPVRITE 'n' where n is the nth dump entry listed in VERBX DMPVRITE output.

If more than one captured dump is needed, repeat the above steps changing the value for 'n'.

Disclaimer:
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Cryptography

- **Cryptographic support for z/OS V1R10-V1R12**
- Provides new encryption functions in the z196 servers
- Support for Crypographic Express3 Coprocessor (CEX3C)
- Protected key CPACF Support
- Enhanced PKCS#11 Support
- ECC Support

- http://www.ibm.com/systems/z/os/zos/downloads

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This newest version of ICSF, FMID HCR7770, adds new and enhanced crypto functionality to z/OS:

- Crypto Express3 and Crypto Express3-1P hardware support
- Protected key support
- Elliptical Curve Cryptography (ECC) support
- Extended PKCS #11 support
- Improve product performance and stability
- New Query Algorithm function

Crypto Express3 (CEX3) and Crypto Express3-1P (CEX3-1P) hardware support: This new version of ICSF provides support for the Crypto Express3 and Crypto Express3-1P that were announced on October 20, 2009. These new features provide similar functionality to the CEX2 and CEX2-1P with improved performance, reliability and serviceability.

Protected key support: Protected key is a new capability on the z10 GA3 that relies on a wrapping key to provide additional security over clear keys, but without the performance penalty of secure keys. This new version of ICSF provides support for using a secure key as the source for a protected key.

Elliptical Curve Cryptography (ECC) Support: This version of ICSF adds support to comply with RFC4869 'Suite B Cryptographic Suites for IPSEC' as well as new clear key algorithms: Galois/Counter Mode encryption for AES (GCM), Elliptic Curve Diffie-Hellman key derivation (ECDH), Ellipc Curve Digital

Signature Algorithm (ECDSA) and HMAC.

In February 2005, the U.S. National Security Agency defined a set of cryptographic algorithms that are intended to provide an interoperable cryptographic base for unclassified and classified information. These are known as Suite B (not to be confused with Suite A which is an unpublished list of algorithms intended for highly sensitive communication and critical authentication systems). This suite of algorithms is then used by IETF RFCs to support various protocols (such as IPSEC, TLS, SSH, etc.).

The new support in ICSF is designed to comply with NIST requirements to support a FIPS 140-2 mode of operation for IPSEC.

Extended PKCS #11 support: A new software cryptographic engine embedded in ICSF will allow PKCS11 processing even if no cryptographic coprocessors are available. Since the cryptographic coprocessors are optional hardware, ICSF will determine their availability before routing work and if the hardware is not available, use its own internal routines to accomplish the function.

Additional algorithms that are supported with PKCS11 include Digital Signature Algorithm (DSA), Diffie-Hellman (DH), Elliptic Curve, Galois/Counter Mode encryption for AES (AES GCM), Blowfish and RC4.

Improve product performance and stability: A number of changes have been implemented within ICSF to provide better performance and stability:

- Non-cancellable, non-swappable region
- More consistent, simpler routing of ICSF console messages
- Improved software paths and routine

ICSF is being made non-swappable and non-cancelable using standard z/OS conventions. Prior versions of ICSF are non-swappable however this new support is implemented using standard conventions. Current versions of ICSF are cancelable via an operator command. If the operator issues the cancel command multiple times, the address space may be terminated before cleanup can be completed and this can sometimes cause problems to other ICSF started tasks that are sharing the key data sets (CKDS, PKDS, TKDS). By making ICSF non-cancelable, operations will have to issue an explicit command to stop the address space, driving it through normal termination routines.

Making the ICSF started task non-cancelable and non-swappable requires that the ICSF initialization module be added to the Program Properties Table (PPT). To avoid impacting prior versions of ICSF this main module name is being changed from CSFMMAIN (PGM=CSFMMAIN for HCR7751 and earlier) to CSFINIT. Simply adding CSFMMAIN to the PPT, would cause current versions of ICSF to work differently than they do today (i.e. cancel operations would fail).

The CSFINIT entry in the PPT will be automatically generated as part of the install of HCR7770, however existing users of ICSF will need to modify the ICSF started task to use the new initialization module. CSFMMAIN will still exist with HCR7770, however it will simply generate error message CSFM022E explaining that CSFINIT is required and then ICSF will terminate.

Since this version of ICSF can be installed on older versions of z/OS, the migration from CSFMMAIN to CSFINIT will need to be carefully coordinated in shops running multiple versions of z/OS and ICSF. Systems that require earlier versions of ICSF will have to continue to use //CSF EXEC PGM=CSFMMAIN,REGION=0M,TIME=1440 in the started task. However, to use HCR7770, the started task will need to be modified to specify
//CSF EXEC PGM=CSFINIT,REGION=0M,TIME=1440

Installations that are running multiple LPARs with various versions of ICSF across those LPARs, might want to consider using a system variable for the startup program name. For example, the ICSF started task could be modified to specify

//CSF EXEC PGM=&ICSFPROG,REGION=0M,TIME=1440
and the system symbolic ICSFPROG could be set to
SYMDEF(&ICSFPROG='CSFINIT') on the HCR7770 systems and
SYMDEF(&ICSFPROG='CSFMMAIN') on the earlier systems. No matter whether you change the started task directly to point to the new startup module, or use system symbols, the change will have to be made before HCR7770 can be started. If using system symbols, the system symbol will have to be refreshed before ICSF can be restarted.

Alternatively, the ICSF started task could be moved to a release specific PROCLIB. On the HCR7770 systems the version of ICSF that uses
//CSF EXEC PGM=CSFMINIT,REGION=0M,TIME=1440
would come before the library that contains the JCL with
//CSF EXEC PGM=CSFMMAIN,REGION=0M,TIME=1440. On the pre-HCR7770 systems, the concatenation order would be reversed.

To improve operational efficiency, ICSF is also being simplified to be more consistent in where it sends operational messages. In prior versions of ICSF, messages would be written to the console as well as data sets. Some messages could be read immediately on the console, while other records were written to the CSFLIST DD. Starting with HCR7751, most ICSF messages will be written to the job log. Messages that require operator action (ROUTCDE=1) will display on the operator console, and messages related to system security (ROUTCDE=9) will display on the security console. Some of those messages will be written to the job log as well. Because of this change, the CSFLIST DD is no longer required in the ICSF started task, however if it is not removed, ICSF will simply ignore it.

Instruction pathlengths for invoking the hashing algorithms on the CPACF, via the ICSF APIs have been tightened to provide better performance. Some operations routed to the CEX2 card have also been improved, providing better CPU utilization for those algorithms.

New Query Algorithm Function: ICSF provides a new Query Algorithm API that returns a summary of supported cryptographic algorithms. This API can be used by applications and middleware to programmatically determine how best to satisfy crypto requirements. For example, the middleware program could determine whether its first choice of AES is available via hardware. If hardware support for AES is available, the middleware would invoke the appropriate APIs or instructions to take advantage of that hardware. And if the support is not available via hardware, it could use the TDES hardware support instead.

IBM

Miscellaneous

IEARELCN
IXCDLUT
SoftCap
zPCR
CHPID Mapping Tool
SMB
zFS to HFS Conversion Tool
AMATERSE
JZOS
WLM Tools
ISPF Productivity Tool
D XCF
Requirements
IBM Fix Category Values & Descriptions

Power Estimation Tool
ISPF 3.17
SDSF REXX
DFSMSrmm Shared PARMLIB
WLM Group Capacity
IBM Software pricing
CFCC Levels
BPMTEXT
LE Syntax checking
Websites

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IBM Fix Category Values & Descriptions

- **Fix category is an identifier to group and associate PTFs to a particular category**
- **SMP/E RECEIVE processing translates fix category values into SOURCEIDs**
- **This URL identifies all FIXCAT categories**
  - http://www-03.ibm.com/systems/z/os/zos/smpe/fixcategory.html

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What is a fix category?
A fix category is an identifier used to group and associate PTFs to a particular category of software fixes. A fix category might be used to identify a group of fixes that are required to support a particular hardware device, or to provide a particular software function, similarly to how a preventive service planning bucket (PSP-bucket) identifies a group of PTFs. Fix categories are supplied to you in the form of SMP/E FIXCAT HOLDDATA statements. Each FIXCAT HOLDDATA statement associates an APAR and its related fixing PTF to one or more fix categories.

During SMP/E RECEIVE command processing, SMP/E translates fix category values into source IDs and assigns them to the resolving (fixing) PTFs identified on the HOLDDATA. You can then use the fix category values as source IDs when selecting a set of PTFs to be applied.

There are several categories: **Go to the web site for a complete description.**

Installation categories: Identify recommended fixes when installing or deploying new software product release levels.

Function categories: The following fix categories identify fixes that are required or recommended for selected functions.

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Storage device categories: The following IBM.Device fix categories identify fixes that provide software support to enable the specified storage hardware devices, where a descriptive short name is followed by the device model number

Communication device categories: The following IBM.Device fix categories identify fixes that provide software support to enable the specified communication hardware devices, where a descriptive short name is followed by the device model number.

Server device categories: The following IBM.Device.Server fix categories identify fixes that provide basic software support for the specified hardware server devices, where a descriptive short name is followed by the device model number.

The following IBM.Device.Server fix categories identify fixes that provide the support required for optional server functions. The format is the server fix category followed by a short descriptive name for the optional function. Not all optional server functions have a corresponding fix category.
z196
zBX
z10 EC and BC
z9 EC and BC
z990
z890

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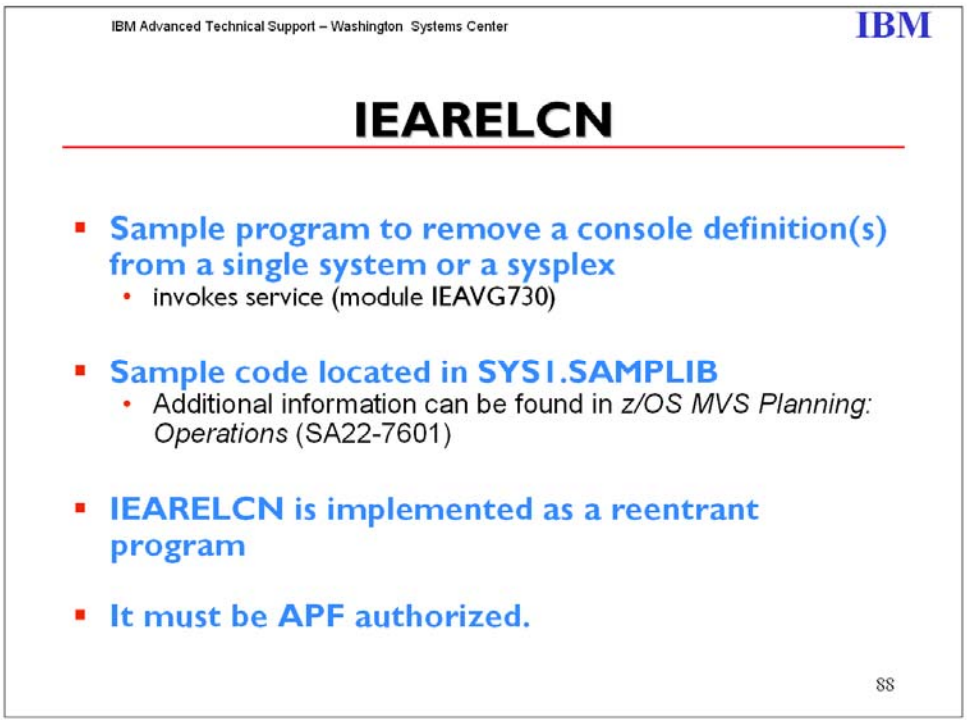

Before you remove a console definition, issue DISPLAY CONSOLES to determine if the console is defined as an alternate. If you delete the definition for a console that is defined as an alternate for another console, you remove the alternate console as back up. If a console switch to the alternate is required, the system cannot switch because the alternate has already been removed. Use VARY CN to change the list of potential alternates for a console (ALTGRP).

The following restrictions for removing a console definition apply:

- Dynamic I/O reconfiguration can be performed for a device that has been defined as an MCS console in CONSOLxx. If you want to change the I/O configuration of a device which is defined as a console, you must first delete the console definition. The sample program IEARELCN can be used to do this. After the definition has been removed, the device can be dynamically reconfigured, but it cannot be used as a console again, until a re-IPL. For more information about dynamic I/O reconfiguration, see *z/OS HCD Planning*.
- The console must be defined in CONSOLxx.
- The console must not be active.
- A subsystem console that is in use must first be released. (See *z/OS MVS Using the Subsystem Interface*.)
- You cannot remove the console definition for a console when a no-consoles condition exists.
- When a no master console condition exists, you cannot remove a console that is the last active master console.

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FUNCTION:
The IEARELCN utility described above will remove an MCS console and free its slot for future use.

This program is an example of how to use the service removing a console definition from a system or a sysplex. The parameter passed to this program is the name of the console whose console definition is to be removed.

The parameters are as follows:

CONSNAME(xxxxxxxx)

where xxxxxxxx: is the name of the console whose definition is to be removed from the system or sysplex.

IEARELCN is implemented as a reentrant program. It must be APF authorized.

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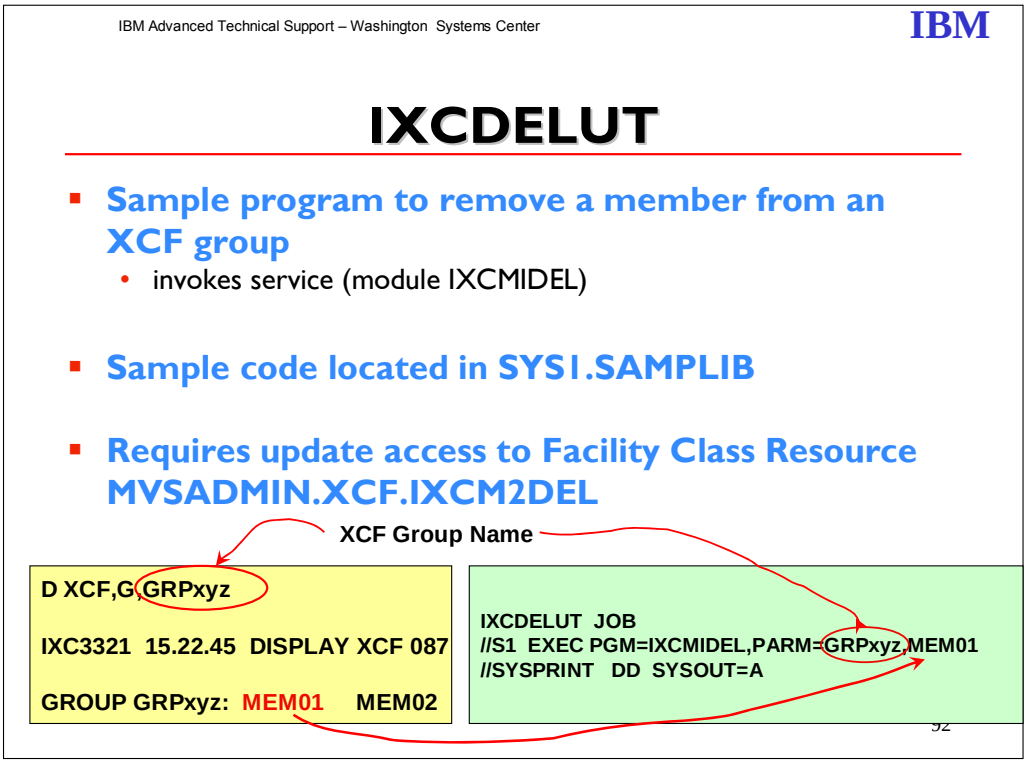

Use the IXCDELET utility to delete XCF group members that are created, quiesced, or failed. Sample JCL to run the utility is described here and is shipped in SYS1.SAMPLIB.

Use discretion when considering whether to use the IXCDELET utility. Do not use the utility unless you understand the use of the member by its owning XCF application.

A user of the IXCDELET utility must be defined with UPDATE access to the FACILITY CLASS resource MVSADMIN.XCF.IXCM2DEL.

Identify the XCF group member to be deleted by its group name and its member name. The member to be deleted must be in one of the following states: created, quiesced, or failed. If the member is not in one of those states, the utility program fails.

XCF group members can be deleted one at a time. To delete multiple members, the IXCDELET utility must be run multiple times.

Sample JCL to run the IXCDELET utility to delete created, quiesced, or failed XCF group members is shipped in SYS1.PARMLIB member IXCDELUT.

The utility parameters are:

GRPXYZ
XCF group name of the member to be deleted.
MEM01
Member name of the member to be deleted.

Documented in *Setting up a Sysplex* manual. SA22-7625-14

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D XCF, REALLOCATE

- **New DISPLAY XCF,REALLOCATE,TEST option to simulate the reallocation process**
  - **Run "What-If" scenarios for Coupling Facility structure reallocations**
    - **Provides information about changes the REALLOCATE command would attempt to make and any errors that might be encountered if an actual REALLOCATE were to be performed**
- **New DISPLAY XCF,REALLOCATE,REPORT** command
  - Provide detailed information on the results produced by a previously executed REALLOCATE command
  - Intended to help you find such information without searching through syslogs for REALLOCATE-related processing and exception messages

New in z/OS V1R12

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DISPLAY XCF,REALLOCATE,REPORT | TEST command displays information about the REALLOCATE process.

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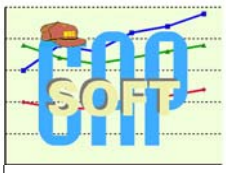

z/Architecture Information

New News: zSOFTCAP coming early April for customers.

- **SOFTCAP Tool**
  - PC-based - available to customers and business partners via the web
  - evaluate the effect on z/Architecture and S/390 processor capacity
  - can access the effect on capacity when converting from 31-bit to 64-bit addressing
  - results are presented in tables
  - covers OS/390 and z/OS migrations
  - covers IMS and CICS software migrations

Customers: http://www.ibm.com/support/techdocs/atsmastr.nsf/PubAllNum/PRS268
Business Partners: http://www.ibm.com/partnerworld/sales/systems

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SOFTCAP is PC-based tool that will evaluate the effect on z/Architecture and S/390 processor capacity when migrating to newer levels of software, including z/OS or OS/390, CICS and IMS. In addition, SOFTCAP can assess the effect on capacity when converting from 31-bit to 64-bit addressing, which is supported on zSeries processors by z/OS and OS/390 V2R10. Results are presented in the form of tables

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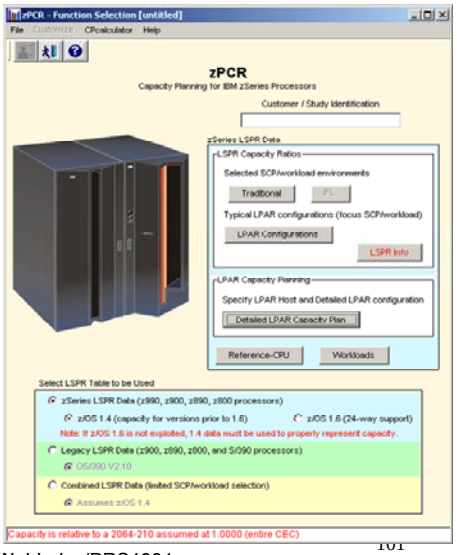
zPCR

- A Java based PC tool
- Provides the capacity relationship of zSeries and System z196, z10 or z9 Servers
  - LSPR workloads determine the capacity ratio
  - Includes impact of LPAR configurations
  - Expected accuracy of + or – 5%
- The IBM tool to properly size zSeries and System z196, z10 and z9 server upgrades
- Last Update: January 2011



http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS1381

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The zPCR tool was released for customer use on October 25, 2005. zSeries customer now have new capabilities to develop comprehensive capacity planning scenarios for their environments. Introduction of the IBM Processor Capacity Reference for zSeries (zPCR), provides in-depth information on the relative processor capacities of zSeries processors and includes the capability to size and plan for the impacts of PR/SMtm on overall capacity. The tool will also help zSeries customers plan their entire zSeries environment, including the addition of specialty processors like zAAPs, ICFs and IFLs.

The tool, downloadable and useable by customers, is provided on an "as is" basis. Support is being provided by IBM's Washington Systems Center who has provided easy to use training materials and is providing both "how to" support and FAQ support for the tool. The WSC will also be providing defect support for the tool.

What can zPCR do for you? First and foremost it means you can now and forever burn those misleading MIPS charts. Now an easy to use tool is provided, based on LSPR benchmark data, to quickly assess relative processor capacity. The tool provides information on individual LSPR primitives but also provides data on common blended workloads such as LoIO. This allows the capacity planner to quickly identify the relative capacity relationships among different zSeries hardware configurations. Secondly, it allows the user to enter an LPAR environment, (either proposed and/or current), and determine the impacts on capacity of the specific LPAR environment. This gives capacity planners new capabilities to evaluate and size proposed zSeries configurations. And lastly zPCR can help understand the impacts of adding specialty processors to the environment. Only zPCR can do the complete job of estimating the impacts of adding a

zAAP processor to the configuration, the impacts of adding CF engines, and the impacts of adding Linux or VM partitions using IFLs.

Getting Started

It's easy to get started using the zPCR tool. We've created a single getting started page to make everything easy. At this site you will be able to:

- Download the zPCR tool
- Get training materials (prerecorded lectures and handouts)
- Print a copy of the Users Guide
- Find links to the zPCR newsgroups
- Get information on how to request defect support for zPCR
- Information on zPCR Registration

Visit the zPCR URL:

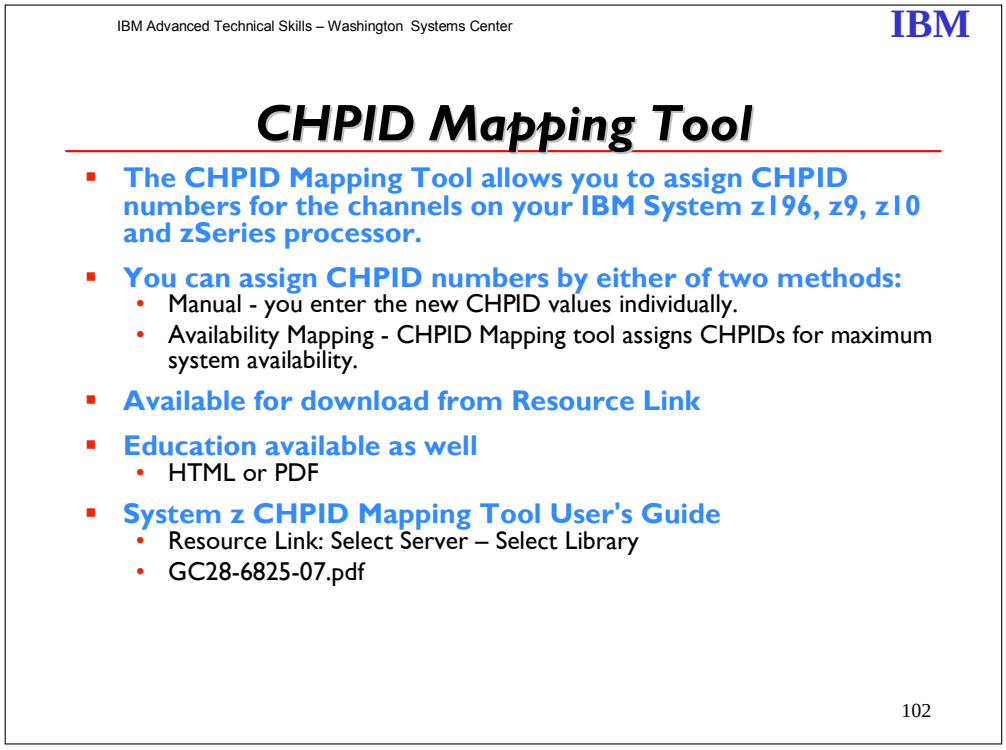
http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS1381

Get started today.

A zPCR newsgroup has been created for all the latest information on zPCR. The newsgroup information is listed below:

Server name: news.software.ibm.com

Newsgroup name: ibm.servers.zseries.zpcr



The CHPID Mapping Tool allows you to assign CHPID numbers for the channels on your IBM Server zSeries processor. You can assign CHPID numbers by either of two methods:

- **Manual** - you enter the new CHPID values individually. The CHPID Mapping tool checks your input for errors.
- **Availability Mapping** - CHPID Mapping tool assigns CHPIDs for maximum system availability.

In either case, the CHPID Mapping tool provides the necessary output and reports.

There is an educational online course available as well. This course is on the same page as the description for the Chipped Mapping Tool.

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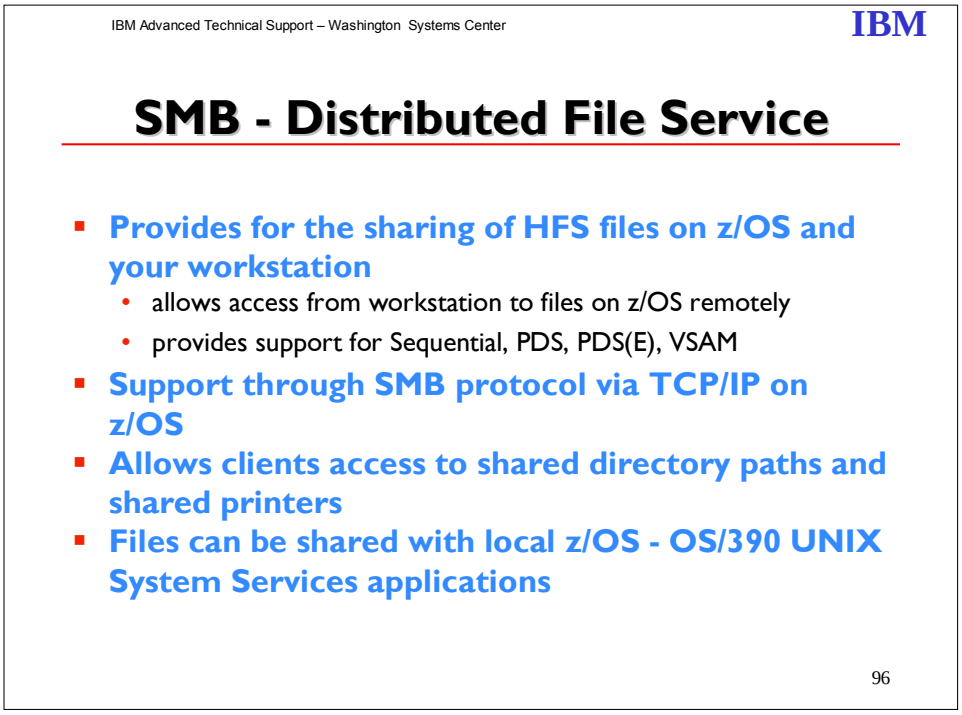

The z/OS Distributed File Service Server Message Block (SMB) support provides a server making Hierarchical File System (HFS) files available to SMB clients. It supports the SMB protocol through the use of TCP/IP on z/OS. This communication protocol allows clients to access shared directory paths and shared printers. Personal Computer (PC) clients on the network use the file and print sharing functions included in their operating systems. Supported SMB clients include Windows 95, Windows 98, Windows NT 4.0 Workstation, Windows 3.11 (Windows for Workgroups), and OS/2 Version 4 (for file access only). At the same time, these files can be shared with local z/OS UNIX System Services applications and with DCE DFS clients.

z/OS SMB support allows PC users to be able to access files that reside on an z/OS system remotely. That is, PC users can access files that are not located on their computer. Remote files simply appear to the PC user on one or more separate drive letters. PC users can "connect" an unused drive letter to a "shared resource" on a remote computer. This is sometimes referred to as "mapping a network drive". This capability is provided by software residing on the PC (the client), in combination with software residing on the remote computer (the server). There must also be a TCP/IP network connection between the PC and the remote computer.

z/OS SMB support allows Windows PC users to be able to use remote printers attached to an z/OS system. Remote printers simply appear to be additional printers available to the PC user. Remote printers are installed on PCs using existing commands or install utilities.

In addition, Windows SMB clients can make remote print requests to z/OS printers connected to the Infoprint Server for z/OS. The SMB server provides print serving support for Windows™ clients. By allowing the SMB protocol to be used to send print requests to the z/OS Infoprint® Server, it removes the need for additional print client code or unique printer setup steps on the user workstation.

The SMB server support is integrated within the Distributed File Service (DFS) element which also provides DCE DFS client and server support. The SMB support does not require DCE but the same server can optionally support DFS clients, SMB clients, or both.

In Release 10, in addition to its support for workstation access to OS/390 data stored in HFS using SMB protocols, the OS/390 DFS/SMB Server now supports workstation access z/OS data stored in SAM, PDS(E), and VSAM files to further expand the S/390 support for application development.

The Release 10 SMB server now supports the NT LM 0.12 level of the SMB protocol dialect used by the Windows NT™ networking support, thereby providing additional password encryption, file sizes greater than 32 bits (4 GB), and other capabilities allowed by this level of the SMB protocol.

Reference material: *Distributed File Service SMB Administration Guide and Reference*, SC24-5882.

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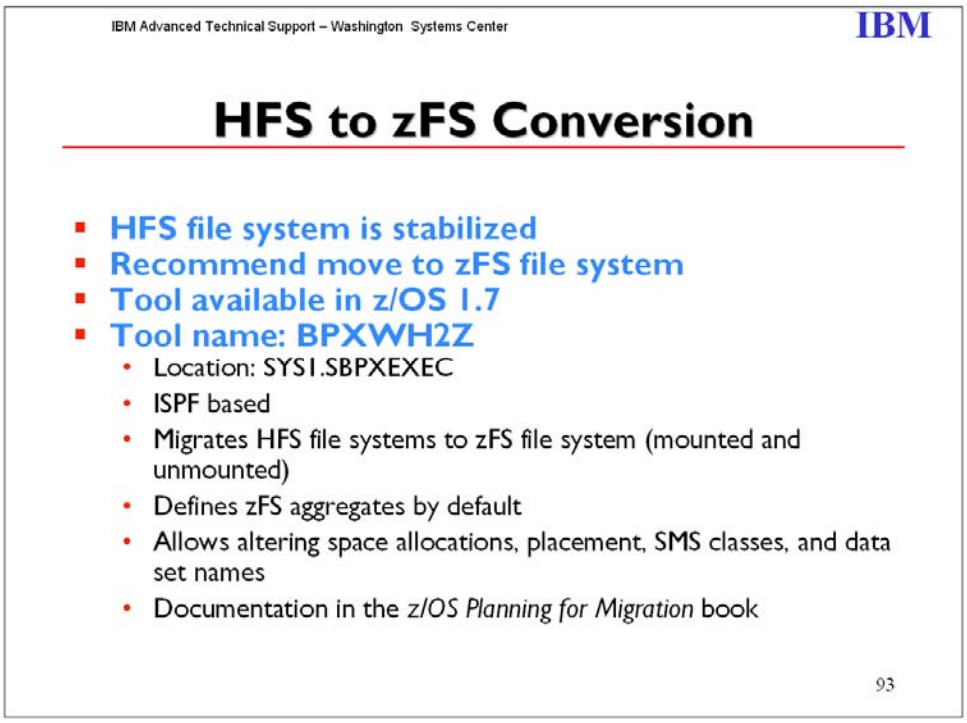

Before z/OS V1R7, the HFS file system was the primary hierarchical file system. As of z/OS V1R7, you can use any combination of HFS and zFS file systems. Because zFS has higher performance characteristics than HFS and is the strategic file system, you should migrate your HFS file systems to zFS.

The HFS and zFS file system types in mount statements and command operands are now generic file system types that can mean either HFS or zFS. Based on the data set type, the system will determine which is appropriate.

Steps to take: Before beginning the migration, follow these steps:

1. Establish backout procedures.
2. Decide on naming conventions.
3. Decide on unavailability.
4. Perform the conversion from an HFS to zFS file system.

Tip: Use the BPXWH2Z tool to perform the conversion. It is an ISPF-based tool that migrates HFS file systems to zFS file systems. It has a panel interface that enables you to alter the space allocation, placement, SMS classes, and data set names. A HELP panel is provided. With this tool, you can:

- Migrate HFS file systems (both mounted and unmounted) to zFS file systems. If the HFS being migrated is mounted, the tool automatically unmounts it and then mounts the new zFS file system on its current mount point.

- Define zFS aggregates by default to be approximately the same size as the HFS. The new allocation size can also be increased or decreased.
- Have the migration run in TSO foreground or UNIX background.

BPXWH2Z is located in partitioned data set SBPXEXEC (usually called SYS1.SBPXEXEC). When you run the BPXWH2Z tool on your z/OS V1R7 system, it uses the z/OS V1R7 level of the **pax** command. This level has been enhanced for sparse file support and other characteristics that are of concern when migrating from an HFS to zFS file system. You can manually migrate from an HFS to zFS file system without using the tool. When doing that, the z/OS V1R7 level of the **pax** command is recommended. However, you would need to allocate and format the target zFS file systems.

5. Change policies and scripts, and so forth, to reflect the change from the HFS file system to zFS file system.

   Tip: Use the RMF Monitor III option to report on zFS activity.

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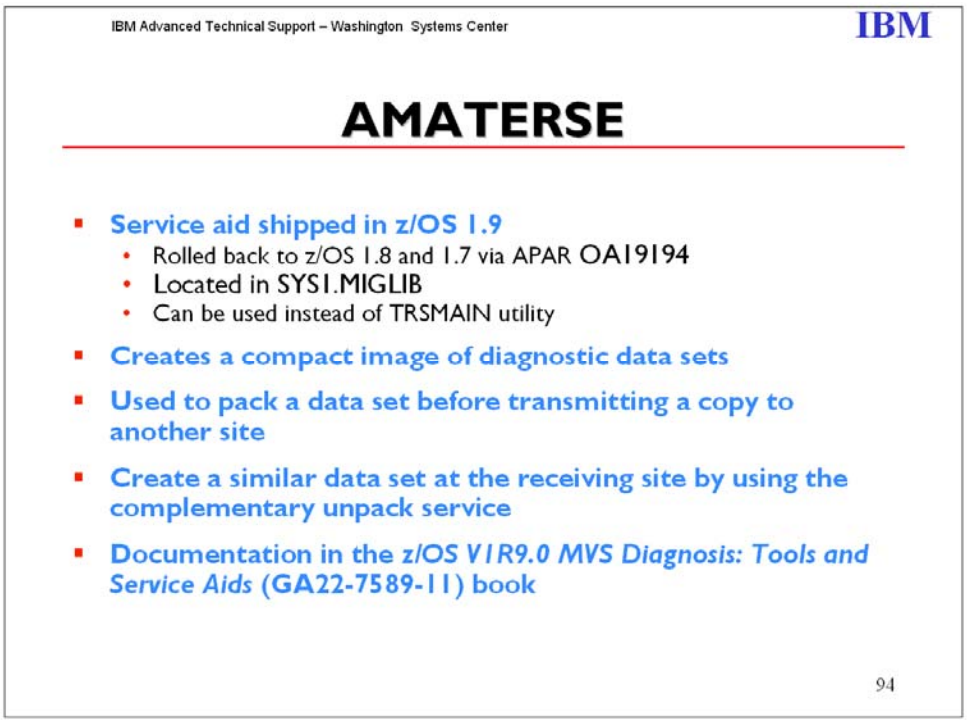

AMATERSE is a service aid program operating in problem state. Use AMATERSE to pack a data set before transmitting a copy to another site, typically employing FTP as the transmission mechanism. A complementary unpack service is provided to create a similar data set at the receiving site.

AMATERSE is an application which prepares diagnostic materials, such as z/OS dumps and traces, for transmission to IBM and vendor sites. When the materials arrive, AMATERSE also provides a means to create similar data sets to support diagnosis of problems.

If you have previously used the TRSMAIN utility (see http://techsupport.services.ibm.com/390/trsmain.html), you will find the following changes have been made to prepare AMATERSE for formal inclusion in z/OS:

- AMATERSE is used as the preferred application program name rather than TRSMAIN. TRSMAIN is shipped as an alias entry point to AMATERSE.
- The ddnames INFILE and OUTFILE that were required by the TRSMAIN utility are replaced by SYSUT1 and SYSUT2 respectively. When the TRSMAIN entry point of AMATERSE is invoked, ddnames INFILE and OUTFILE remain as the defaults.
- AMATERSE is placed into MIGLIB, a library that is part of the link list. No STEPLIB ddname is needed to invoke AMATERSE.
- You can use AMATERSE, the TRSMAIN utility, and VM terse interchangeably in nearly all cases. See “Restrictions” in the MVS Diagnosis Tools and Services Aids for exceptions to this rule.

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ISPF Productivity Tool

- Turns IBM ISPF into a centralized, object-oriented development center
- Integrates enhanced functionality into the standard ISPF browse, edit, view, member list and data set list functions
- Extends the standard member lists with powerful search functionality that provides instantaneous results so that you can search through multiple members or libraries
- Helps you locate volumes, data sets, members and text
- Includes an interactive or automated interface to the change functionality and offers you the option to save changes into copies of modified members, leaving the originals intact
- Consolidates native ISPF and additional tools to provide automatic and integrated access to VSAM files, Panvalet® libraries, Librarian files, IBM DB2® tables, HFS files, PC files, catalog levels and other objects
- Uses proprietary technology for fast results

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ISPF Productivity Tool V6.1

- Announcement letter: 209-053
- Redbook: SG24-7710
- Video: http://video.google.com/videosearch?source=ig&hl=en&rlz=&q=ispf+productivity+tool&um=1&ie=UTF-8&ei=04R4SsrwBcvAlAeg7oiZBQ&sa=X&oi=video_result_group&ct=title&resnum=4#

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A System Programmer Productivity Tool Bag

This IBM® Redbooks publication introduces the Interactive System Productivity Facility (ISPF) Productivity Tool (IPT) Version 6, Release 1 for z/OS®. IPT operates as a seamlessly integrated front end to ISPF. IPT functionality is available from any panel without a need to modify any ISPF Primary Options Menu. All IPT functions are totally integrated. IPT can perform almost any activity within ISPF, or internally invoke the function to perform the task. IPT combines separately provided ISPF utility functions and new ISPF Productivity Tool features into the Object List (OLIST) and Member Selection List (MSL). The resulting member, dataset, and object lists become powerful platforms where to perform many tasks without navigating to other utilities.

IPT relates objects to applications in a similar manner to the way that a PC performs Object Linking and Embedding (OLE). By extending the dataset objects used by ISPF to other object classes, IPT lets you specify the object to be processed and the action to be performed (such as EDIT or BROWSE). The facility that is appropriate to the object class for the action you have requested is invoked automatically. IPT provides extensive search capabilities that are both rapid and intuitive. You can easily search for volumes, datasets, members, and text within members. ISPF Productivity Tool also furnishes automatic drill-down system navigation to examine volumes, datasets, and members.

IPT provides a menu-driven facility to display and recover all of the deleted members of a partitioned dataset (PDS) library.

IPT extends the ISPF Action Bar with options providing access to new functionality so not to learn new commands or syntax. In addition to the ISPF point-and-shoot capabilities, IPT provides new concepts, such as hotbars (user-defined fields that execute commands), field-sensitive areas in MSLs and OLISTs, automatic recognition of a dataset name on any ISPF panel as a parameter to BROWSE, EDIT, or VIEW, or parameters within any Time Sharing Option (TSO) command.

IPT provides integrated and enhanced IBM Software Configuration and Library Manager (SCLM) support within the standard member and dataset lists. SCLM is a source library management component of ISPF providing change control, multiple source versions, auditing, a built-in make facility, and automatic check-in/sign-out using standard libraries (PDS and partitioned dataset extended (PDSE)). IPT includes built-in interfaces to various IBM and ISV products.
This book is intended as a supplement to existing product manuals. It starts with an overview of the main IPT concepts and facilities. It then follows with detailed chapters, each dedicated to a major IPT functions.

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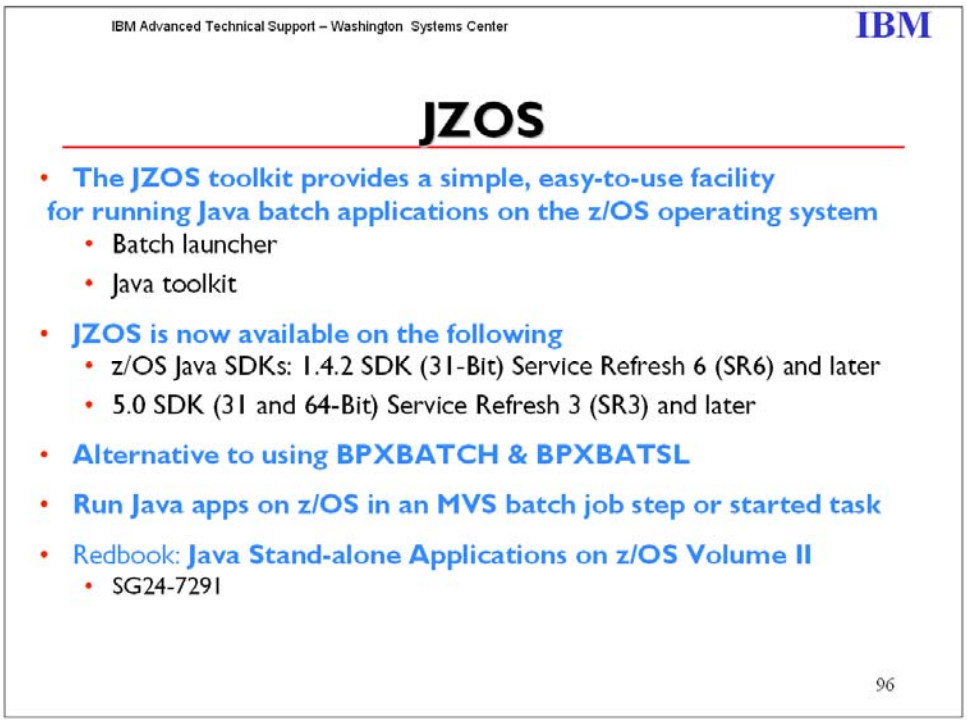
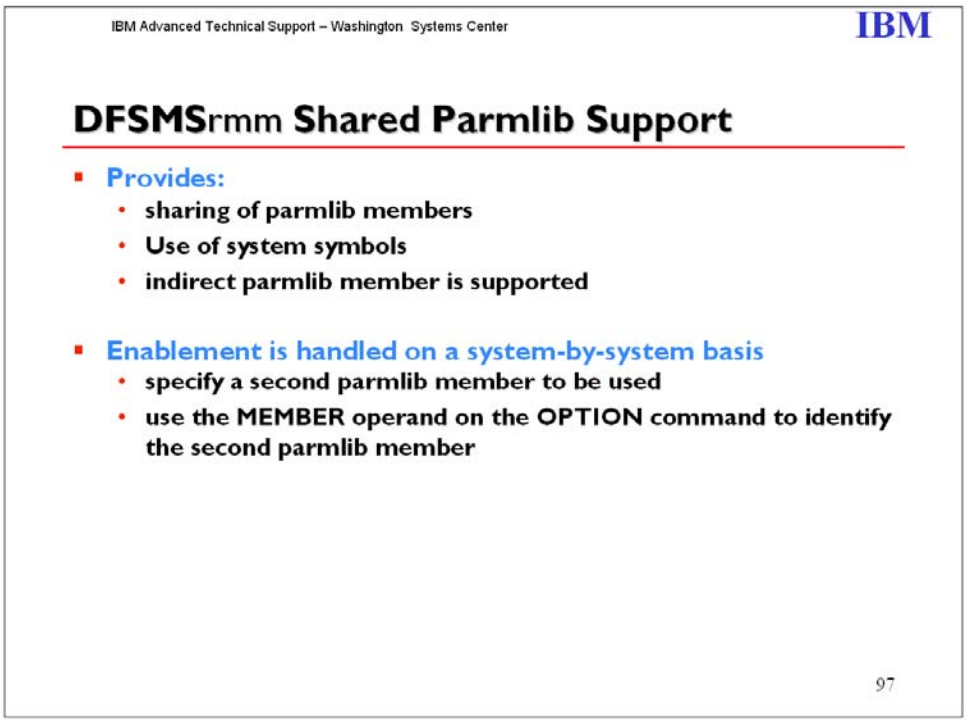


The IBM JZOS Batch Toolkit for z/OS SDKs is a set of tools addressing many of the functional and environmental shortcomings in current Java batch capabilities on z/OS. It includes a native launcher for running Java applications directly as batch jobs or started tasks, and a set of Java methods providing access to traditional z/OS data and key system services directly available from Java applications. Additional system services include console communication, multiline WTO (write to operator), and return code passing capability. In addition, JZOS provides facilities for flexible configuration of the run-time environment, and it allows intermediate data to be seen via z/OS System Display and Search Facility (SDSF). Java applications can be fully integrated as job steps in order to augment existing batch applications.

The combination of the launcher, data access, added system services, and environmental enhancements make running Java on z/OS as batch jobs easier, particularly for traditional z/OS programmers. The net result of these enhancements is the look and feel of running Java applications is much closer to other z/OS batch jobs, and the way Java batch can be managed is now like other z/OS batch applications written in COBOL, PL/I, or other compiled languages.

The batch launcher and toolkit extends the z/OS J2SE products with a set of Java classes and additional C++ code. Java applications can be launched directly as batch jobs on z/OS along with using the custom launcher. The JZOS set of Java class libraries extends the function available in the standard Java product. The extensions provide APIs for Java access to z/OS operating system services and access to z/OS-specific data types, including VSAM data.

Redbook: SG24-7291 Java Stand-alone Applications on z/OS Volume II - **Using JZOS to develop, deploy and runJava applications.**



You can now easily share DFSMSrmm settings in SYS1.PARMLIB. System symbols are supported in parmlib member EDGRMMxx. You may also concatenate members and may use indirection to an additional parmlib member containing system specific options. Use the memberxx operand on the OPTION command to identify.

Use the RMM LISTCONTROL subcommand to display RMM control data set record information and EDGRMMxx parmlib settings.

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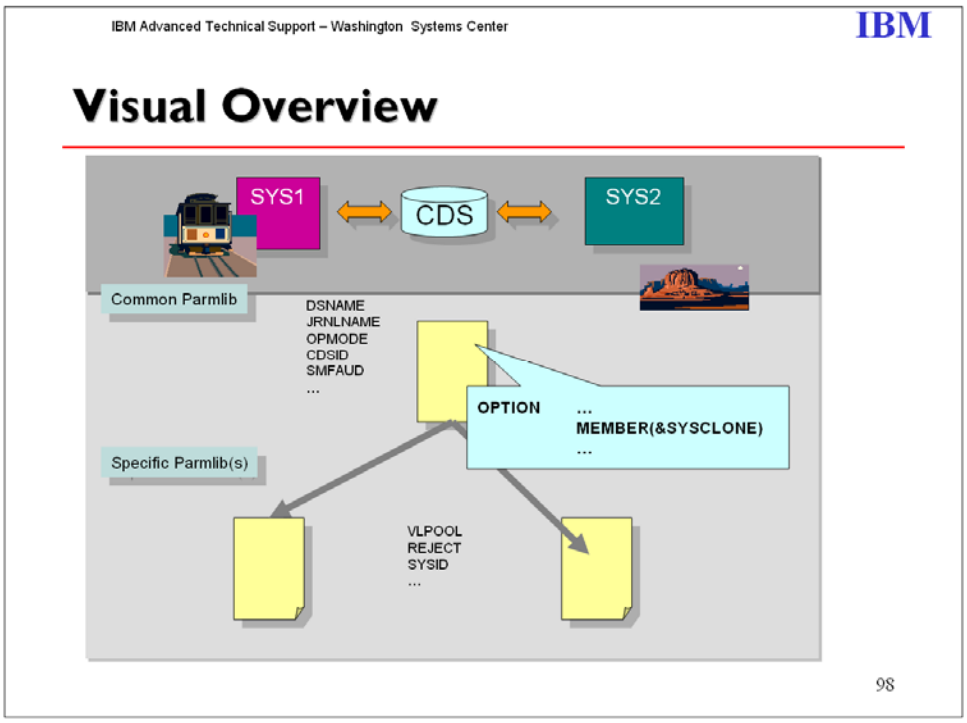

Some information in the EDGRMMxx parmlib may need to be specific to a subset of your systems. For example, the REJECT or VLPOOL entries may need to be different. To enable this information to be handled on a system by system basis you can specify a second parmlib member to be used. Use the MEMBER operand on the OPTION command to identify the second parmlib member.

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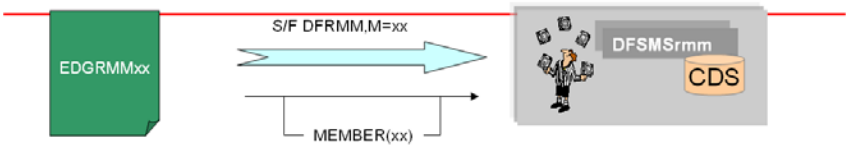
OPTION MEMBER(xx)



MEMBER(xx)

Use the MEMBER operand in the primary DFSMSrmm parmlib to identify a second parmlib member containing overrides or additional parmlib options. For example you might use the second parmlib member for system specific options or parmlib statements.

Parmlib_suffix must be any 2 characters used as the suffix of the EDGRMMxx parmlib member name.

The MEMBER operand is ignored if it is also specified in the second parmlib member.

There is no default value.

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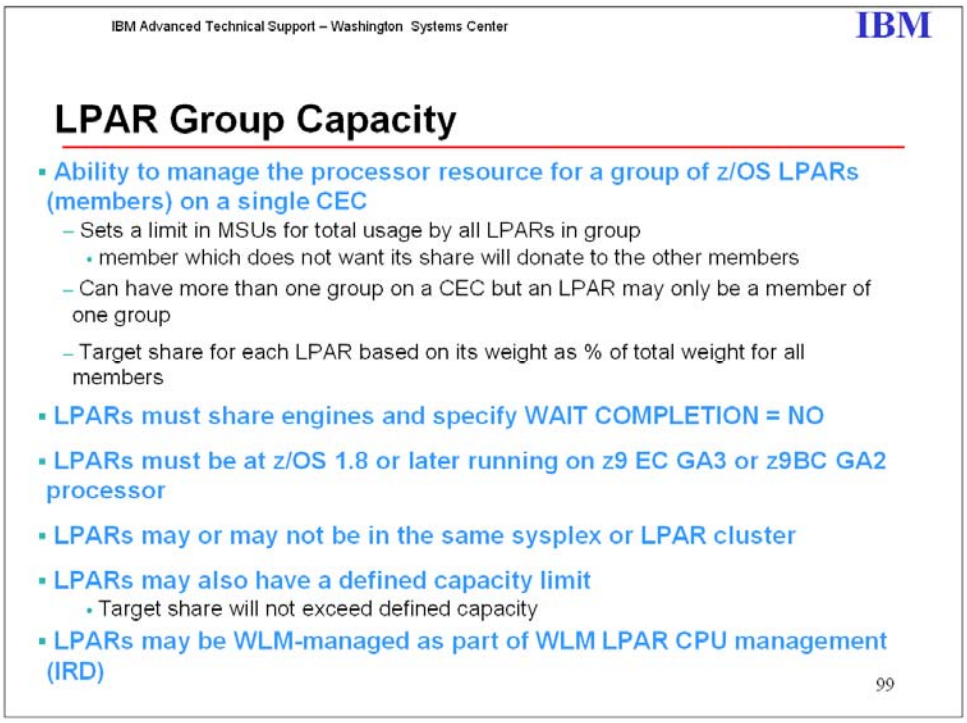

Group capacity is an extension of the defined capacity. Allows an installation to define a "softcap" for multiple LPARs on the same CEC. It limits RSU resources for a group. LPAR group capacity allows you to specify 1 or more groups of LPARs on a server, each with its own capacity limit. This is designed to allow z/OS to manage the groups in such a way the sum of the LPARs CPU utilization within a group will not exceed the groups defined capacity.

LPAR group capacity limit requires all LPARs to be managed are on z/OS 1.8 or higher. LPAR group capacity limits may help provision a portion of the server to a group of LPARs allowing the CPU resources to float more readily between the LPARs resulting in more productive use of "white space".

Group limit is always met on average.

It uses the weight definitions of the partitions and their actual demand to decide how much CPU can be consumed by each partition in the group. Based on weight definitions, each partition gets an entitled share of the group capacity. The entitled share is important to decide how much MSU can be used by each partition if the 4 hour rolling average of the group exceeds the group capacity limit.

Where is information reported?
RMF type 70 PR/SM Partition Data Section addition
RMF Monitor III CPC report addition
SMF 99 subtype 11 record - new

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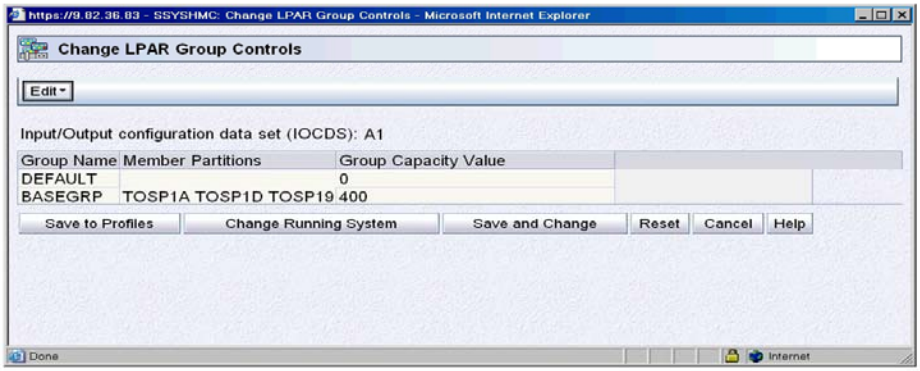
Where is it defined?

- **Capacity groups are defined on the HMC Change LPAR Group Controls panels**
  - Specify a group name, a limit in MSUs and which LPARs belong to the group
  - Members can be added or removed dynamically



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How does it work?

- **Uses rolling 4 hour average MSU measurements computed by WLM to manage the group capacity limit**
  - Capping enforced by PR/SM when the group rolling 4 hour average exceeds the limit
  - Each member is aware of other members' usage and determines its share based on its weight as a percentage of the total weight for all members of the group
    - **NOTE: When using IRD the weights can change and therefore the target MSU value can change for the LPARs**
    - The defined capacity limit, if also specified, is never exceeded
- **Example shows how many MSUs each LPAR would get if they all wanted their share. Assume GROUPA group limit is 200. The total group weight is 500.**

LPAR	WEIGHT	SYSPLEX	CAPACITY GROUP	TARGET MSU SHARE
LPAR1	150	PLEX1	GROUPA	(30%) 60
LPAR2	300	PLEX2	GROUPA	(60%) 120
LPAR3	500	PLEX1	n/a	n/a
LPAR4	50	PLEX1	GROUPA	(10%) 20

- **Capping is not enforced during the time period that the members are "learning" about the group and building a history,**
  - May take up to 4 hours (48 measurements at 5 minute intervals are maintained for rolling 4 hour average) for capping to start
  - Similar to bonus period with defined capacity
  - When new member joins the group, it has to build its history and during this time the group usage may exceed the capacity limit
  - Capping removed when group rolling 4 hour average drops below group limit

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RMF Monitor I CPU report new section

```
G R O U P   C A P A C I T Y   R E P O R T
                                G R O U P   C A P A C I T Y   R E P O R T

   z/OS V1R8              SYSTEM ID PRF1            DATE 06/18/2007          INTERVAL
04.59.989
                                  RPT VERSION V1R8 RMF       TIME 16.35.00
CYCLE 1.000 SECONDS

GROUP-CAPACITY  PARTITION    SYSTEM   -- MSU --   WGT   -CAPPING--    - ENTITLEMENT -
NAME     LIMIT                        DEF   ACT       DEF   WLM%    MINIMUM MAXIMUM
BASEGRP    400  TOSP1A       PRF2       0   133   250   NO     0.0       100     400
                TOSP1D       PRFA       0   183   500   NO     0.0       200     400
                TOSP19       PRF1       0   133   251   NO     0.0       100     400
-----------------------------------   ------------------------------------------------
                              TOTAL      449  1001
```

Actual MSUs used. The total may be higher than the Group capacity limit because enforcement begins when the rolling 4 hour average reaches the limit not the total MSUs used in an interval.

Minimum entitlement MSUs will change as the weights (WGT) change in an IRD environment

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RMF Monitor III CPC report new fields

```
                        RMF V1R8  CPC Capacity                  Line 1 of 20
Command ===>                                                   Scroll ===> CSR
 Samples: 100     System: PRF1  Date: 05/02/07  Time: 16.53.20  Range: 100   Se
 Partition:   TOSP19     2094 Model 750
CPC Capacity:    2295   Weight % of Max: ****   4h Avg:   99   Group: BASEGRP
Image Capacity:   184   WLM Capping %:    0.0   4h Max:  164   Limit:   400

Partition  --- MSU ---  Cap  Proc    Logical Util %    - Physical Util % -
             Def   Act  Def   Num    Effect   Total    LPAR  Effect  Total
*CP                                                     0.2    33.0   33.2

TOSP1A         0   157  NO     4.0      85.7    85.8     0.0     6.9    6.9
TOSP1B         0   157  NO     4.0      85.7    85.8     0.0     6.9    6.9
TOSP1C         0    46       1.0       100     100     0.0     2.0    2.0
TOSP1D         0     1  NO     4.0       0.5     0.6     0.0     0.0    0.1
TOSP1E         0     1  NO     4.0       0.5     0.7     0.0     0.0    0.1
TOSP19         0   164  NO     4.0      89.3    89.3     0.0     7.1    7.1
```

The 4h Avg is PRF1's view of its rolling 4 hour average. It can use up to 184 MSUs during its bonus period.

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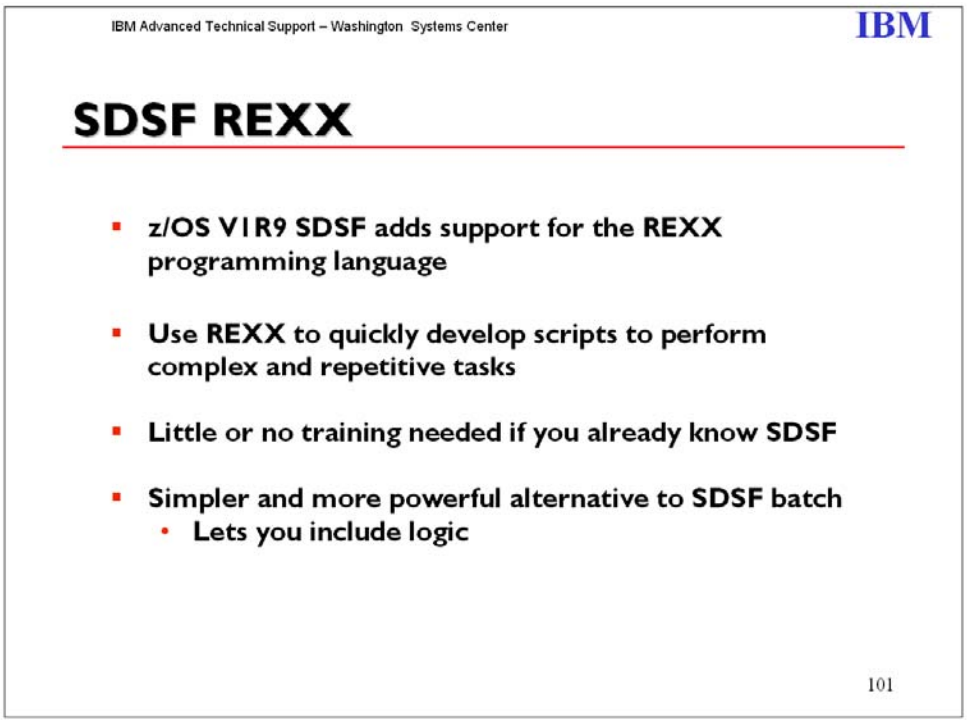
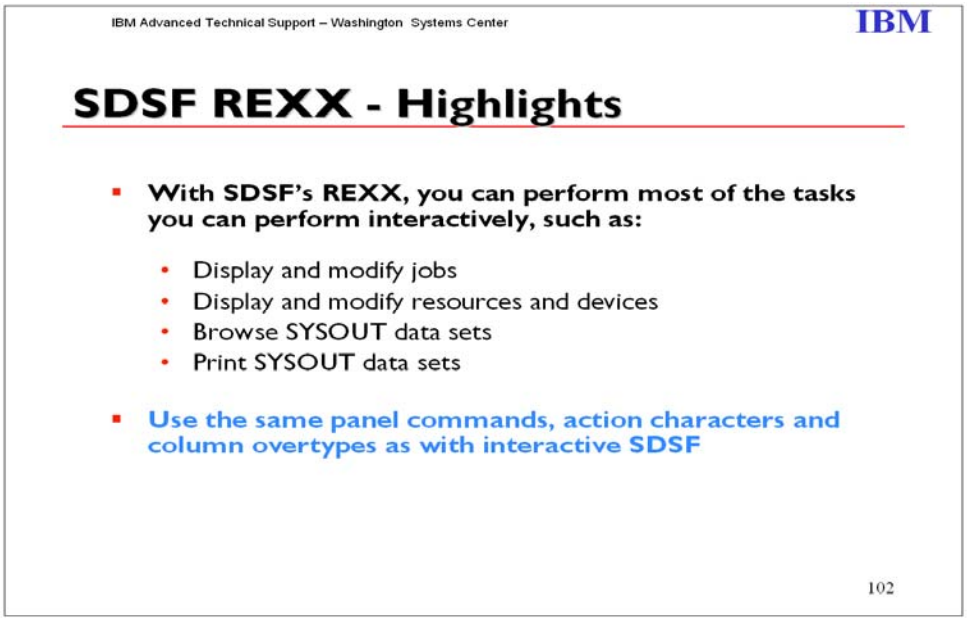


REXX support provides an alternative to using SDSF batch and opens up SDSF's strengths to a wider user base.

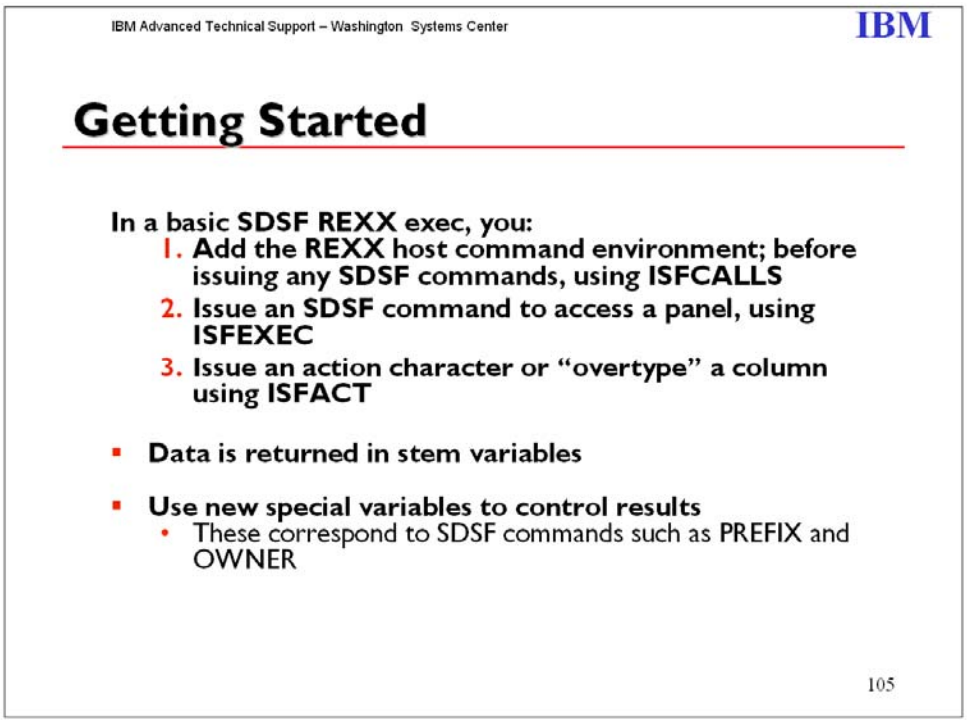
SDSF batch supports only simple programs that issue action characters and (with the ISFAFD flavor of batch) modify values. With REXX you can include logic that does things like examine values and make decisions based on the values. You can access almost all of SDSF's function. And you can do things that are impossible to do with SDSF interactively (as will be shown in some examples at the end of this presentation).

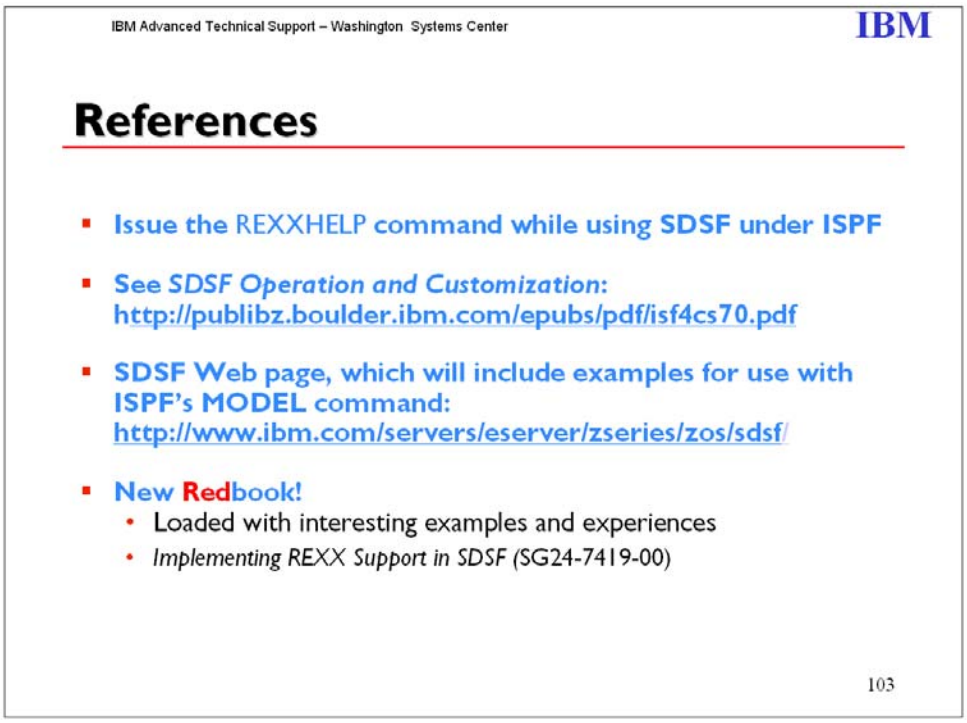
REXX with SDSF integrates your REXX executable by executing commands and returning the results in REXX variables. The API mimics the interactive use of the product.

This support is rolled back to z/OS 1.8 as a web download.



REXX support includes all of the SDSF panels that are supported interactively, with the exception of SYSLOG and Output Descriptors (which is displayed with the Q action character from job and output panels).





To display help on using REXX with SDSF, use a new REXXHELP command when running SDSF under ISPF.

The SDSF book, *SDSF Operation and Customization*, contains a chapter on using REXX with SDSF.

ISPF models for REXX, available for download from the SDSF Web page, allow you to work with fully annotated sample execs in ISPF Edit. (In edit, type MODEL on the command line.)

SDSF REXX Redbook - Topics
Chapter 1. Issuing a system command
Chapter 2. Copying SYSOUT to a PDS
Chapter 3. Bulk job update processor
Chapter 4. SDSF support for the COBOL language
Chapter 5. Searching for a message in SYSLOG
Chapter 6. Viewing SYSLOG
Chapter 7. Reviewing execution of a job
Chapter 8. Remote control from other systems
Chapter 9. JOB schedule and control
Chapter 10. SDSF data in graphics
Chapter 11. Extended uses

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zSeries Software Pricing Website

- **The zSeries Software Pricing Website is designed to help you understand IBM's software licensing/pricing terms and conditions.**
- **The site focuses on software pricing metrics:**
  - New **Integrated Workload Pricing (IWP)**
  - Advanced Workload License Charges (AWLC)
  - Workload License Charges (WLC)
  - zSeries Entry License Charges (zELC)
  - System z New Application License Charges (zNALC)
  - Entry Workload License Charges (EWLC) for z9 BC, z890, z800 customers
  - Select Application License Charges (SALC) – applies to MQ Series
  - PSLC
  - System z IPLA
  - zLEC (System z Lifecycle Extension Charge) --- z/OS 1.7
  - SzLC (System z Lifecycle Charge) --- z/OS 1.8 and z/OS 1.9
- **Tool downloads**
  - Sub-Capacity Planning Tool
  - Sub-Capacity Reporting Tool 19.1.0 – latest

http://www.ibm.com/servers/eserver/zseries/swprice/

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10 February 2011
Today, IBM announced that the Sub-Capacity Reporting Tool (SCRT) Version 19 Release 2.0 is available for download. SCRT V19.2.0 features are listed on the web.
18 January 2011
Today, IBM announced Integrated Workload Pricing (IWP). IWP enhances the sub-capacity utilization reporting capabilities of zEnterprise 196 systems running z/OS, which can improve the price/performance for eligible Monthly License Charge IWP Adjusted Programs running within the same LPAR as select IWP Defining Programs. Lists of both types of IWP Programs are on the web.
30 October 2010
Today, IBM announced the IBM Service Extension for Usage Support on z/OS V1.9. The Service Extension for Usage Support offers fee-based installation guidance, product-usage advice, and how-to support to users who have not completed their migration from z/OS V1.9 to a currently supported release.
11 October 2010
Today, IBM announced that the Sub-Capacity Reporting Tool (SCRT) Version 19 Release 1.0 is available for download. SCRT V19.1.0 features are listed on the web.

Integrated Workload Pricing

IBM provides Integrated Workload Pricing (IWP) to enhance utilization reporting capabilities of systems running IBM z/OS®, which can improve the price/performance for eligible Monthly License Charge (MLC) programs running within the same logical partition (LPAR) as select defining programs. The IWP enhancements to the reporting capabilities in z/OS enable the IBM

Sub-capacity Reporting Tool (SCRT) to calculate the general purpose processor time consumed by eligible defining programs and adjust the reported MSU values for eligible MLC programs running in the same LPAR.
The WebSphere® family of programs for z/OS can help you modernize and extend existing business applications to drive business agility. Significant performance and operational benefits can be achieved when WebSphere middleware is collocated with System z® MLC programs within the same LPAR instead of separate LPARs. However, collocating these programs can have the effect of increasing MLC software charges due to the incremental processing in the LPAR attributable to the running of WebSphere programs. IWP has the potential to adjust and significantly improve the software price performance for certain z/OS programs when they are running in a collocated LPAR with WebSphere IWP Defining Programs, compared to running the programs in a collocated LPAR without IWP.
IWP enhances IBM sub-capacity Advanced Workload License Charges (AWLC) described in the IBM sub-capacity pricing announcement for z/OS. For additional information, refer to Software Announcement 210-238, dated July 22, 2010.

Advanced Workload License Charge

Advanced Workload License Charges (AWLC) is a monthly license pricing metric designed to support today's on demand business requirements. AWLC may be applied to IBM zEnterprise 196 (z196) servers running z/OS or z/TPF in z/Architecture (64-bit) mode. AWLC enables customers to:

- Grow hardware capacity without necessarily increasing your software charges
- Pay for key software, such as DB2, CICS, IMS, WebSphere MQ, and z/OS with LPAR-level granularity
- Experience a low cost of incremental growth
- Manage software cost by managing workload utilization

Once a customer chooses to adopt AWLC, then neither PSLC nor Usage License Charges (ULC) will apply. There are two types of charges involved: AWLC, which vary based upon server size and/or utilization, and Flat Workload License Charges (FWLC), a flat charge per server. AWLC apply to products such as z/OS, DB2, IMS, CICS, WebSphere MQ, and Lotus Domino. FWLC apply to legacy products such as less current compilers and older MVS/VM/VSE utilities. Once AWLC is adopted, applicable AWLC and FWLC charges are applied.

Workload License Charge

Workload License Charges (WLC) is a monthly license pricing metric designed to support today's on demand business requirements. WLC may be applied to a z990, a z900 or a z800 (z800 must participate in a fully qualified Parallel Sysplex to be eligible for WLC) server running z/OS in z/Architecture (64-bit) mode. WLC enables customers to:

- Grow hardware capacity without necessarily increasing your software charges
- Pay for key software, such as DB2, CICS, IMS, MQSeries and z/OS with LPAR-level granularity
- Experience a low cost of incremental growth
- Manage software cost by managing workload utilization

Once a customer chooses to adopt WLC, then neither PSLC or Usage License Charges (ULC) will apply. .WLC is broken into two types of charges: Variable WLC and Flat WLC. Variable WLC apply to products such as z/OS, DB2, IMS, CICS, MQSeries, System Automation, NetView and Domino. Flat WLC apply to legacy products such as less current compilers and older MVS/VM/VSE utilities. Once WLC is adopted, applicable VWLC and FWLC charges are applied.

Effective 1 July 2003, IBM is making the base charges for Variable Workload License Charges more granular, by reducing the base from 45 MSUs to 3 MSUs. Since the base charge is reduced to 3 MSUs, a Level 0 has also been introduced to cover the MSUs between 4 MSUs and 45 MSUs. The more granular base provides customers with a lower cost of entry for VWLC products, requiring a minimum of 3 MSUs rather than a minimum of 45 MSUs. Customers with workloads smaller than 45 MSUs may license as little as 3 MSUs of VWLC software.

zSeries Entry License Charge

zSeries Entry License Charge (zELC) is a new base pricing metric designed especially to support the new zSeries 800 server. IBM introduced zSeries Entry License Charge to deliver appropriate software price performance for a variety of z800 customer needs. Customers who are migrating from a Multiprise 3000 server into a small z800 may find price performance similar to Growth Opportunity License Charge. Customers who are migrating from an S/390 Enterprise Server to a larger z800 server may find price performance similar to Parallel Sysplex License Charge.

zSeries Entry License Charge is determined based on the particular z800 model (0A1, 0B1, 0C1, 001, 0A2, 002, 003, 004) where the software is licensed. zELC is only offered on z800 machines.

On 27 Apr 2006, IBM announced zSeries Entry License Charge (zELC) pricing for the smallest z9 BC server, z9 BC capacity setting A01.

Entry Workload License Charges (EWLC)

In support of an on demand operating environment, IBM is now announcing Entry Workload License Charges (EWLC) for z800 customers. EWLC enables qualifying z800 customers to pay for EWLC-eligible IBM software based on the utilization of the LPAR or LPARs where that product executes. This sub-capacity pricing provides the potential to lower software charges on the z800. Qualifications include a z800 server with z/OS or z/OS.e licensed and operating in z/Architecture (64-bit) mode.

Select Application License Charge (SALC)

Select Application License Charges (SALC) is available solely for MQSeries and only on machines with either Workload License Charges or Entry Workload License Charges. SALC is an excellent price/performance option on very-low utilization installations of MQSeries. SALC is available for either Sub-Capacity or Full Capacity WLC/EWLC machines. For an MQSeries installation with the SALC pricing metric, software charges are based upon the utilization of MQSeries.

zNALC

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. zNALC is the IBM strategy, replacing the z/OS.e operating system and the NALC pricing metric.

System z Lifecycle Extension Charge (zLEC)

The System z Lifecycle Extension Charge (zLEC) metric is used for pricing of the IBM Lifecycle Extension for z/OS V1.7. While zLEC is not actually a Monthly License Charge (MLC) metric which is used for product pricing, it is a support charge for z/OS which is an MLC product.
IBM Lifecycle Extension for z/OS V1.7 is a fee-based corrective service offering for users who have not completed their migration from z/OS V1.7 to either z/OS V1.8 or V1.9. For more information about IBM Lifecycle Extension for z/OS V1.7 see the announcement.
IBM Lifecycle Extension for z/OS 1.7 is priced based on the total permanent MSU capacity of each server running z/OS V1.7 using the following zLEC tier structure:

zLEC Structure

Tier	Machine Capacity
Tier A	4 – 11 MSUs
Tier B	12 – 21 MSUs
Tier C	22 – 43 MSUs
Tier D	44 – 71 MSUs
Tier E	72 – 128 MSUs
Tier F	129 – 214 MSUs
Tier G	215 – 357 MSUs
Tier H	358 – 714 MSUs
Tier I	715+ MSUs

System z Lifecycle Charge (SzLC)

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The IBM System z Lifecycle Charge (SzLC) metric is used for pricing of the IBM Lifecycle Extension for z/OS V1.8. While SzLC is not actually a Monthly License Charge (MLC) metric which is used for product pricing, it is a support charge for z/OS which is an MLC product.
IBM Lifecycle Extension for z/OS V1.8 is a fee-based corrective service offering for users who have not completed their migration from z/OS V1.8 to either z/OS V1.9 or V1.10. For more information about Lifecycle Extension for z/OS V1.8 see the announcement.
System z Lifecycle Charges are based upon the following MSU tier structure. The MSU tier that applies is determined by the total permanent MSU capacity of the server for which the Lifecycle Extension is ordered. The SzLC tier for a qualified Parallel Sysplex will be based on the sum of the total permanent MSUs of the servers in the Parallel Sysplex running z/OS V1.8.

SzLC Structure

Tier	Machine Capacity
Tier A	4 – 11 MSUs
Tier B	12 – 21 MSUs
Tier C	22 – 43 MSUs
Tier D	44 – 71 MSUs
Tier E	72 – 128 MSUs
Tier F	129 – 214 MSUs
Tier G	215 – 357 MSUs
Tier H	358 – 714 MSUs
Tier I	715 – 1111 MSUs
Tier J	1112 – 1528 MSUs
Tier K	1529 – 1944 MSUs
Tier L	1945+ MSUs

WLC Tool
The WLC tool allows you to determine the MSU capacity of your current LPARs.

SCRT Tool
The Sub-Capacity Reporting Tool allows you to report your sub-capacity license requirements for qualifying zSeries mainframes with Workload License Charges.

Value Unit Converter Tool

The Value Unit Converter Tool converts between MSUs and Value Units. Value Units are the unit of measure for licensing select application development and data management tools on the mainframe.

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Coupling Facility Control Code (CFCC) levels

http://www-03.ibm.com/systems/z/advantages/pso/cftable.html

- **To support migration from one coupling facility level to the next, you can run different levels of the coupling facility concurrently as long as the coupling facility LPs are running on different CPCs.**
  - CF LPs running on the same CPC share the same coupling facility control code EC level.
  - A single CPC *cannot* support multiple coupling facility levels.
- **When migrating coupling facility levels, lock, list and cache structure sizes might need to be increased to support new function**
- **This adjustment can have an impact when the system allocates structures or copies structures from one coupling facility to another at different coupling facility levels.**
- **The coupling facility structure sizer tool can size structures and takes into account the amount of space needed for the current CFCC levels.**

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http://www-03.ibm.com/systems/z/advantages/pso/cftable.html

Coupling facility code level

CPC Models	Level 17	Level 16	Level 15	Level 14	Level 13	Level 12
2817 z196	EC N26886 (Ver 2.11.0) MCL 001	NA	NA	NA	NA	NA
2098 z10™ BC	NA	EC N24403 (Ver 2.10.2) 006	EC F85900 (Ver 2.10.0) MCL 006	NA	NA	NA
2097 z10 EC	NA	EC N24403 (Ver 2.10.2) 006	EC F85900 (Ver 2.10.0) MCL 006	NA	NA	NA
2096	NA	NA	EC G40953	EC J99670	NA	NA

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Coupling facility code level

CPC Models	Level 17	Level 16	Level 15	Level 14	Level 13	Level 12
z9® BC			(Ver 2.9.2)	(Ver 2.9.1)		
2094 z9 EC	NA	NA	MCL 014 EC G40953 (Ver 2.9.2)	MCL 008 EC J99670 (ver 2.9.0)	NA	NA
2084 z990	NA	NA	MCL 014 NA	MCL 008 EC J13481 (Ver 1.8.2)	EC J13481 (Ver 1.8.2)	EC J12555 (Ver 1.8.0) MCL 007
2086 z890	NA	NA	NA	MCL 026 EC J13481 (Ver 1.8.2) MCL 026	MCL 003 EC J13481 (Ver 1.8.2) MCL 003	NA

Notes:
1. The EC number refers to the SE D partition EC number.
2. All MCLs cited in the table are current as of the publication date of this edition and can be superseded by later MCLs. For the latest EC and MCL information, use IBM Service Link to view the appropriate PSP bucket subset ID for hardware and software maintenance information.

For a list of the software levels exploiting the new function and levels coexisting with each CF level, see the Summary of CFLEVEL Functions in the latest copy of the "PR/SM Planning Guide" on IBM ResourceLink, and the "z/OS MVS Setting Up a Sysplex" reference guide.

Level 15 Coupling Facility
A level 15 coupling facility (CFLEVEL=15) provides the following enhancements:
Increasing the allowable tasks in the Coupling Facility (CF) from 48 to 112.
RMF Measurement Improvements
Note: When migrating CF levels, lock, list, and cache structure sizes may need to be increased to support the new function. This adjustment can impact the system when it allocates structures or copies structures from one coupling facility to another at different CF levels. The coupling facility structure sizer tool is designed to size structures for you, and takes into account the amount of space needed for the current CFCC levels.

Level 16 Coupling Facility
A level 16 coupling facility (CFLEVEL=16) provides the following enhancements:

- Improved service time for CF duplexing
- List notification improvements for IMS and MQ shared
- Increasing the structure increment size from 512 KB to 1 MB

Level 17 Coupling Facility
A level 17 coupling facility (CFLEVEL=17) provides the following enhancements:

- Up to 2047 structures

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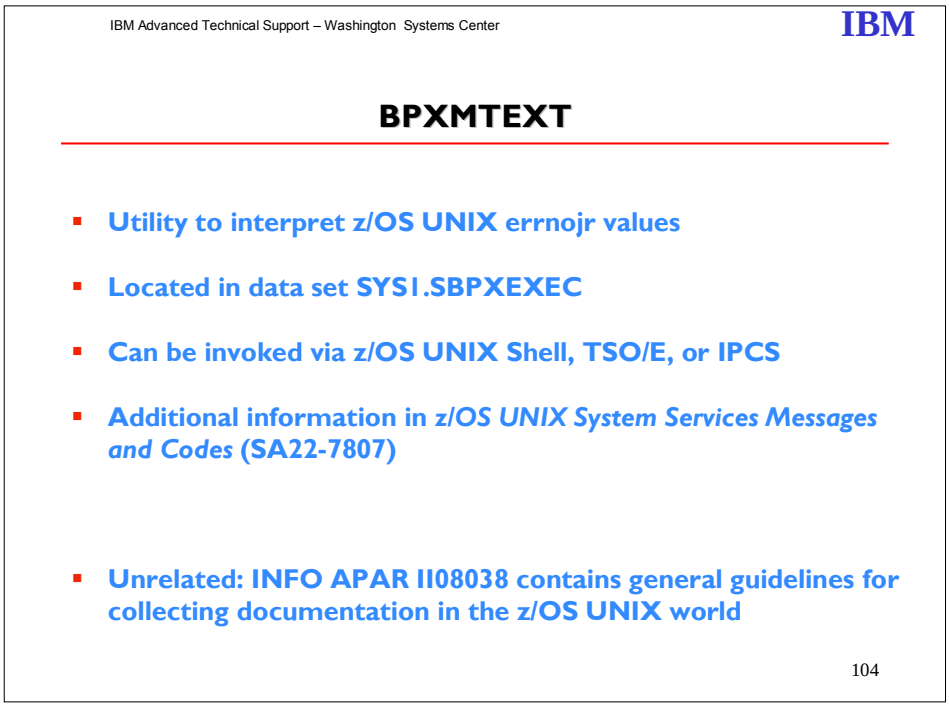
- Up to 247 connectors to a lock structure, 127 connectors to a serialized list structure, and 255 connectors to an unserialized list structure. Previously there was a maximum of 32 connectors
- Non-disruptive dumps of CF data



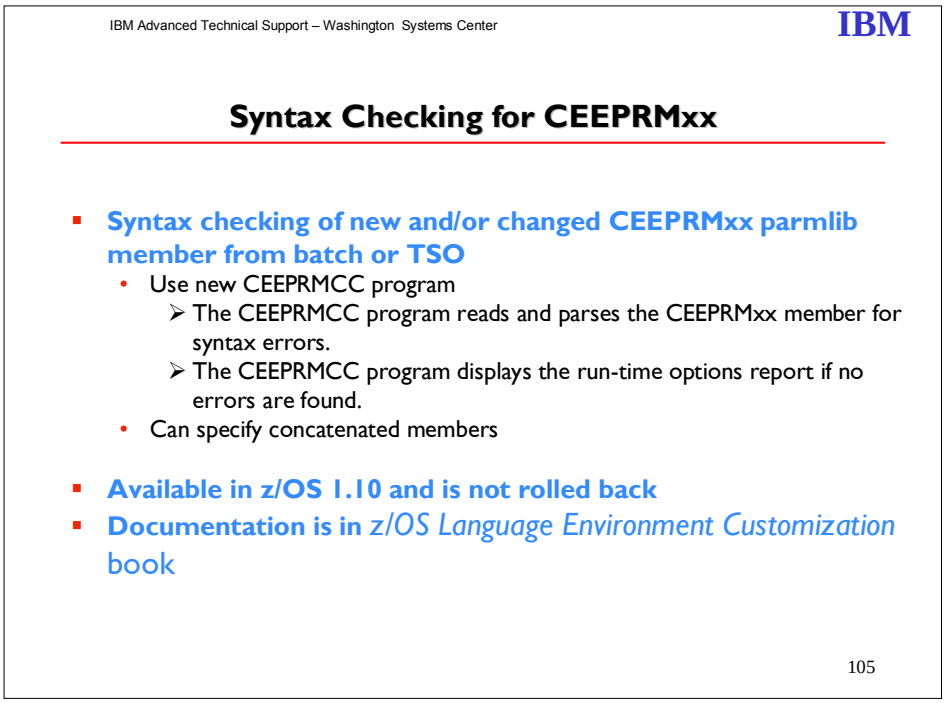
The BPXMTEXT utility can quickly interpret z/OS UNIX errnojr values. Find BPXMTEXT in SYS1.SBPXEXEC and copy it to SYSEXEC or SYSPROC to use it. You can invoke it from TSO/E, IPCS, or the z/OS UNIX shell. In z/OS V1R8, you can use BPXMTEXT to interpret errnojr values from zFS (reason code qualifier=EFxx) and TCP/IP (reason code qualifier=7xxx). In z/OS V1R9, you can also interpret errnojr values from the C/C++ run-time library (reason

code qualifier=Cxxx). For more details about interpreting errno and errnojr values, see *z/OS UNIX System Services Messages and Codes*, SA22-7807.

Message prefixes
z/OS UNIX messages have the prefix BPX and are described in *z/OS MVS System Messages, Vol 3 (ASB-BPX)*, SA22-7633. z/OS UNIX shell and utilities messages are prefixed by either FSUM or FOM, and are described in *z/OS UNIX System Services Messages and Codes*, SA22-7807. Alternatively, you can use LookAt to locate the explanation for a message at ibm.com/**systems/z/os/zos/bkserv/lookat**.

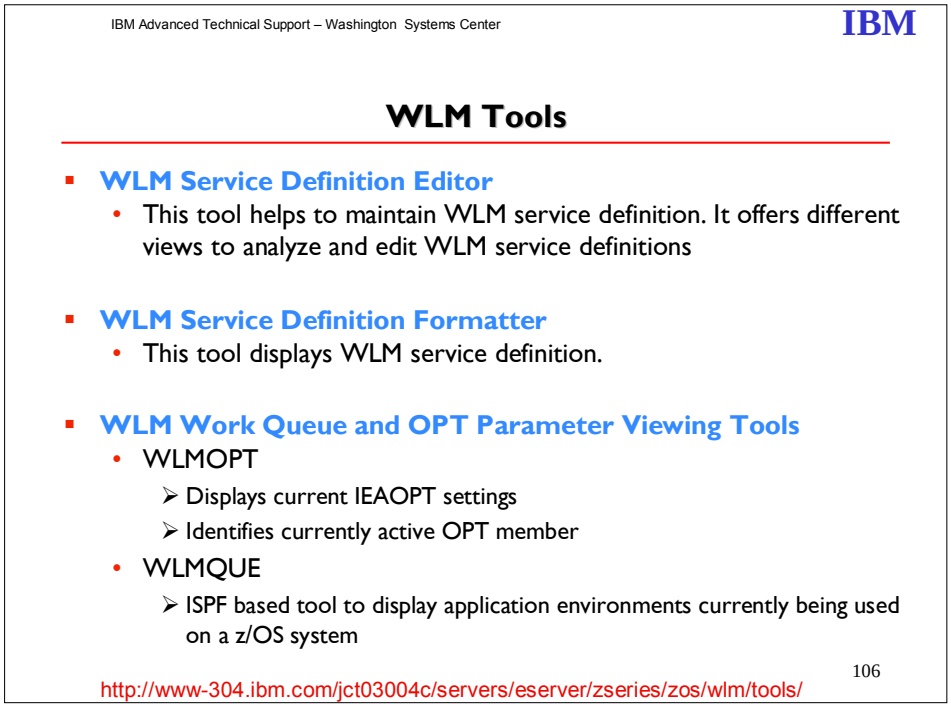
Abends
BPXMTEXT cannot interpret z/OS UNIX abend reason codes, but you can find the explanations for abends and their associated reason codes in *z/OS MVS System Codes*, SA22-7626. Here are two abend codes that you might encounter:

- ABENDEC6 during processing of a z/OS UNIX syscall request (the reason code provides more details about the specific error)
- ABEND422 with a reason code of *xxxx*01zz (note the 01 in the third byte) is also z/OS UNIX specific.



Syntax checking tool for CEEPRMxx parmlib members
Language Environment is enhanced to provide a tool for syntax checking of one or more CEEPRMxx members of PARMLIB before attempting to activate them. CEEPRMxx members can be syntactically checked for errors under z/OS batch or TSO/E. Before calling the syntax checker, a CEEPRMxx member must be created and placed in a PDS or PDSE.

Note: IBM Statement of Direction – February 2010 – In a future release, IBM plans to remove the capability to change the default Language Environment run-time options settings via SMP/E installable USERMODs. IBM recommends using the CEEPRMxx parmlib member to change the default Language Environment run-time options for the system.



WLM Service Definition Editor
The WLM Service Definition Editor is a workstation-based tool designed to maintain your WLM service definition. It integrates a FTP download/upload mechanism allowing transfer of WLM service definitions in ISPF format between host and workstation. The WLM Service Definition Editor provides different views to analyze, edit, and print workload management definitions.

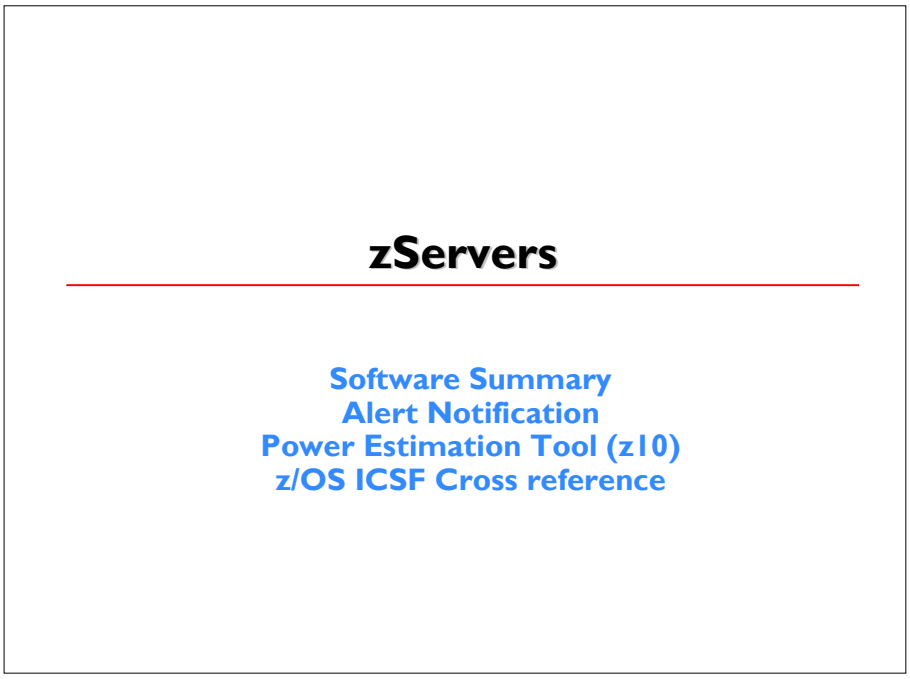
WLM Service Definition Formatter
The Service Definition Formatter tool assists in displaying your WLM service definition. To use the tool download the WLM service definition to a workstation and load it into the spreadsheet. Then use the various worksheets to display parts of your service definition to get a better overview of the workload management definitions.

The tool is *not* a service definition editor. All modifications to the WLM service definition must be entered through the WLM Administrative Application.

WLM Work Queue and OPT Parameter Viewing Tools
WLMQUE, the WLM Work Queue Viewer is an ISPF based tool designed to display the application environments currently being used on your z/OS system. This can be helpful for using Websphere Application Servers when specifying minimum and maximum limits for the number of server address spaces to be started. The number of started and active server address spaces can be viewed, and the service classes being used as work queues for the application environments with the help of the

REXX command list. The tool can be used for any kind of application environment from WebSphere, DB2 or user specified types and applications.

The WLMOPT, the WLM OPT parameter viewer assists in displaying the current OPT settings of the z/OS system. The tools helps to quickly obatin information about the currently active OPT member, when it was installed and the settings of all OPT parameters.



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Summary of z196 Hardware Functions by z/OS Release

z/OS 1.7, 1.8,1.9	z/OS 1.10 and 1.11	z/OS 1.12
▪ Same functionality as z10 *plus*: ▪ New MSU Levels ▪ New zArchitecture Instructions (new OPCODE support) ▪ Crypto Toleration ▪ Toleration for >64 CPs on the server ▪ IFARUP Reporting	▪ All from z/OS 1.7, 1.8 & 1.9 column *Plus* ▪ See Next Foil	▪ All from z/OS 1.7, 1.8 & 1.9 column ▪ All from z/OS 1.10 and 11 foil *Plus* ▪ XL C/C++ ARCH(9) and TUNE(9) options ▪ zDAC Support ▪ New Display command (D OSAINFO) ▪ OSA-Express3 inbound Workload Queuing (IWQ)

Lifecycle Extension REQUIRED for z/OS 1.7, 1.8 and z/OS 1.9

(1) Requires zIIP web download

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z/OS Exploitation Software Support for zEnterprise (z/OS 1.10 and 1.11)

- **All functions listed for z/OS V1.7, z/OS V1.8 and z/OS V1.9 plus a few System z10 functions**
  - Dynamic adding a CPU to a z/OS LPAR without an IPL
  - New XL C/C++ Compiler Options
- **Plus new z196 functions**
  - zBX Support for optimizers and IBM POWER7 blades
    - IBM zEnterprise Unified Resource Manager
      - Network Management
        - Intranode Management Network (INMN)
        - Intraensemble data network (IEDN)
    - Performance Management
  - RSM exploitation of new OPCODEs
  - HiperDispatch cache and affinity node changes
  - HiperDispatch performance and serviceability enhancements
  - Static Power Save Mode
  - Language Environment High Register Resolution
  - CPU Measurement Facility (Hardware Instrumentation Services)
  - CF Level 17
    - CFCC Diagnostics
    - Scalability improvements with up to 80 coupling links
    - Connectivity improvements with up to 2047 structures
    - Connectivity improvements with 128 CHPIDs per server
  - Removal of the 64k byte data transfer limit for zHPF multitrack operations
  - Three subchannel sets
  - Crypto Exploitation (ANSI X9.8 Pin security, enhanced Common Cryptographic Architecture (CCA), 64 Bit, CP Assist for Cryptographic Function (CPACF) enhancements, Secure Keyed-Hash Message Authentication Code (HMAC)*, CKDS Constraint Relief, AP Interrupt, PCI Audit, Elliptic Curve Cryptography (ECC) Digital Signature Algorithm, and CBC Key Wrap)
  - RMF Postprocessor Crypto Activity report support for 4096-bit

* Planned to be available first quarter 2011, with additional PTFs. All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

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z/OS Exploitation Support for a z196 Server

z/OS V1.10 – z/OS V1.12 support is included for the following functions on the z196:
z196 toleration support: new instruction mnemonic support, HiperDispatch, OSA-Express3 (GbE LXand SX, 1000BASE-T, 10 GbE LR and SR), FICON Express8, Parallel Sysplex InfiniBand (PSIFB) Coupling Links, High Performance FICON for System z (zHPF), Usage Report Program (IFAURP)support, toleration for >64 CPs on the server, OSA-Express3 CHPID OSD maximum ports, RMF (HIS),

• IBM zEnterprise Unified Resource Manager support including: Network Management (Intranode Management Network - INMN, and Intraensemble data network - IEDN), and Performance Management

• IBM zEnterprise BladeCenter Extension (zBX) support for IBM Smart Analytics Optimizer for DB2 for z/OS, V1.1 (5697-AQT) or IBM POWER7 Blades,

• HiperDispatch exploitation of cache and affinity node changes,

• CF Level 17 support including improved CFCC Diagnostics, Scalability improvements with up to 80 coupling links, Connectivity improvements with up to 2047 structures, and Connectivity improvements with 128 CHPIDs per server,

• Removal of the 64k byte data transfer limit for zHPF multitrack operations,

• Support for three subchannel sets,

• (z/OS V1.12 only) z/OS FICON Discovery and AutoConfiguration (zDAC) support,

• (z/OS V1.12 only) a new display command for OSAINFO,

• (z/OS V1.12 only) OSA-Express3 Inbound Workload Queuing (IWQ), support for up to 32 HiperSockets,

• (z/OS V1.12 only) XL C/C++ ARCH(9) and Tune(9) options to exploit the z196 new machine instructions

• Cryptographic exploitation if the Cryptographic Support for z/OS V1R10-V1R12 Web Deliverable (FMID HCR7780) is installed (planned availability September 2010). The cryptographic functions include: ANSI X9.8 Pin security, enhanced Common Cryptographic Architecture (CCA), 64 Bit, CP Assist for Cryptographic Function (CPACF) enhancements, Secure Keyed-Hash Message Authentication Code (HMAC) (planned to be available first quarter 2011, with additional PTFs), CKDS Constraint Relief, PCI Audit, Elliptical Curve Cryptography (ECC) Digital Signature Algorithm, and CBC Key Wrap.

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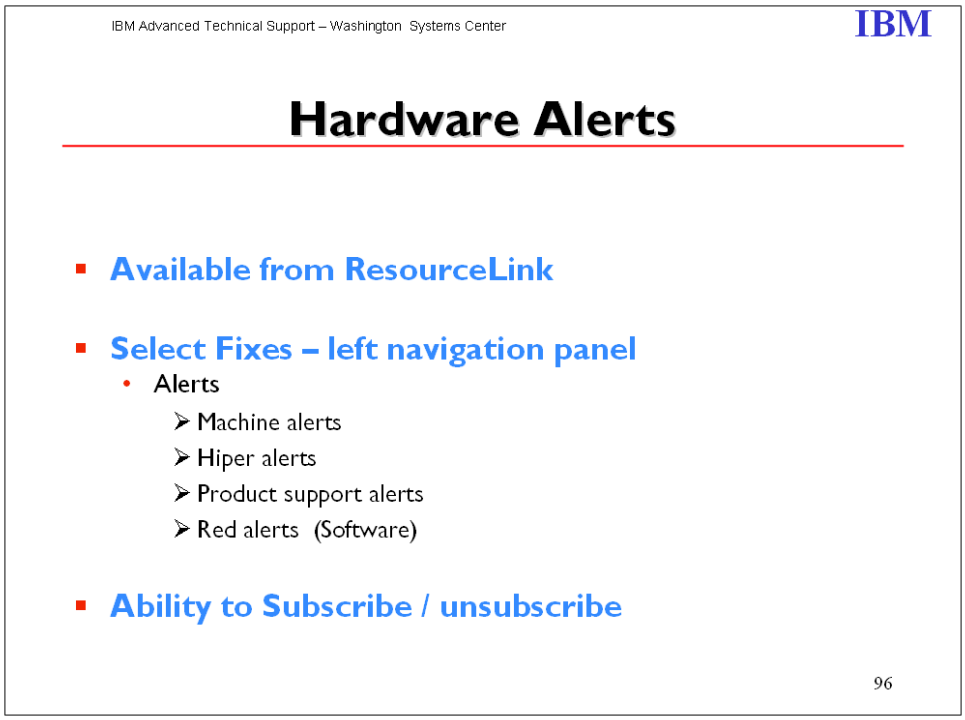


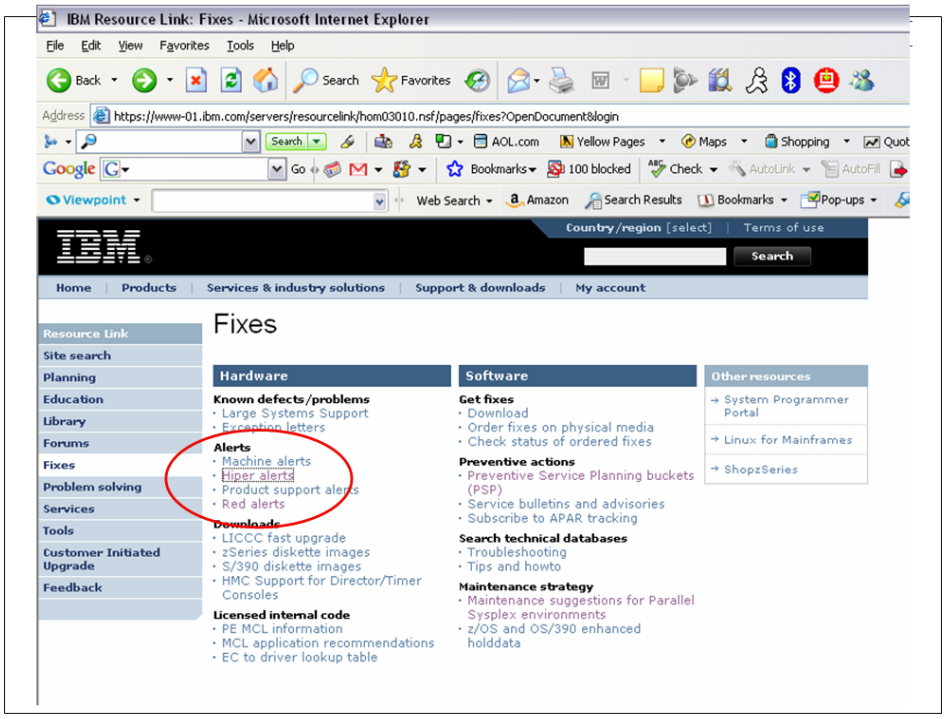
Machine Alerts are notifications of problems that may affect your zSeries server's operation.

Hiper Alerts are notifications of highly pervasive problems that may affect your zSeries server's microcode operation. These alerts are important because without the HIPER MCL installed the processor may encounter an unscheduled outage.

This service provides technical information for IT professionals who maintain zSeries servers. As these support bulletins are released, subscribers receive email containing links to the bulletins.

Red Alerts for the past year are listed.
This service is a companion to the Alert services for zSeries offering, which provides PE and HIPER notifications.

You can also use the Enhanced HOLDDATA for simplified identification and management of PEs and HIPERs.



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Power Estimation Tool

- **Available from ResourceLink – [Under Tools]**
- **For eServers z9 and z10**
  - The object of the tool is produce an estimation of the power requirements to aid in planning for your machine installation
- **Specify the quantity for the features installed in your machine**
- **This tool estimates the power consumption for the specified configuration**
  - The tool does not verify the specified configuration can be physically built
  - The exact power consumption for your machine will vary

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z/OS ICSF Version - FMID XREF

FMID	External Name	Support Higlights	Applicable z/OS Releases*	Availability	Planned EoS	Supported Servers
HCR770B*	z990 and z890 Enhancements to Cryptographic Support *	Operational Key Entry; CSFIQF API; z890/z990 PKE/PKD Enhancements; DUKPT; EMV 2000 Support	OS/390 2.10; z/OS 1.2; z/OS 1.3; z/OS 1.4; z/OS 1.5; z/OS 1.6	May 2004	Sep 2007	G5; G6; z800; z900; z890; z990; z9
HCR7740	z/OS 1.9	PKCS #11 APIs	z/OS 1.9	Sep 2007	Sep 2010	z800; z900; z890; z990; z9; z10**, z196**
HCR7750*	Cryptographic Support for z/OS V1R7-z/OS V1R9 and z/OS.e V1R7-V1R8 *	Support ISO Format 3 PIN Blocks and RSA Keys up to 4096-bits; Enhanced TKE Auditing Support; New Random Number Generate Long API; Enhancements to CPACF; CEX2 Dynamic Add; Add support for AES-192 & AES-256, SHA-512;	z/OS 1.7; z/OS 1.8; z/OS 1.9	Nov 2007	Sep 2010	z800; z900; z890; z990; z9; z10**, z196**
	z/OS 1.10		z/OS 1.10	Sep 2008	Sep 2011	
HCR7751*	Cryptographic Support for z/OS V1R8-z/OS V1R10 and z/OS.e V1R8	Support for 13-Digit through 19-Digit PAN data; New Crypto Query Service; Keystore Policy; Secure Key AES; TKE 5.3	z/OS 1.8; z/OS 1.9; z/OS 1.10	Nov 2008	Sep 2011	z800; z900; z890; z990; z9; z10**, z196**
	z/OS 1.11		z/OS 1.11	Sep 2009	Sep 2012	
HCR7770	Cryptographic Support for z/OS V1R9-V1R11	Protected Key CPACF; Crypto Express3; Extended PKCS #11 Support; Elliptic Curve Cryptography (ECC) Support	z/OS 1.9; z/OS 1.10; z/OS 1.11	Nov 2009	Sep 2012	z890; z990; z9; z10, z196**
HCR7780	Cryptographic Support for z/OS V1R10-V1R12	z196 Support (MSA-4 Instructions); CCA Elliptic Curve (ECDSA, ECDH); ANSI X9.8 & ANSI X9.24 Enhancements; HMAC (via APAR); TKE 7.0; 64-bit support for all APIs; Enhance logging for PCI Audit; CKDS constraint relief	z/OS 1.10; z/OS 1.11; z/OS 1.12	Sep 2010	Sep 2013	z890; z990; z9; z10; z196
	Pink => Wed download, currently available		*Available for download but provided without service			
	Blue => Web download, or z/OS release no longer available		**Older versions of ICSF may need toleration maintenance installed to support newer hardware			
	Yellow => planned					
	Green => Currently available					

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Available crypto web downloads at:

http://www.ibm.com/servers/eserver/zseries/zos/downloads/

Cryptographic Support for z/OS V1R10-V1R12

This download provides support for new encryption functions in the IBM System z196. This includes support for enhanced z196 CPACF support, CCA ECC, CKDS Constraint Relief, AP Interrupts, 64 Bit, CBC Key Wrap, PCI Audit, x9.8 Pin.

Cryptographic Support for z/OS V1R9-V1R11

This download provides support for new encryption functions in the IBM System z10 EC and BC. This support includes new support for the new Cryptographic Express3 Coprocesser (CEX3C) and new Protected Key CPACF Support. Additional software support includes enhanced PKCS#11 support and ECC Support.

A program directory is available.

Cryptographic Support for z/OS V1R7-V1R9 and z/OS.e V1R7-V1R8

This download provides support for new encryption functions in the IBM System z9 EC and z9 BC. This support includes ISO-3 PIN block support, support for larger RSA keys, long random number support, and enhanced support for TKE auditing. This download is meant for customers who need Cryptographic Support and are running z/OS V1R6 or z/OS.e V1R6.

This download is installable on V1R6, V1R7 and V1R8, but not supported. Customers running z/OS V1R9 or later should install the Cryptographic Support for z/OS V1R9-V1R11 Web deliverable.

A program directory is available.

SystemPac: Do you want a functional z/OS or z/OS.e system restored and IPL'ed in a day that:

- includes installation of IBM and ISV products, integrated in a single package?
- comes customization according to your specific needs?
- promotes fast and easy exploitation of new z/OS functions?
- helps reduce installation complexities?
- includes follow-on maintenance packages, tailored to your system? Can free IT personnel tp perform your more critical business-related tasks?
- with eBusiness enablement in IBM default mode?
- with integrated subsystems enabled and started at IPL?

Then SystemPac for z/OS or z/OS.e is the system migration vehicle for you!

The World Wide CustomPac offerings, of which SystemPac is one, offer a wide range of CustomPac deliverables which can assist customers in service, products and/or system replacement of their z/OS related products, as well as selected Third Parties' Software Vendor Products.

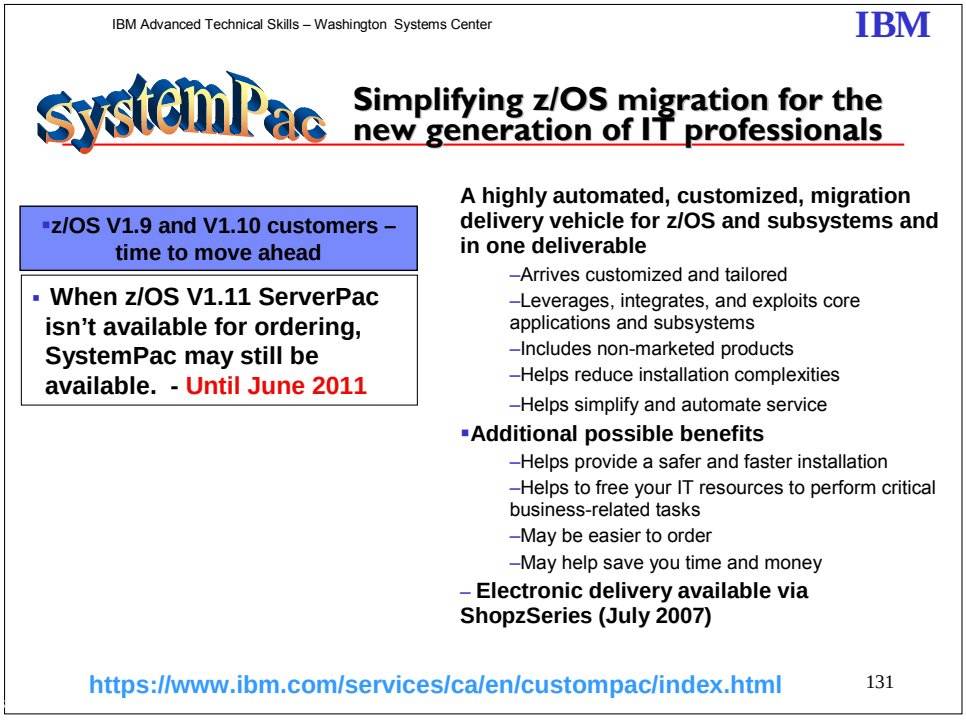
SystemPac is the recommended IBM delivery vehicle for z/OS customers who want to save time, resources and effort to migrate/install/exploit and maintain their z/OS system related products. It is also a solution for shops who lack, or need to free, skilled system programmers and need to exploit new functions in z/OS eg. e-business enablement, WebSphere Application Server enablement, Healthchecker enablement, etc. within a short period of time.

ServerPac: ServerPac is a software package (available free of charge with your z/OS and OS/390 license) that creates or replaces a z/OS, OS/390, z/OS.e, or MVS system.

ServerPac is the only entitled system-replacement deliverable for OS/390 or z/OS. ServerPac is installed with the dialog that is currently used to install products and service in the CustomPac family.

To actually install your ServerPac, you will use the CustomPac Dialog which will allow you to tailor the default ServerPac configuration to match your own configuration. The dialog will generate a customized installation jobstream based on your tailored configuration.

To plan and order your ServerPac over the Web use ShopzSeries. Its capabilities include the ability to submit your existing installed inventory to the tool, and it will analyze this to prefill the checklist. It also automates processing of orders that do not require license changes. Orders that include new or changed licenses will be routed to the IBM Sales Center.



If you are a systems programmer, you know migrating, installing, and maintaining your operating system and related products and independent software vendor products can be time consuming and resource-intensive. Not only that, but these tasks can sidetrack you from the critical business-related responsibilities you're supposed to be doing and some companies lack the staff necessary to perform these operations.

IBM Global Technology Services has a solution called SystemPac for z/OS, providing migration support for you and simplifies the way you create or upgrade a complete software system, and helps you exploit new z/OS functions in a short period of time.

You can order subsystems (IMS, NCP, CICS, DB2) with the z/OS SystemPac in one order. The installation enables you to install all subsystems together in one shot. Though with subsystems integrated, the SystemPac can be built with full separation among subsystems to facilitate future migration and cloning. This feature is particularly useful for shops with only one team of systems programmers taking care of installation and services of all subsystems' types.

Products which were withdrawn from marketing but still available for services can be found in the SystemPac shopping list. A lot of customers use SystemPacs as a vehicle to deliver back level systems in case of data center disaster.

SystemPac is built and verified using your shipped copy of the IODF. You can send in the IODF to IBM via internet (for selected geographies) or physical media.

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Upon having your SystemPac order placed, an IBM technical personnel will contact you on the process of parameters' collection. Parameters are input via an on-line tool. These parameters collected will be used to tailor build your system. These parameters enable the system to be tailor made according to your configurations. Examples are SVCs for products as Syncsort, IMS ; SMS setup parameter, eg. storage class, storage group for UNIX enablement; etc

You can order one or more integrated subsystems (NCP, DB2, CICS, IMS) in your SystemPac order. When you order integrated subsystems, you can separate them by DASD volume and/or SMP/E environment (global, target, dlib and SMP/E data-sets) from the MVS Srel products or among themselves. This separation capability allows for ease of future portability and maintenance. Separation is achieved via the upfront local order entry tool during parameters' collection phase. Selected subsystems (eg. CICS, IMS, DB2) are enabled and started up upon IPL'ed.

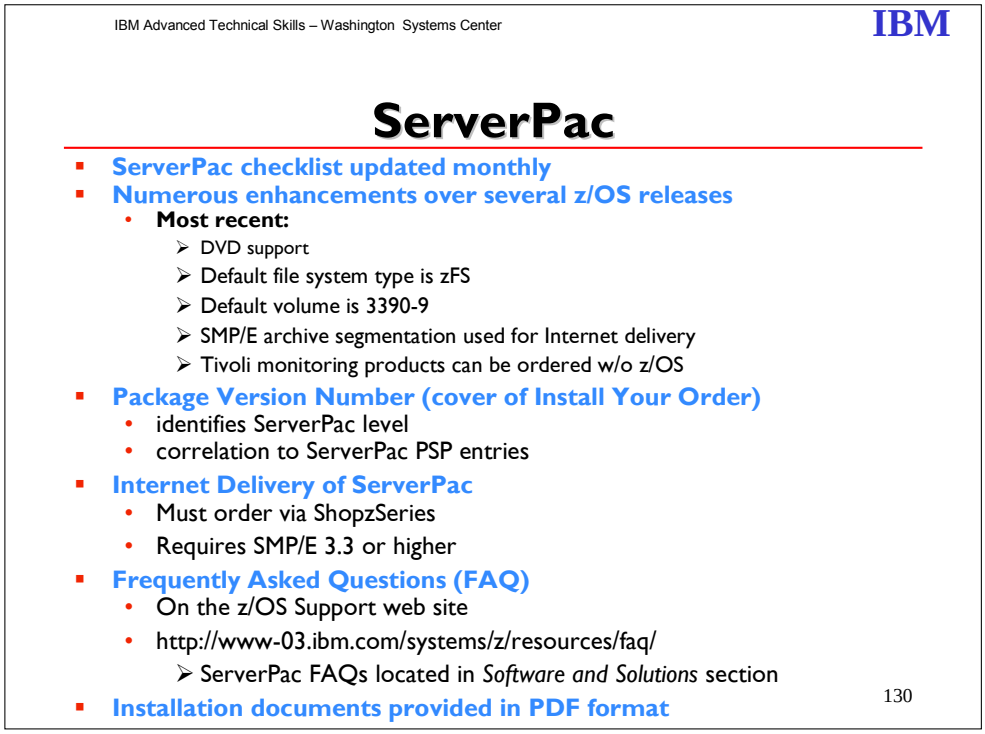
Indirect Referencing, also called Indirect cataloging is available as an option for full volume dump SystemPac. IEASYM is used to provide the extended cataloging support for multiple SYSRES. Indirect cataloging allows for maximum flexibility. It allows the system to dynamically resolve volume and device type for non-VSAM, non-SMS managed data sets that reside on the SYSRES volume(s) when accessed through the catalog. By employing a symbolic VOLSERs for target volume(s), the SYSRES volume(s) can be used by different system(s). Thus, after cloning, you can minimize the effort of changing a lot of the system parameters (e.g. PARMLIB members), re-cataloging a lot of datasets before you can enable your new system to be up and running.

SystemPac also helps reduce your install time and effort. The full volume dump SystemPac reduces your time and effort to install and it guarantees an IPLable system upon restore. You don't have to learn and use the installation dialogs to perform the installation. For those of you that like to use the installation dialogs, however, you can use our Dump by Dataset format.

And since most of the post installation jobs are run during the manufacturing of your SystemPac, you have a functional z/OS system restored and IPLed within less than a day. We also provide detailed instructions in the SystemPac installation guide to inform you what has been done and what configuration was setup when the system was initially shipped to you.

SystemPacs include **selective follow-on services** based on your shipped SMP/E CSI profile to help you maintain your system over a period of time you specify. The selective follow-on services are ordered at the same time as your initial SystemPac and contain critical service that has become available since your SystemPac or previous selective follow-on services were built.

So with SystemPac, as compared to ServerPac, you get a much lower install time, there is much less skill required, it is more automated and less error prone, and IBM products and subsystems are in one integrated deliverable. And SystemPac conforms to your existing installation environment so there is no additional migration cost to a standard configuration.

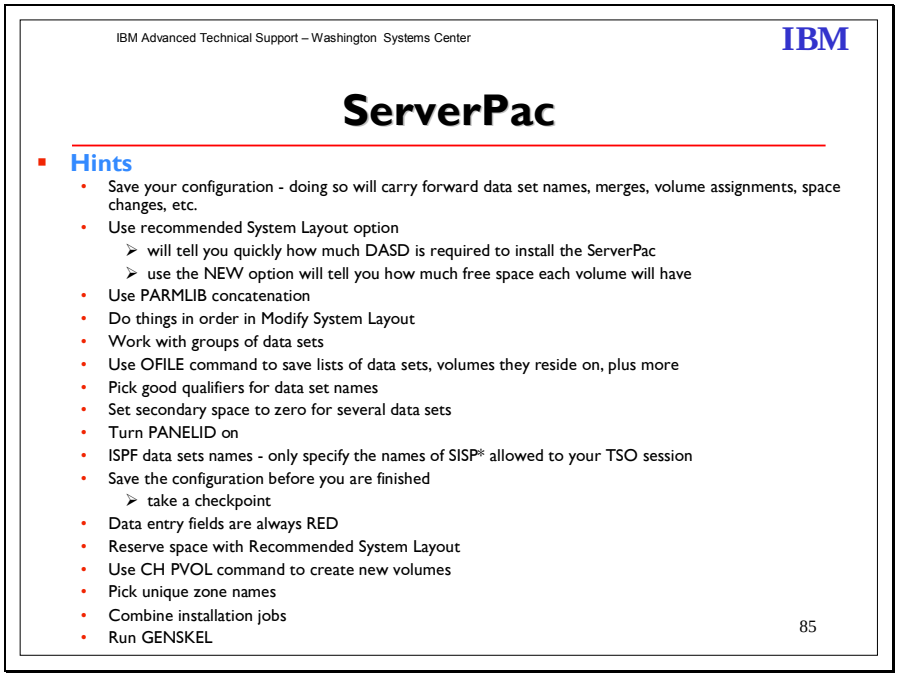


z/OS ServerPac R12 Enhancements:

- DVD delivery support for product offerings.
- Allows SDSF and JES SMP/E zones to be merged, without having to merge either into the z/OS BCP zone.
- Propagation of your zone names into the mlq of the SMP/E CSI data set names in Modify System Layout.
- A number of jobs, which are no longer needed, are removed.
- Several z/OSMF setup improvements have been made, including new tasks for z/OSMF applications new in z/OSMF V1.12

z/OS ServerPac R11 Enhancements:

- Default file system type is zFS
- Default volume is 3390-9
- SMP/E archive segmentation used for Internet Delivery
- Tivoli monitoring products can be ordered without z/OS



Starting with z/OS V1R2, there is a new variable called &PRODLVL. This variable is in the form: UU.GF.FF, where UU is the upgrade number, G is zero before GA and one after GA, and F.FF is the three-digit fix pack number. This variable will be printed on the cover of IYO, where it will be called the "Package Version." Example: 14.10.42, which represents Upgrade 14, which is GA, and for which the latest fix pack number is 42 or so.

Starting with z/OS V1R2, each GA PSP entry describing a problem that is fixed by a fix pack (or on a date that corresponds to a fix pack) should contain the Package Versions to which the entry applies. This information can be in the PSP entry when it is first created, or added later once the fixing fix pack is known. This way, customers can quickly determine which PSP entries are applicable to their orders and which can be ignored because the problems they described were fixed before their packages were built.

Hints:
ServerPac tip #1: Saved configurations are your friends.
Remember all the work you did the last time you installed a ServerPac order? Don't do it over! Use a saved configuration from your last order when you create the configuration for your new order. Doing so will carry forward the same data set names, merges, volume assignments, space changes you made, and so on. If you did not save the configuration the last time you installed an order, it's not too late. Just go back into the old order and save it. Then use it to create the new configuration. (Worried that you won't know what's new? Look at the New Data Set selection in Modify System Layout's View and Change option.)
ServerPac tip # 2: Use the Recommended System Layout option (even if you don't use the recommended system layout).
The Recommended System Layout Option will quickly tell you how much DASD you need to

install your order. If you use the NEW option, it will also tell you how much free space each volume in your saved layout will have with the new order's data set sizes, and whether some volumes will become over allocated. To do this without changing anything else, just enter and exit the Variables and Zones options (don't bother changing anything), select Modify System Layout, use the Recommended System Layout option to get the information you need, and then re-create the configuration.

ServerPac tip #3: Use parmlib concatenation.

A ServerPac order includes up to three different parmlib data sets. Using them the right way can save you work. In particular, you should concatenate the SMP/E-managed z/OS parmlib and place it on a target volume so you don't have to remember to copy the release specific members to your production systems. (These are the xxxIPCSx, BLSCxxxx, CNLxxxxx, and default CTIxxxxx members, which you probably use unchanged.) After this is set up, you will never be able to forget to copy the members during migration again.

ServerPac tip #4: Do things the easy way in Modify System Layout.

To avoid doing things over, do things in this order (just skip any you don't plan to do):

1. Merge data sets
2. Change data set space
3. Specify Reserved Space on volumes
4. Specify Existing Data for volumes (only if existing online volumes will be used)
5. Do everything else.

This avoids volume over allocation problems when a data set merge operation "relocates" space assigned to one volume to a different volume, or when increasing data set space causes the space required to exceed a volume's size, and other potential problems.

ServerPac tip #5: Work with groups of data sets as much as possible.

The more changes you make to groups of data sets, the less time you will spend making changes to individual data sets. Use the View and Change option of Modify System Layout to find data set views that display groups of data sets to which you want to make common changes, and use the dialog's CHANGE command to make the changes. You can change high level qualifiers, data set names, volume assignments, data set types, SMS status, space allocation amounts, and more for groups of data sets at a time.

ServerPac tip #6: How to actually use the incredibly useful OFILE command.

You can save lists of data sets, the volumes on which they reside, and other information about data sets with the OFILE command for later use during migration. Particularly useful are lists of data sets that are new, require APF authorization, are eligible for the link list, or are required in LPA. You can use these lists during migration as a guide for production system parmlib changes, or even to create the parmlib members.

To create a new data set with a data set list in it, you need to enter three OFILE commands. The first creates the data set, the second saves the list, and the last closes the data set, so that other applications can read it:

1. OFILE OPEN data set name NEW
2. OFILE
3. OFILE CLOSE

You can find the record format in ServerPac: Using the Installation Dialog.

ServerPac tip #7: Pick good qualifiers.

CustomPac Dialog data sets have two distinct kinds of qualifiers. One kind is the "master qualifier." It's for CustomPac Dialog data sets that are not related to a particular order. Pick qualifiers for these data sets that do not include any information about an individual ServerPac order. The other kind is for the CustomPac Dialog data sets that come with each order. Choose names for these data sets that include the order number as one qualifier. That way, the

names will never conflict with either the master qualifier or the names of dialog data sets for other orders.

ServerPac tip #8: How to set secondary space to zero for a lot of data sets quickly (like link list data sets).

Pick the best data set list in the View and Change option of Modify System Layout (for example, "LNKLST Eligible" and "Yes") and enter the CH SP * P0 command. When you do so, consider increasing the primary space at the same time. For example, to increase the primary space by 20% while setting secondary space to zero, enter the CH SP 20 P0 command.

ServerPac tip #9: Turn on PANELID.

Enter the PANELID command from any command line to see the panel IDs in the upper left corner. You can find information about the panel and how it works very quickly in ServerPac: Using the Installation Dialog by doing a softcopy search for the panel ID or by looking for it in the index.

ServerPac tip #10: What ISPF data set names to give the dialog?

The dialog prompts you for ISPF data set names from time to time. Specify only the names of the

SISP* data sets that are already on your system (the ones allocated to your TSO/E session), one per DD name. Don't put anything on the second line for any of the DD names!

ServerPac tip #11: Save the configuration before you are done with it.

Take a checkpoint! After you have selected all the prior options and have no configuration warnings, you can save the configuration with the Save option and use it to re-create the same configuration, even for the same order. You do not need to submit any jobs to enable the option and save the configuration. So, if there are things you are not sure you want to try, save the configuration and go ahead and try them! If they don't work out, re-create the configuration using the saved one to get right back to where you were.

ServerPac tip #12: If it's red, it's a data entry field.

Data entry fields are always red. So if you are not sure where to type, look for the red! (If you have difficulty seeing red text on your terminal, redefine the colors in your ISPF settings.)

ServerPac tip #13: Reserving space with Recommended System Layout.

After you get to the Current Volume Configuration panel in the Recommended System Layout option, you can select each volume and reserve space as needed. You can also predefine volumes in Recommended System Layout and reserve space on them. (Any volumes that are not needed will "disappear" at the end of automatic assignment.)

ServerPac tip#14: Creating new volumes the easy way.

Use the CH PVOL command from a data set list containing the data sets you want to move, specifying a new volume serial, and exclude those you don't want to move on the next panel. Then, use the Physical Volume Summary option to change the device type (if necessary) and specify the device number. Or, use the Recommended System Layout option to place new data sets (it will create volumes automatically if needed), and make the necessary changes in the Physical Volume Summary.

ServerPac tip #15: Pick unique zone names.

When you are in the Zones option of the dialog, choose SMP/E zone names that are unique for your entire installation, ones that are not used on any system you have. Doing so will give you the most information from the reports created by the SMPREP installation job.

ServerPac tip #16: Combining installation jobs.

You can use the block Select (SS) line command in the installation job list display to combine many of the ServerPac installation jobs. This can save time by letting more work run automatically when prior work was successful. For example, if there are a lot of jobs left to run late in the day, you can combine as many as possible and check the results in the morning.

ServerPac tip #17: Run GENSKEL.

It's the easy way to get copies of all the jobs in a data set so you can save your changes, look at them later, or copy them if you need to repeat a task later (for example, on another system).

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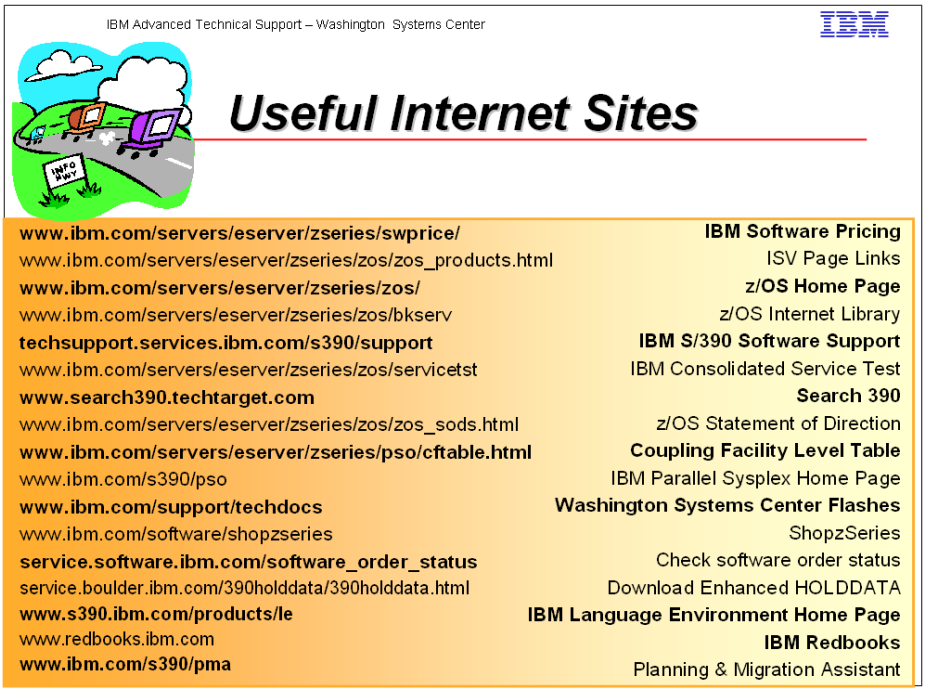
The zFavorites for zSeries contains links to Web sites for zSeries. You will find links to:

- Hardware
- Operating Systems
- Software
- Language and Tools
- ISV Development and Applications
- Product Documentation
- Marketing Information
- Education
- Support

Links to FREE downloads



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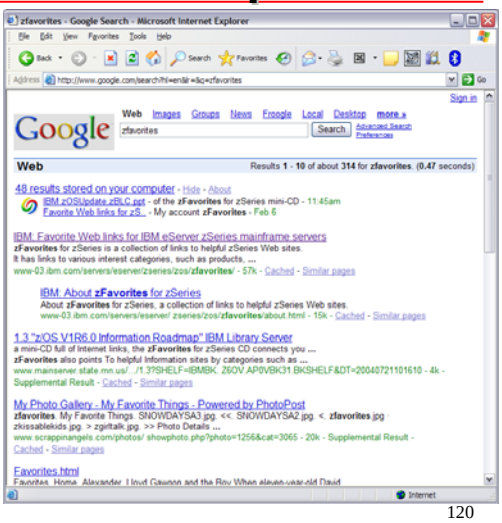
Quick Search Tip

- When looking for anything System z related, go to GOOGLE, and enter "zfavorites"
- Google will take you to the online version of zFavorites which provides a master index of all things "z"



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Tools "AS IS"

Key Transfer Utility
zlosf
rangelks2
VVDS Fix Catalog
PAV Analysis Tool
PUTDOC
FLASHDA
RACF Sample Utilities
IPLSTATS
wjsfsmon
Delinuse
wjsigshl
ARM Wrapper
XISOLATE
USSTools
CPPUPDTE
IBMRRAP
z/OS DFSMSrmm
Customization Wizard
zFS Large Directory Utility

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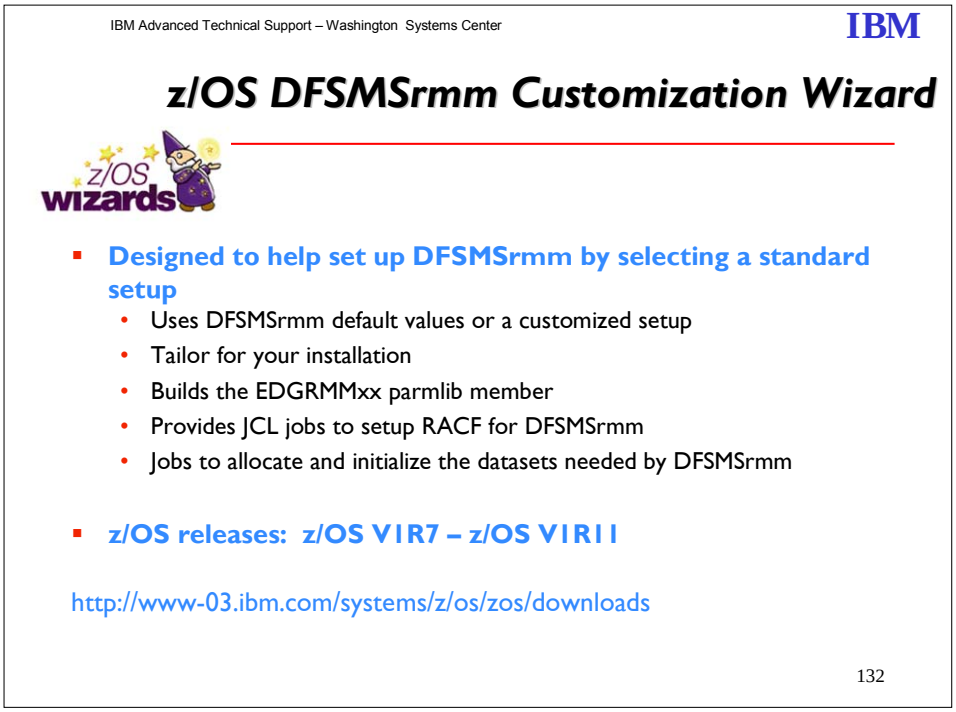

This interactive tool will guide you through the steps.

Before you begin... Read me first to understand how the tool works and what you can expect.

This interactive version of the z/OS V1R11 DFSMSrmm Implementation and Customization Guide publication helps you find information you can use to plan your implementation of the latest z/OS V1R11 DFSMSrmm functions and features.

To get started, answer a series of questions about your z/OS environment. We will use this information to explain what you need to do to enable the DFSMSrmm customization.

Wizard available for z/OS releases V1R7 – V1R11.

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IPLSTATS

- **Used to report on the time taken by z/OS to initialize various parts of the operating system**
- **IPLSTATX program writes the report to a standard data set**
  - writes the report as messages to the z/OS SYSLOG

http://www-03.ibm.com/servers/eserver/zseries/zos/unix/bpxa1ty2.html

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The IPLSTATS.ZIP file contains the following files and may be unZIPped using the standard PKUNZIP utility.

IPLSTATX.OBJ -- writes the IPL start-up statistics to a SYSOUT data set
IPLSTATZ.OBJ -- writes the IPL start-up statistics as WTOs to SYSLOG

The *.OBJ files contain the IPL start-up statistics program in MVS object deck format. It must be uploaded to your MVS system in -BINARY- form and placed into a fixed-block (FB) partitioned data set (PDS) with a logical record length (LRECL) of 80 bytes. (For example, using ISPF option 3.2, create data set IPLSTATS.OBJ with a blocksize of 16000, a logical record length of 80 and 10 directory blocks. Upload IPLSTATX.OBJ and place it as member IPLSTATX in the IPLSTATS.OBJ data set).

Once on your MVS system, the IPLSTATX object deck must be link-edited or bound into a load library using the MVS linkage editor or binder before you can run it. You can do this by using ISPF option 4.7 which allows you to invoke the MVS binder or linkage-editor programs under TSO. From the example above, just specify IPLSTATS.OBJ(IPLSTATX) on the "Other Partitioned Data Set: Data Set Name" line. Specify LET,LIST,MAP on the "Linkage editor/binder options" line and press ENTER. You will be shown the results of the binding/linkage-editing step and the output of the process will be placed into a LOAD data set which may have the name IPLSTATS.LOAD or userid.LOAD depending on your installation's options.

Either program can be run as a batch job or started task or you can run the program under TSO. Both programs run in problem program state and neither uses any authorized services or requires any special security considerations.

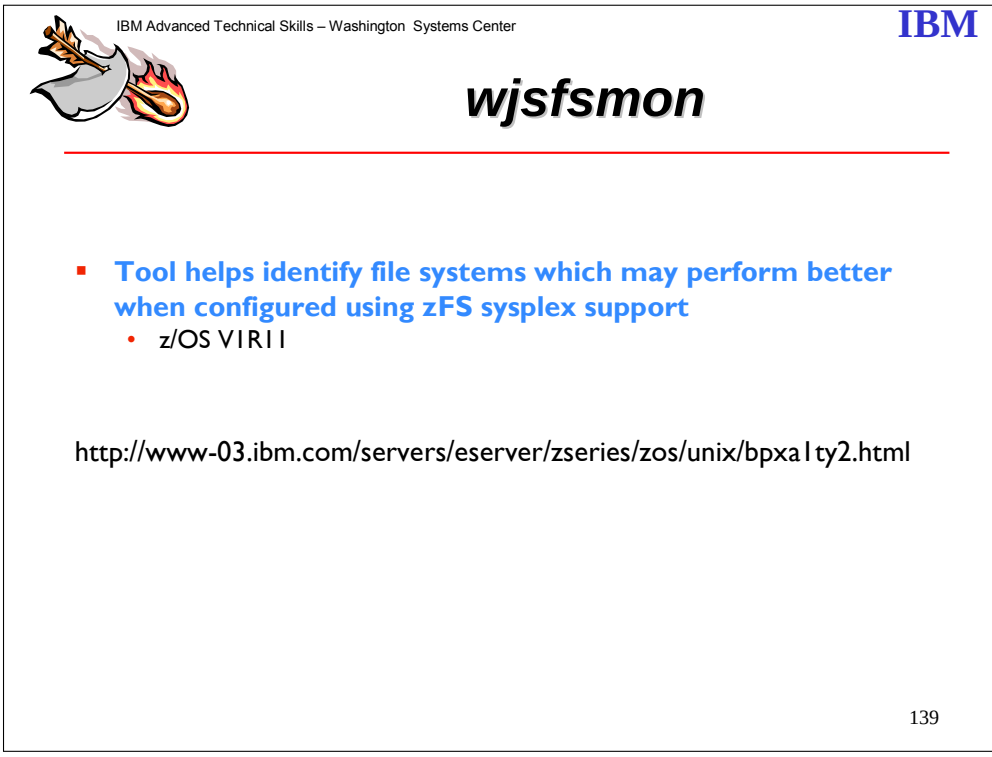
The IPLSTATX program writes its report to a standard SYSOUT data set. For batch and started tasks, you will need a //OUTPUT DD SYSOUT=A,DCB=(RECFM=FB,LRECL=133) specification.

If you run the program under TSO, issue ALLOC FI(OUTPUT) DS(*) before invoking the program. (Or alternatively, you could have the output go to a data set).

The IPLSTATZ program writes its report to the SYSLOG using WTOs with hardcopy-only specified (the WTOs will not appear on any console). Each line of the report is written as a single-line WTO and each WTO is prefaced by an IPLSTnnnI message ID.

Either program can be run at any time after the first TCP/IP stack comes up (not all of the start-up statistics are considered complete until the first TCP/IP stack comes up). The start-up statistics persist until the next IPL, so you can run the report programs long after the IPL has occurred.

Please send the output data and any questions to: Kevin Kelley kkelley@us.ibm.com



wjsfsmon is a monitor facility which collects some file system usage data in intervals, aggregates the interval data, and is the view dialog for this data. The primary function of the viewer is to show which file systems have the greatest amount of remote access and from which systems. This tool should be able to run on z/OS 1.10 and above. It is intended to help you decide how zFS sysplex enablement could help and could provide additional insight into how you might place your file systems and UNIX workloads with or without zFS sysplex enablement.

When using the z/OS UNIX shared file system support for read-write access, it is important to locate the applications using a file system on the system owning that filesystem. The shared file system support enables access to the data from all systems but uses a function shipping model to access the data from non-owning systems for filesystems mounted read-write. XCF services are used as the network between the systems. Most observe the performance of this remote access to be far inferior to local access. This performance difference can become problematic as volume of access increases or throughput requirements increase.

One of the difficulties in managing this is determining which file systems are accessed from each system and by what applications. With that understanding, the next problem is to manage the location where the applications run and where the file system is owned. This is further complicated when systems are brought up and down and file system ownership changes. It is possible to manage some file system placement through the use of the

SYSNAME parameter on the mount statements, prioritizing which systems should take ownership of which file systems.
In z/OS V1R11 it is possible to reduce these system management challenges. The zFS file system can be enabled to help with this by using the zFS sysplex=on parameter setting.

Although this does not eliminate the need to balance your workload, zFS will monitor usage and dynamically move its local access to the system with the most access. On remote systems, zFS will perform aggressive caching which should improve performance over the prior functionality of zFS and HFS.

The SMF type 92, subtype 5 records contain file system read and write counts. If type 92 subtype 5 is active when a file system is mounted, this data will be accumulated and written to the record when the file system is unmounted. Accessing this information on each system should let you know to what degree the file system is used on each system.

An alternative to collecting and analyzing this SMF data is use of the wjsfsmon tool. This tool uses some of the same counters used to collect this SMF data. If SMF is not active for type 92 subtype 5, the tool will enable tabulation of some of the same data while it is running but does not enable recording of the SMF data. You may be able to observe these counts in fields using the w_getmntent service or through the file system attribute display in ISHELL.

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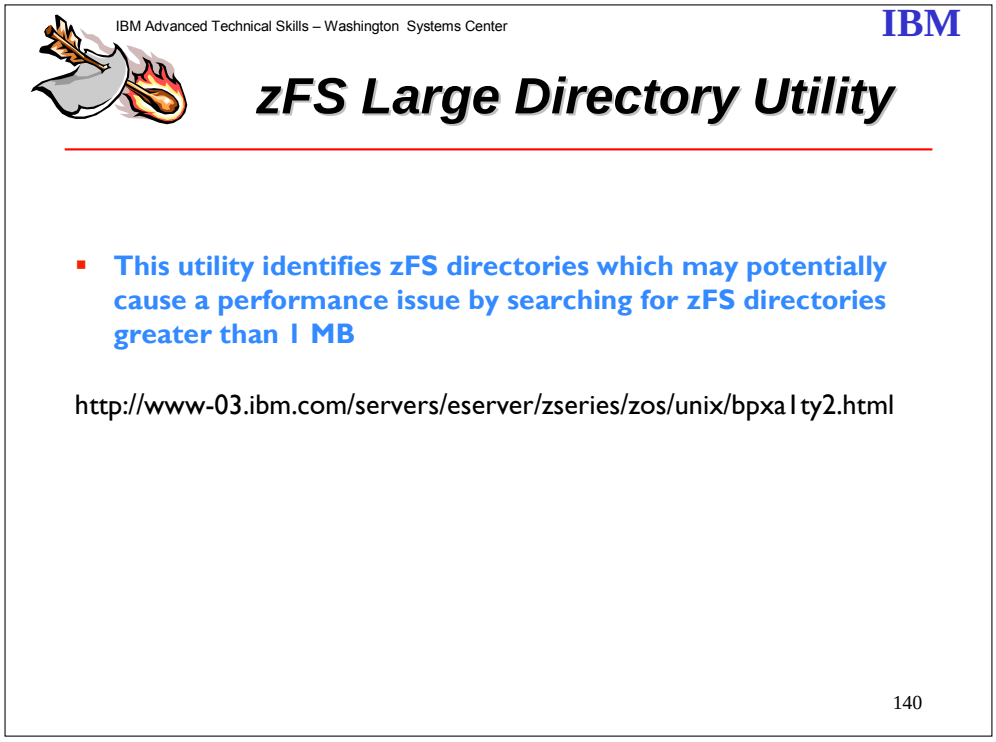


The largedir.pl utility identifies zFS directories that might potentially cause a performance issue by searching for zFS directories which are 1 MB or larger. A performance issue is particularly noticeable when a zFS directory is 3 MB or larger.

Note: The size of a directory is independent of the size of the contents of that directory.

This utility supports the following options:

```
largedir.pl [-v] [directory [...]]
```

When you specify a directory, the utility searches that directory and any directory below it within the same file system. If you do not specify a directory, the utility automatically searches every available zFS directory on your system.

When you specify the -v option, the utility provides verbose output. Without this the -v option, the utility displays only directories meeting the above criteria. Failures always display on standard error.

For example, if you have three file systems mounted at: /zfs1, /zfs1/foo/hfs, and /zfs1/foo/bar/zfs2

```
You run: largedir.pl /zfs1/foo
```

The utility searches foo and bar, but not hfs or zfs2.

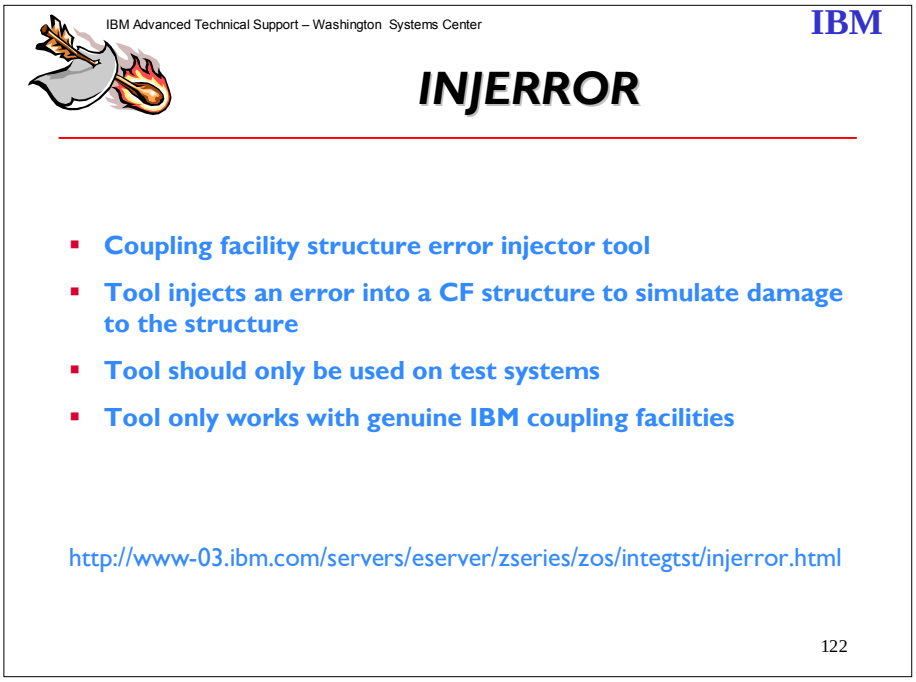
Example of output when largedir.pl is successful:

```
sandbox $ ./largedir.pl .
        Minor Exception: Large Directory: ./tmp
        sandbox $ echo RC=$?
        RC=1
        sandbox $ rm -r tmp
        sandbox $ ./largedir.pl .
        sandbox $ echo RC=$?
        RC=0
```

Notes:
1. Transfer largedir.pl as text to a z/OS machine.
2. Set largedir.pl to run as executable (chmod +x largedir.pl).
3. Install Perl for z/OS. (Perl for z/OS is an unpriced feature of the IBM Ported Tools for z/OS.)

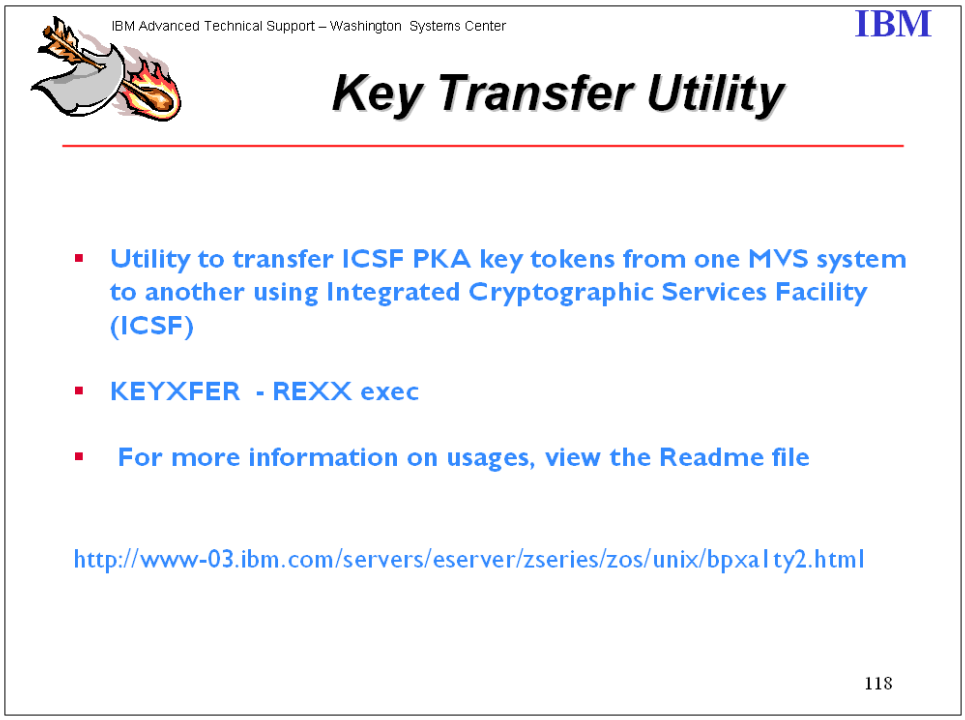
Documentation: For more information, see Chapter 4, "Minimum and maximum file system sizes" in *z/OS V1R11 zFS Administration Guide*, SC24-5989-10.

Trademarks: Trademark or registered trademark of International Business Machines Corporation in the United States, other countries, or both.



To help in testing recovery from coupling facility problems, we are making available our coupling facility structure error injector tool, INJERROR. The INJERROR tool injects an error into a CF structure to simulate damage to the structure. If there are two instances of a structure allocated (for instance, during a rebuild or when the structure is in the duplex-established phase), the tool allows you to specify which instance(s) of the structure you want to affect.

This tool should only be used on test systems. Although the tool provides a way to simulate a coupling facility structure failure, the element that owns the structure (for example, IRLM or JES2) cannot distinguish the simulated error from a real error and, thus, reacts to the simulation as though it is an actual failure. This may not be desirable in a production environment.

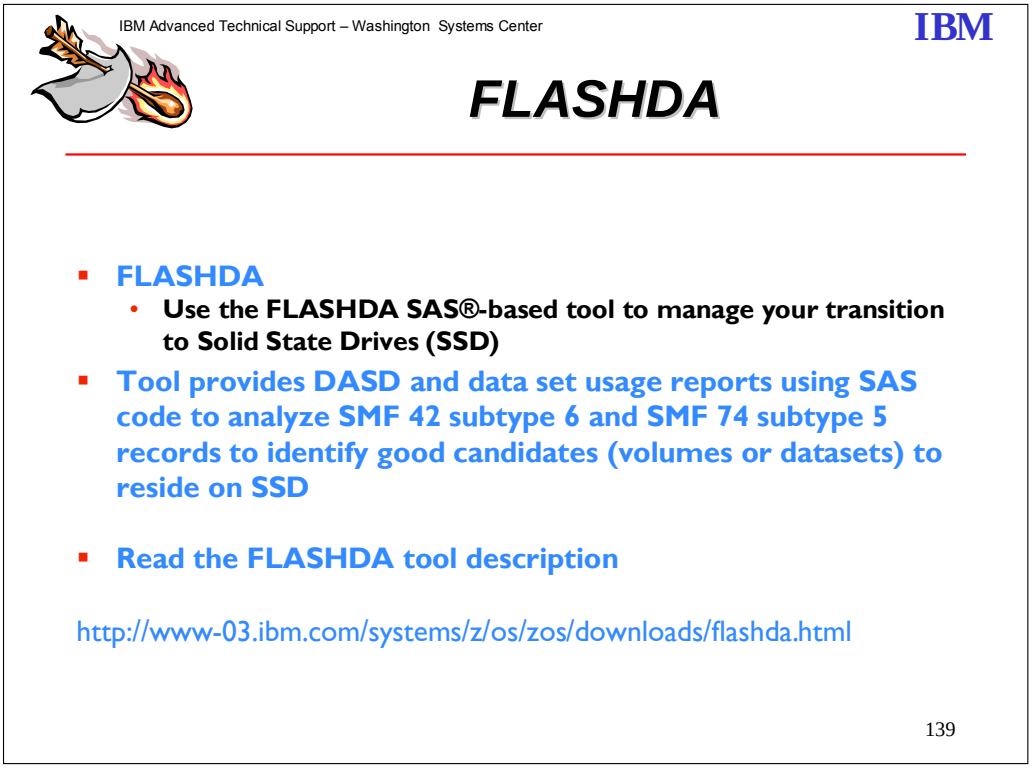


PA Key Transfer Utility. Utility to transfer ICSF PKA key tokens from one MVS system to another. For more information on usages, view the Readme file.

The key transfer tool (KEYXFER) is a REXX exec that runs on MVS. KEYXFER facilitates the transfer of PKA key tokens between systems that use the Integrated Cryptographic Services Facility (ICSF). The KEYXFER tool assumes the following:

- ICSF is running on the systems involved in the key transfer
- ICSF has an active PKA Key Data Set (PKDS)

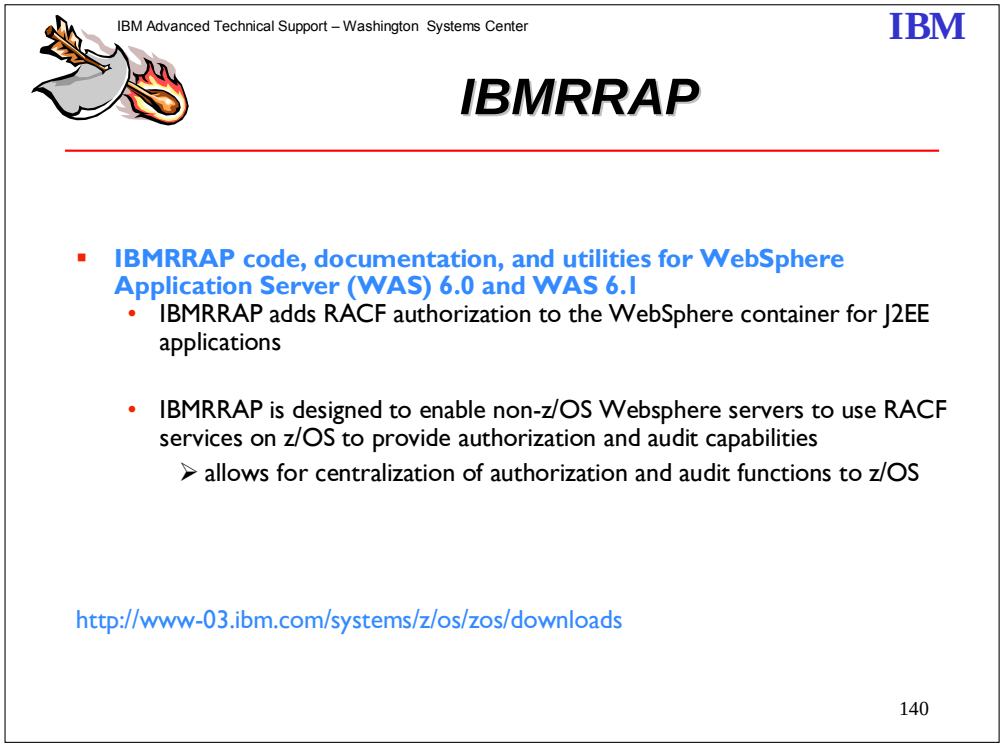
The tool retrieves a PKA key token from the active PKDS and writes it to a data set. The data set can then be transmitted to any number of systems. On each system the tool can be used to read the key token from the transmitted data set and store it into the active PKDS. The tokens are referenced by PKDS label.



The purpose of FLASHDA SAS ® based tool is to provide users planning to exploit Solid State Drives (SSD) with a knowledgeable plan to manage the transition. The goal is to identify the volumes and datasets to be most beneficial residing on SSD. FLASHDA will help in making the best use of new SSD feature in the IBM DS8000 storage subsystem with the IBM System z platform and z/OS operating system.

FLASHDA provides on report for dataset usage, DASD usage and a final merged data report showing final recommendations.

FLASHDDA is run with JCL using the SMF record as input. FLASHDA requires SAS.



IBMRRAP adds RACF authorization to the WebSphere container for J2EE applications. IBMRRAP is designed to enable non-z/OS Websphere servers to use RACF services on z/OS to provide authorization and audit capabilities, allowing for centralization of authorization and audit functions to z/OS.

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RACF Samples

- **RACF Sample utilities**

http://www-03.ibm.com/servers/eserver/zseries/zos/racf/goodies.html

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- CDT2DYN, a utility to help change installation-defined RACF classes into dynamic classes.
- CUTPWHIS, a utility which removes non-usable passwords from the RACF password history. Non-usable passwords are created when the password history (SETROPTS PASSWORD(HISTORY(xxx)) value is reduced.
- DBSYNC, a utility which compares two RACF data bases and creates the commands to make them similar. Can also assist in merging RACF databases from different systems.
- DBU2MSXL, a set of scripts which loads the output of the RACF Database Unload Utility (IRRDBU00) into Microsoft® Excel spreadsheet.
- DBU2MSAC, a set of scripts which loads the output of the RACF Database Unload Utility (IRRDBU00) into Microsoft Access.
- IRRHFSU, a utility which unloads the UNIX System Services Hierarchical File System file security information in a manner compatible with with IRRDBU00.
- KMIGRATE, a tool for migrating existing DCE and MVS users to a Kerberos registry managed ay an OS/390 or z/OS Network Authentication Service server.

- LISTCDT, a tool which analyzes and reports on your RACF Class Descriptor Table (CDT).
- OS390ART, the OS/390 Audit Reporting Tool, a DB2 based auditing application that is described in *OS/390 Security Server Audit Tool and Report Application (SG24-4820)*.
- PKISERV, a sample web application that uses RACF's digital certificate support to enable clients to create and retrieve certificates using a web browser. Requires OS/390 V2R10 with supporting PTFs.
- PWDCOPY, a utility which which copies passwords from one RACF data base to another RACF data base.
- RAC, an z/OS UNIX System Services utility which allows RACF commands to be executed from a z/OS UNIX environment and writes the output to stdout. Note that this utility uses existing command authorization along with authorization to a FACILITY class resource.
- RACFDB2, a utility which helps you migrate your DB2 access control from DB2 to RACF.
- RACKILL, a utility which which unconditionally deletes profiles from the RACF data base.
- RACSEQ, a TSO command which uses the extract functions of the R_admin callable service (IRRSEQ00) to display user and group information in a format conducive to use by REXX.
- REXXPWEXIT, a sample new password exit which uses System REXX to call an exec in which password quality rules are coded.

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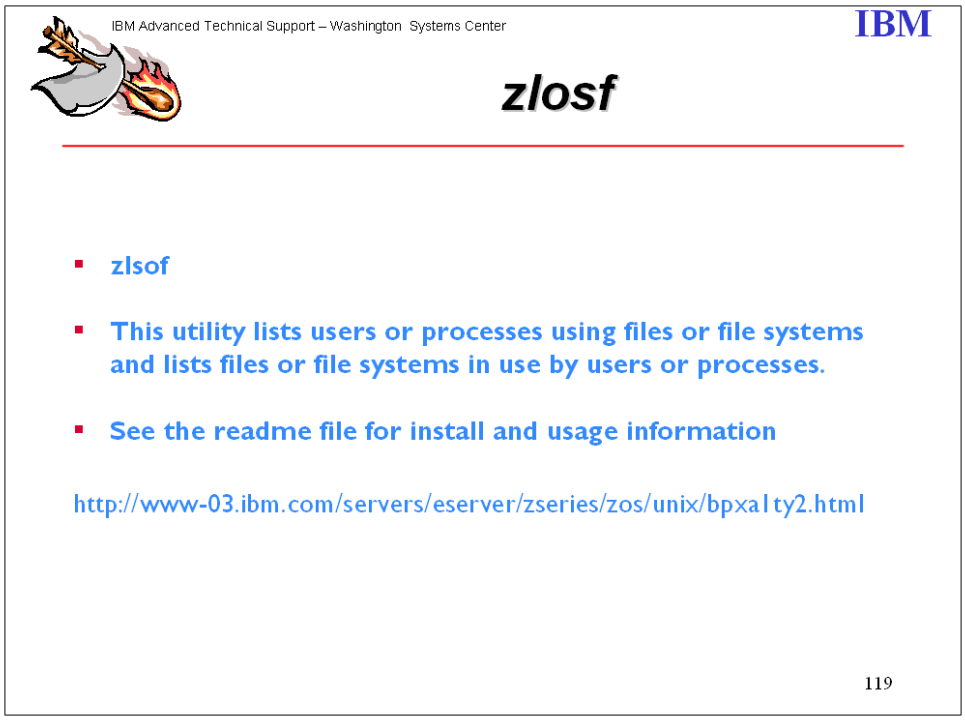

This utility lists users or processes using files or file systems and lists files or file systems in use by users or processes. See the readme file for install and usage information.

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This lists the processes holding byte range locks and the files that are locked. This is an update to rangelks. For z/OS 1.6 and above, rangelk2 will also list byte range lock waiters as well as backup locks in a system.

rangelks: This utility lists processes currently holding byte range locks and the file names that are locked. See the readme file for install and usage information.

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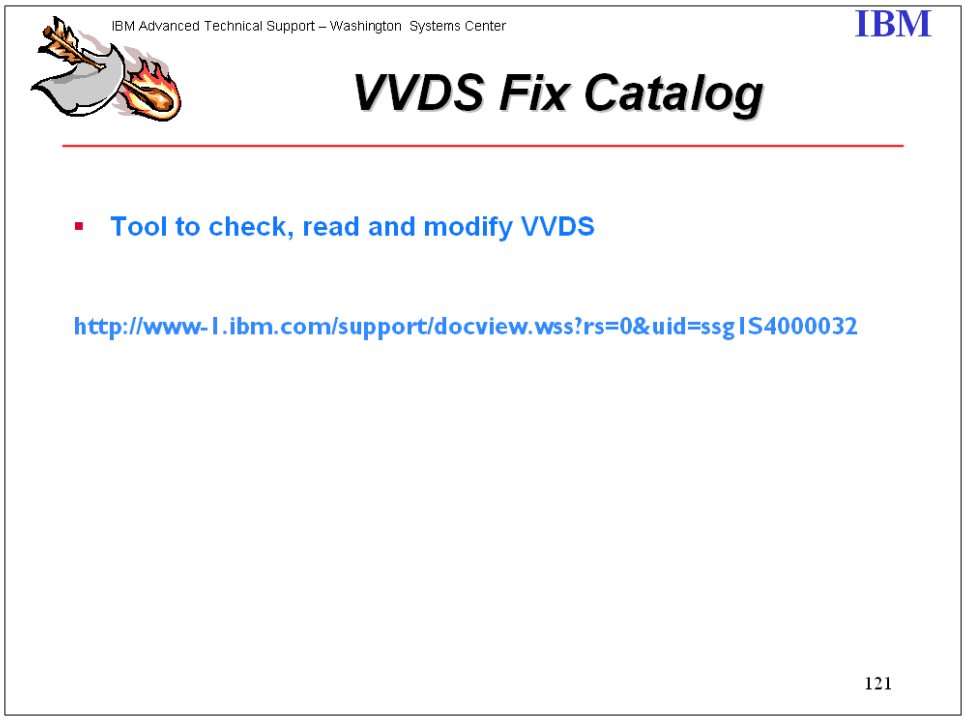
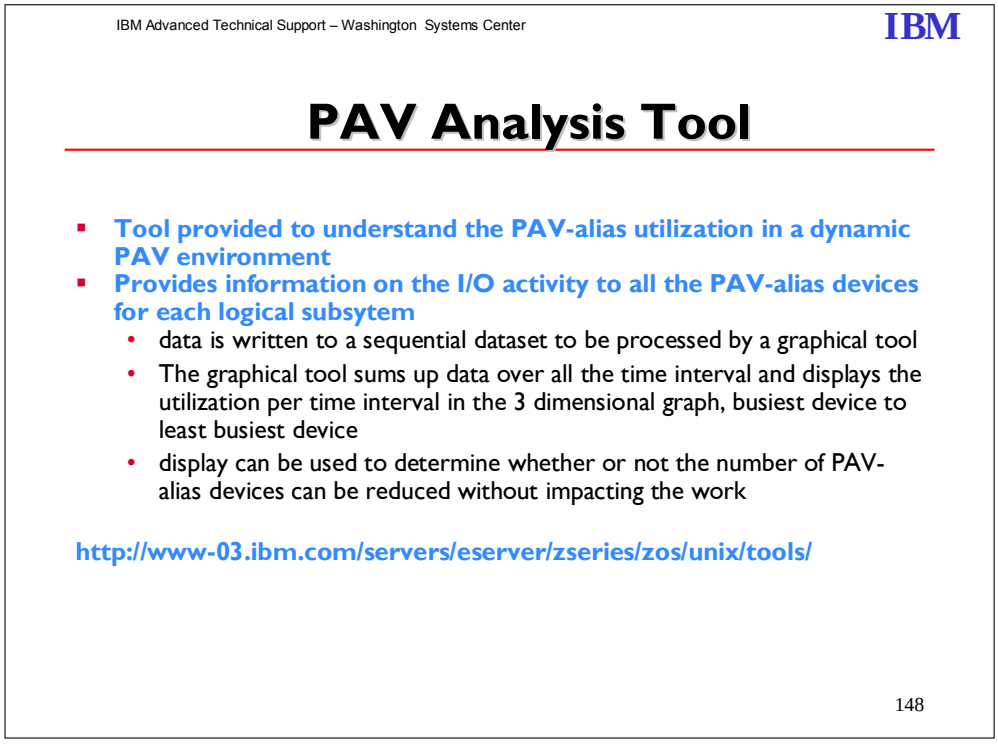

IBM Advanced Technical Support – Washington Systems Center
IBM
VVDS Fix Catalog
Tool to check, read and modify VVDS
http://www-1.ibm.com/support/docview.wss?rs=0&uid=ssg1S4000032
121

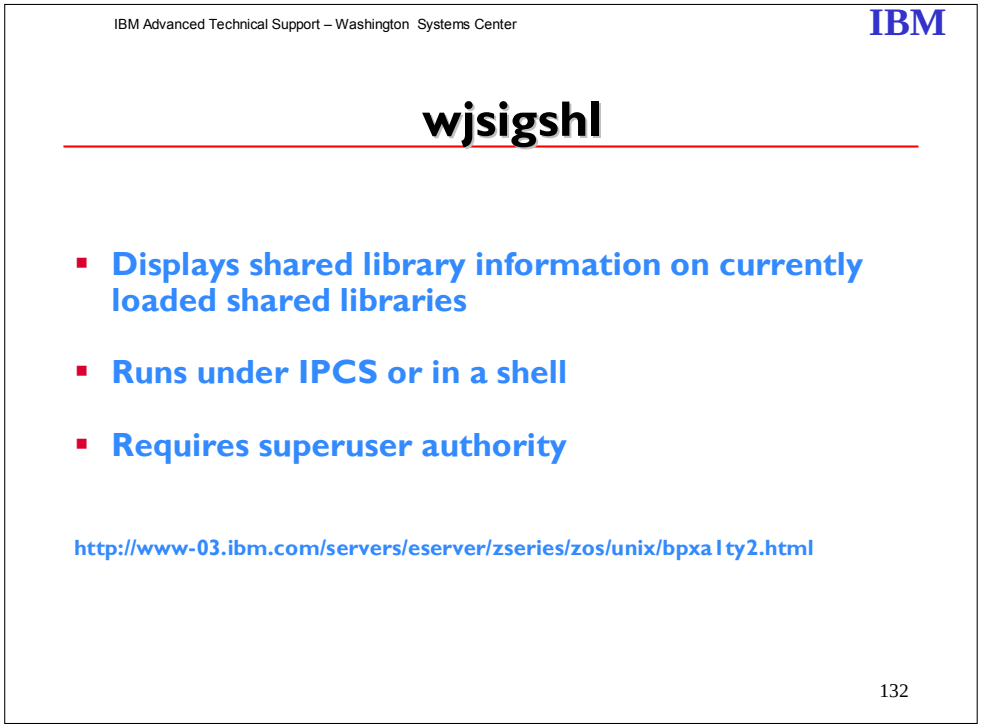


The IBM z/OS PAV Analysis Tool is a new tool provided to understand the PAV-alias utilization in a dynamic PAV environment and to assist customers in analyzing their I/O configuration. It provides information on the I/O activity to all the PAV-alias devices for each logical subsytem. The data is written to a sequential dataset to be processed by a graphical tool. The graphical tool utilizing SAS application sums up data over all the time interval and displays the utilization per time interval in the 3 dimensional graph, busiest device to least busiest device. This display can be used to determine whether or not the number of PAV-alias devices can be reduced without impacting the work.

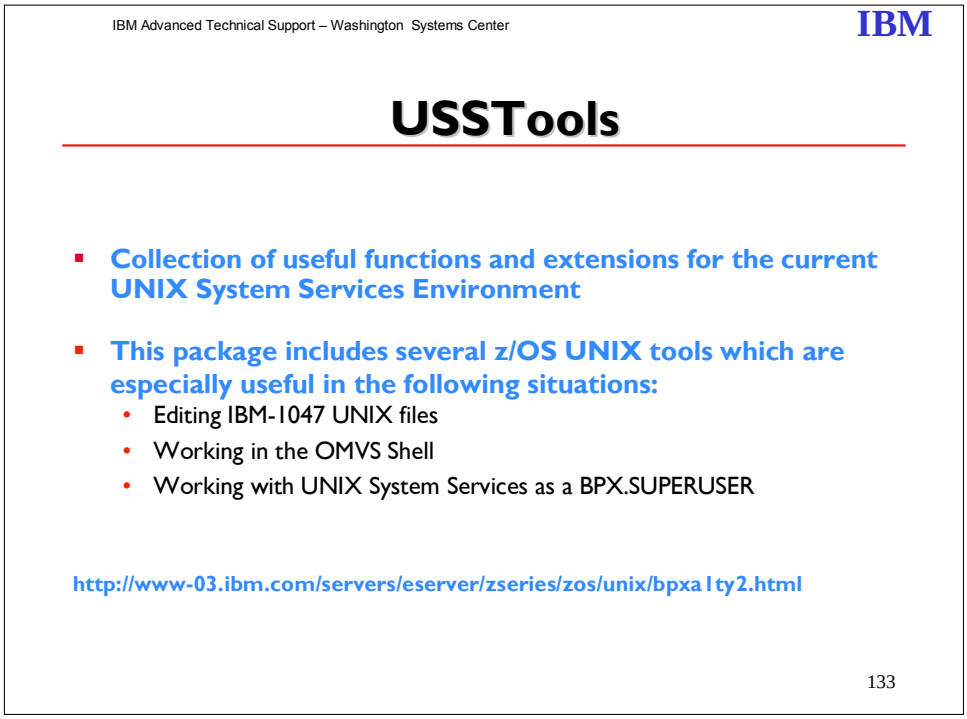
Release			
Download			
1.7	SYNCEXIT	ENFEXIT	PAVMONTR
1.8	SYNCEXIT	ENFEXIT	PAVMONTR
1.9	SYNCEXIT	ENFEXIT	PAVMONTR
1.10 and above	SYNCEXIT	ENFEXIT	PAVMONTR

Please also download the PAV Analysis Documentation.
Contact: JStaubi@us.ibm.com

PAV Analysis Documentation is available for download from this same location.



wjsigshl will show information on what is loaded in the shared library region. It shows the number of processes actively referencing a module, the number of 1MB slots the module takes, the actual number of pages the module takes and the number of unused pages in the slots it is loaded in. The first 64 bytes of pathnames to the modules are also displayed. Contact: wjs@us.ibm.com



These tools build a collection of useful functions and extensions for the current UNIX System Services environment. Support is included for for the OMVS shell in systems running with German or US Host Emulation Code pages. Editing of UNIX files is supported for all emulation code pages supported by **iconv** (conversion to and from IBM-1047). To get detailed information how to install the package click on Installation.

Introduction	Introduction and comments to the tools contained in this package
AOBROWSE	OBROWSE USS files available in ASCII converted to a specified code page if conversion is supported by ICONV
AOEDIT	OEDIT USS files available in ASCII converted to a specified code page if conversion is supported by ICONV>
GO	Get back to the ISPF/TSO session(s) while OMVS shell session(s) are kept active
GOBROWSE	OBROWSE USS files converted to the German code page
GOEDIT	OEDIT USS files converted to the German code page
OMVS	Run OMVS with a specified OMVS conversion table
PSINFO	Get information about active processes
REXX	Run a REXX command processor to process SYSCALL, Shell, TSO and REXX commands
RXSHELL	Run UNIX commands interactively from TSO foreground or in TSO batch jobs
RXSUSH	Switch to SU mode if possible and run UNIX commands in TSO foreground and TSO batch jobs
SAOEDIT	OEDIT USS files available in ASCII converted to a specified code page if conversion is supported by ICONV in SU mode
SGOEDIT	OEDIT USS files converted to the German code page in SU mode
SOEDIT	OEDIT USS files in SU mode

SU	Run commands in ISPF/TSO foreground or TSO batch in SU mode
SUOEDIT	OEDIT USS files converted to the **US** code page in SU mode
"SU - "Support	Support full shell initialization for the Standard and the C Shell environment when switching to another userid using the "su" command
SWSU	Switch to SU mode (temporary) or just run one command with superuser authority in a USS shell environment
SXOEDIT	OEDIT USS files converted to a specified code page supported by ICONV in SU mode>
UOBROWSE	OBROWSE USS files converted to the **US** code page
UOEDIT	OEDIT USS files converted to the **US** code page
XOBROWSE	OBROWSE USS files converted to a specified code page supported by ICONV
XOEDIT	OEDIT USS files converted to a specified code page supported by ICONV
HintsTips	Additional Hints and Tips how to use these USS tools
Installation	Detailed information how to install the package

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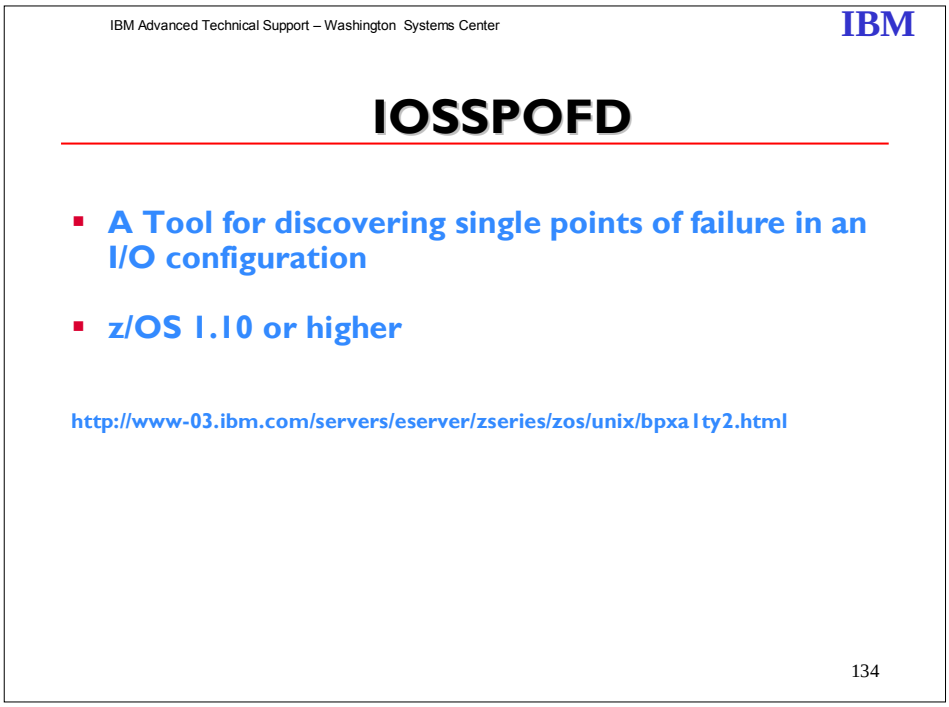
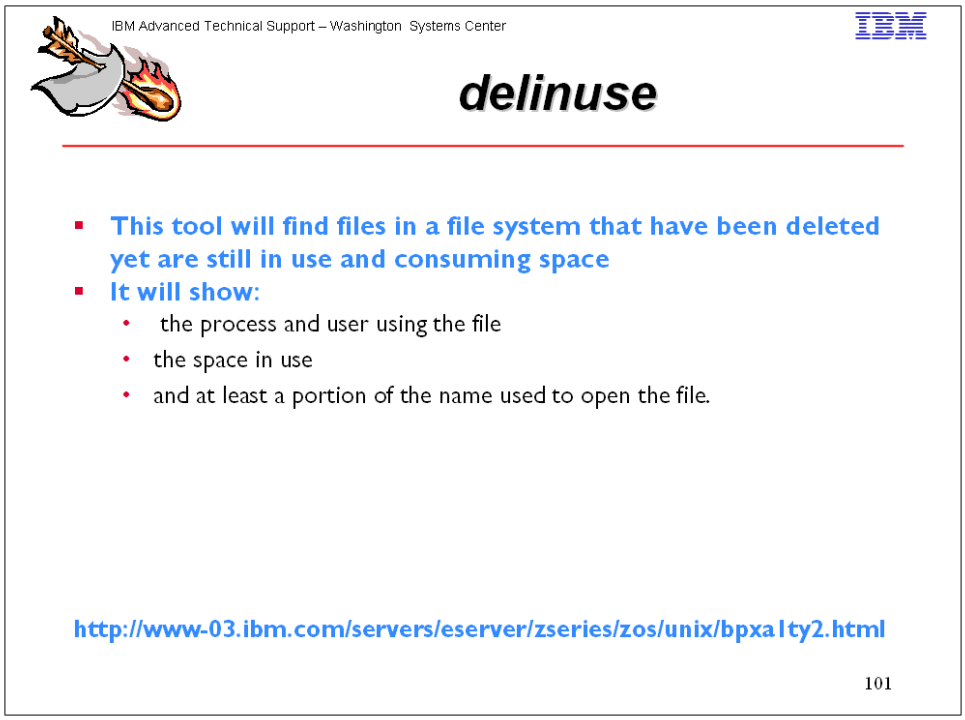


IOSSPOFD can be used to determine if volumes have a singular hardware component common to all paths to the device. It can also be used to determine if a primary volume and an alternate volume have any common hardware components. If such a hardware component were to fail, then the volume would not be available. The messages issued are documented in z/OS MVS System Messages, Vol 9 (IGF-IWM) under the IOSPF messages section.

In z/OS V1.10, XCF and XES plan to extend and enhance their existing health checks to provide new and improved checks to detect single points of failure for all types of couple data sets using the new ***IOSSPOF*** service, check for appropriate separation of different types of couple data sets, and check XCF signaling paths and structure sizes. Improved CF structure and duplexing checks help you avoid sysplex-related problems. New checks for Sysplex Failure Manager action specifications help you improve sysplex availability.



This tool will find files in a file system that have been deleted yet are still in use and consuming space. It will show the process and user using the file, the space in use, and at least a portion of the name used to open the file.

Author: Bill Schoen wjs@us.ibm.com

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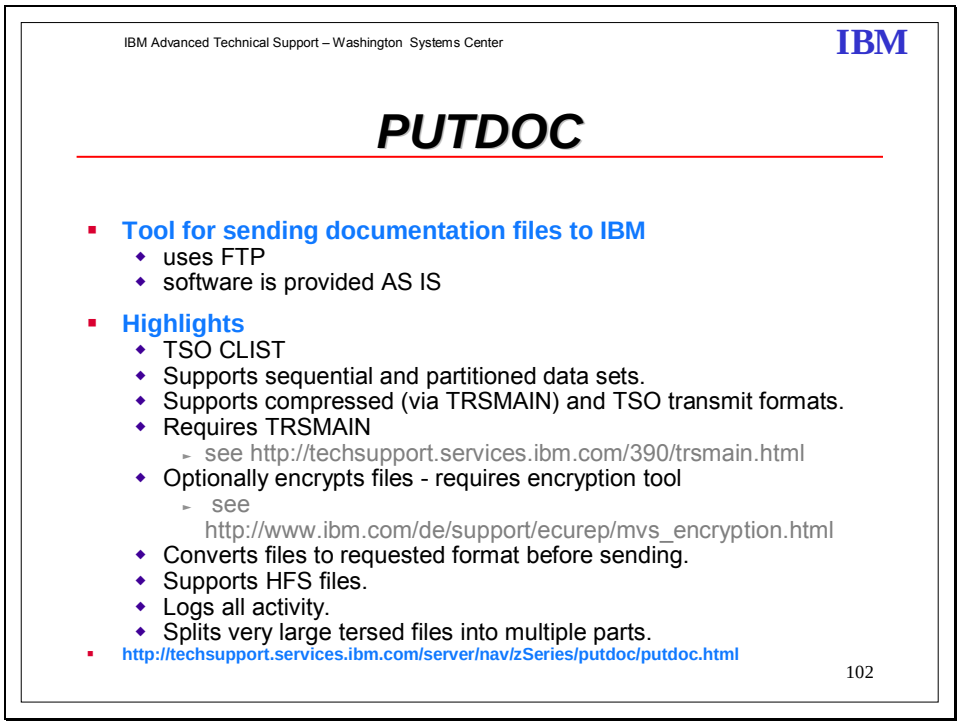
****

Purpose
=======

It is fairly common practice for a program to open a temporary file, delete the file, and continue to use it as a temporary file. By doing so, other programs will not be able to open and read or corrupt the data this program is using. However, since no name appears in a directory, it becomes difficult to determine space being used by these types of files. For example, a file system can become full yet looking at the files that appear to be in the file system, it may appear that the file system should have considerable space available.

This tool will find files in a file system that have been deleted yet are still in use and consuming space. It will show the process and user using the file, the space in use, and a portion of the name used to open the file.

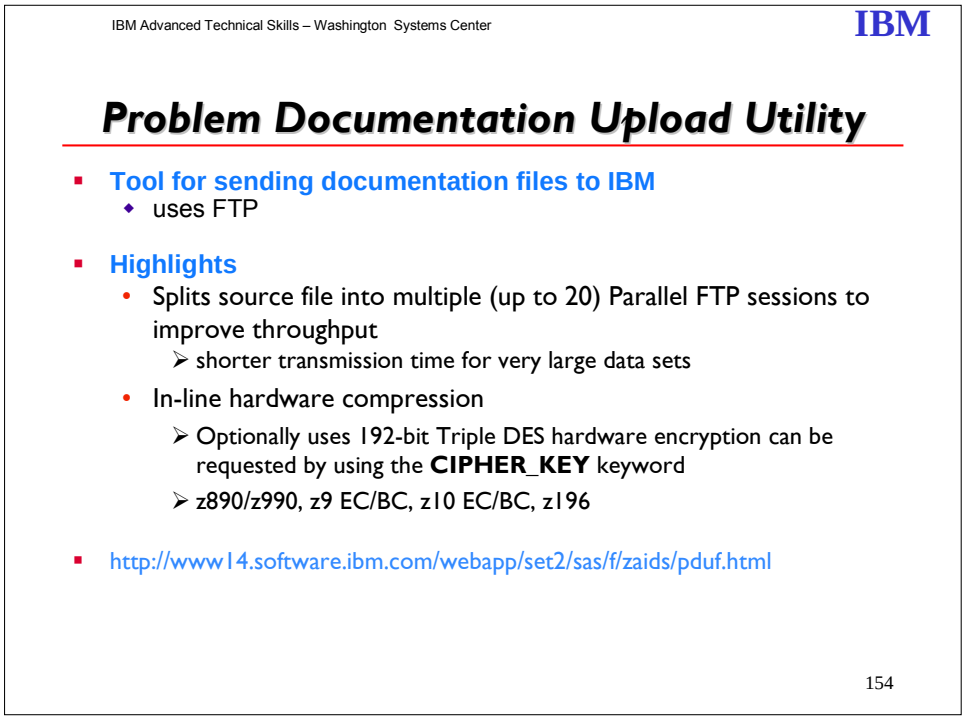


The PUTDOC CLIST executes on your OS/390 and z/OS systems and automates some of the steps in sending documentation (dumps, traces, etc) to IBM via the Testcase server. The user supplies an input data set name (usually from the 3.4 panel within ISPF) and responds to a few prompts. The CLIST submits a batch job that runs locally and performs the steps necessary to send this data set in the desired format to the Testcase server.

The instructions for downloading the CLIST are at:
http://techsupport.services.ibm.com/server/nav/zSeries/putdoc/putdoc.html

The CLIST greatly reduces errors in handling very small to very large data sets. It guides the user through recommended actions, manages space to minimize failures, retains information about destinations on the Testcase server and reduces the chance items will be sent to the wrong destination.

Send questions and feedback to tcpdoc@us.ibm.com and include PUTDOC on the subject line of the note.



The IBM® z/OS® Problem Documentation Upload Utility is a parallel File Transfer Protocol (FTP) utility designed to send documentation in a more efficient manner to IBM FTP sites. This utility sections the input file into smaller files that are sent in parallel resulting in shorter transmission time for very large data sets (such as stand-alone dumps).

There are two work files for each parallel FTP session (the .A. file and the .B. file). Each .A. work file is filled by copying records from the input file. When the .A. file is full, the FTP sessions are started in parallel. At the same time, each .B. work file is filled by copying records from the input file. When the .B. file is full and the transfer of the .A. file is complete, transfer of the next .B. file starts. This process continues between the .A. and the .B. files, until everything in the input file is sent.

There are two work files for each parallel FTP session (the .A. file and the .B. file). Each .A. work file is filled by copying records from the input file. When the .A. file is full, the FTP sessions are started in parallel. At the same time, each .B. work file is filled by copying records from the input file. When the .B. file is full and the transfer of the .A. file is complete, transfer of the next .B. file starts. This process continues between the .A. and the .B. files, until everything in the input file is sent.

You can have up to 20 parallel FTP sessions running simultaneously. The work data sets are dynamically allocated and can range in size from 1 MB to 9,999 MB. You can experiment to see what works best in your environment, but here are some guidelines:

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- Start with three or four parallel FTP sessions. Too many parallel FTP sessions can saturate the network link.
- Use medium size work data sets.

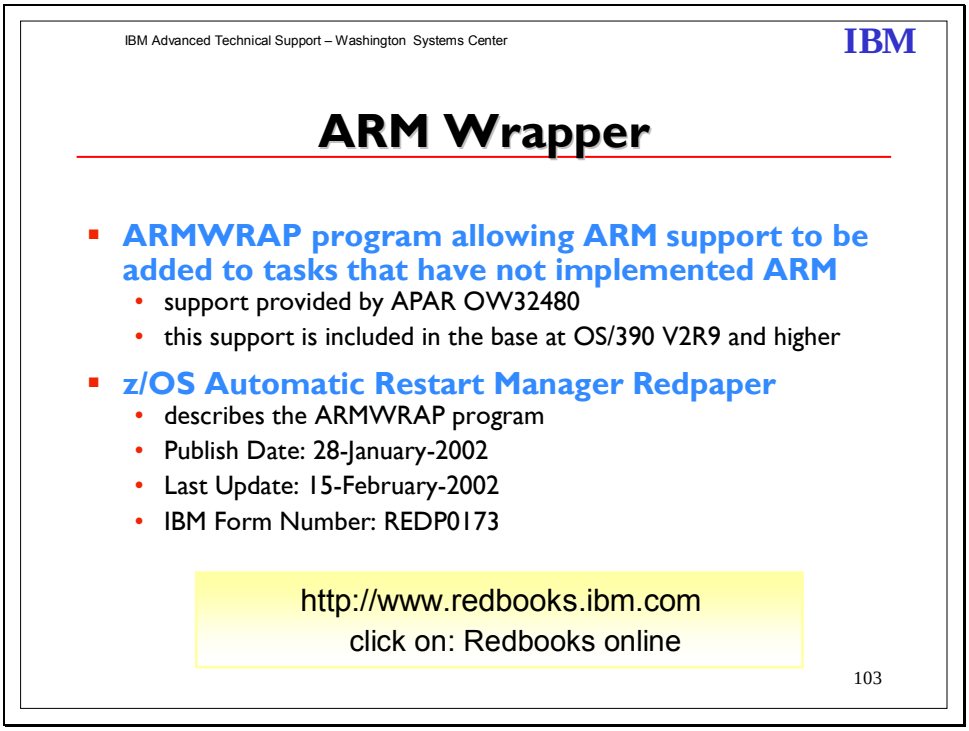
If the work data sets are very small in relationship to the input data set, you can end up with too many files on the IBM FTP sites. For example, if you are sending a 100 GB z/OS stand alone dump and make the work data set size 1 MB, you create 100,000 files on the IBM FTP site, which exceeds the IBM limit of 999 files. This also causes a lot of delay by starting and stopping the FTP sessions for each file.

If the work data sets are very large in relationship to the input file size, the amount of overlap time is decreased. When the program first starts, it must fill the .A. work files before it starts transmitting any data, which means the copy time is not overlapping with data that needs to be sent through FTP. For example, if you were sending a 1 GB dump and you set the work data set size to 1 GB (1,000 MB), there is no overlap between copying the records and sending the work files.

The parallel FTP program always compresses the input data before it is written to the work data sets, therefore it is not necessary to use a tool such as AMATERSE or TRSMAIN to compress the input data set before using the parallel FTP program to send it to the IBM FTP site. In addition, 192-bit triple DES encryption can be requested by using the **CIPHER_KEY** keyword. Without the keyword, the data is just compressed. With the keyword, the data is compressed, and then encrypted.

Encryption is provided by the CP Assist for Cryptographic Functions, DES/TDES Enablement (CPACF, feature 3863) and is available on all processors starting with the z990 (2084) and z890 (2086). CPACF, feature 3863 enables clear key DES and TDES instructions on all supported CPs. The encryption algorithm used for 3DES is documented in *z/Architecture Principles of Operation*, SA22-7832.

z/OSMF Release 12 implemented Parallel FTP.



The ARMWRAP program simplifies the APIs so any subsystem or job can easily exploit the Automatic Restart Manager (ARM). It provides ARM capability to any subsystem or job. This support is included in the base OS/390 V2R9 and above. This function is included in APAR OW32480. This APAR addresses unauthorized callers of the IXCARM APIs. Unauthorized applications needing to run alongside authorized applications need to be able to register with ARM. Applications need to be able to register with ARM using the ARM APIs, without code changes.

The "wrapper" addresses the need for unauthorized programs to be able to exploit ARM, and allows subsystem/application to use the APIs.

It is documented in IBM manuals how to use the ARM APIs by using the concept of an ARM WRAPPER. This old code, called ARMDRVR is documented to run out of an APF library (authorized) since ARM did not support unauthorized callers. Now with the introduction of ARMWRAP the wrappers themselves can run unauthorized allowing for full integrity and better security controls. Besides being supported, ARMWRAP allows greater flexibility in use along with the application being able to tell ARM when it is able to go ARM READY.

This purpose of the ARMWRAP is to allow jobs or started tasks to take advantage of ARM without modifying existing software to use the ARM APIs. Changes are only required in the JCL, be it a PROC or batch job, invoking the existing application. These changes are the addition of JCL EXEC statements signifying the different ARM functions. ARMWRAP executes unauthorized, that is KEY 8 PROBLEM PROGRAM. This allows installations to have better control over their security environment. The allowable ARMWRAP functions are:

ARM REGISTER
ARM WAITPRED
ARM READY
ARM DEREGISTER

Notes :
One subsystem that may see a lot of benefit from this is the ICLI address space used for communication between DB2 and SAP R/3. ICLI by itself does not exploit ARM and a failure of this address space will cause a loss of communication between a front-end processor and SAP on OS/390. With this code, the ICLI will be restarted quickly to minimize the time users are affected.

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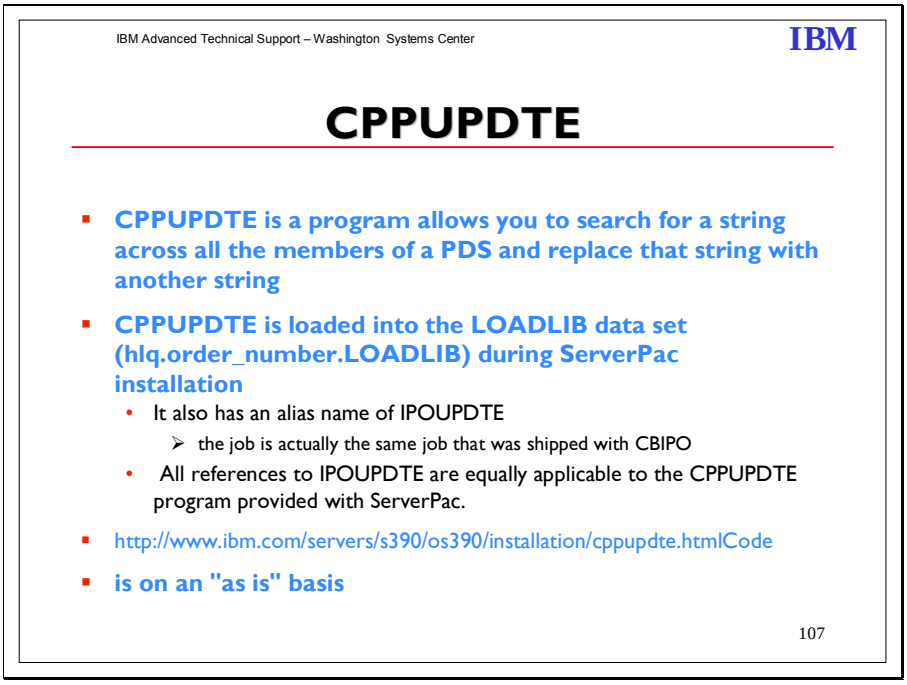

CPPUPDTE program for ServerPac is a program that enables you to search for a string across all the members of a PDS and replace that string with another string. CPPUPDTE is loaded into the LOADLIB data set (hlq.order_number.LOADLIB) during ServerPac installation. It also has an alias name of IPOUPDTE because the job is actually the same job that was shipped with CBIPO.

The following information about how to use CPPUPDTE is an excerpt from the "CBIPO Design Reference" (© IBM Corporation 1983,1991). All references to IPOUPDTE are equally applicable to the CPPUPDTE program provided with ServerPac.

Important: For CPPUPDTE and IPOUPDTE to work, each PDS to be searched MUST contain a member named **$$$COIBM.**

Software Service

Boulder Service Status
Consolidated Software Test
SMP/E
HOLDDATA
Cross Product / Cross System Requisites
DOC APARs
RedAlerts

IBM

Boulder Service Status

- New WEB site providing Boulder Server status
- Visit this site to check on server's status if your service retrieval job/command fails
- http://www14.software.ibm.com/webapp/set2/sas/f/gdbm/home.html

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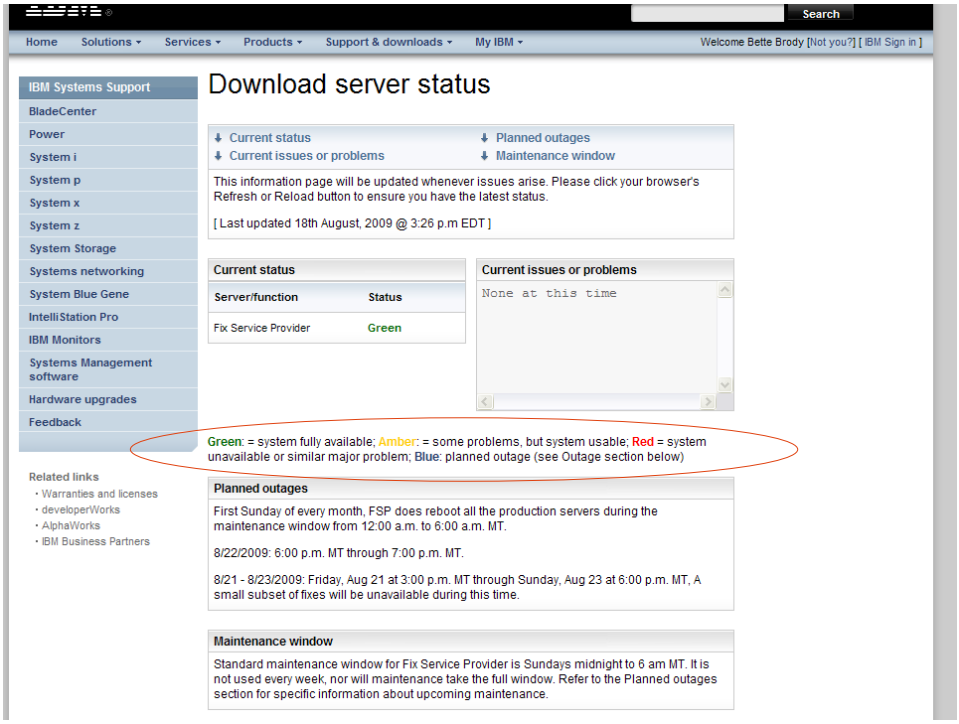

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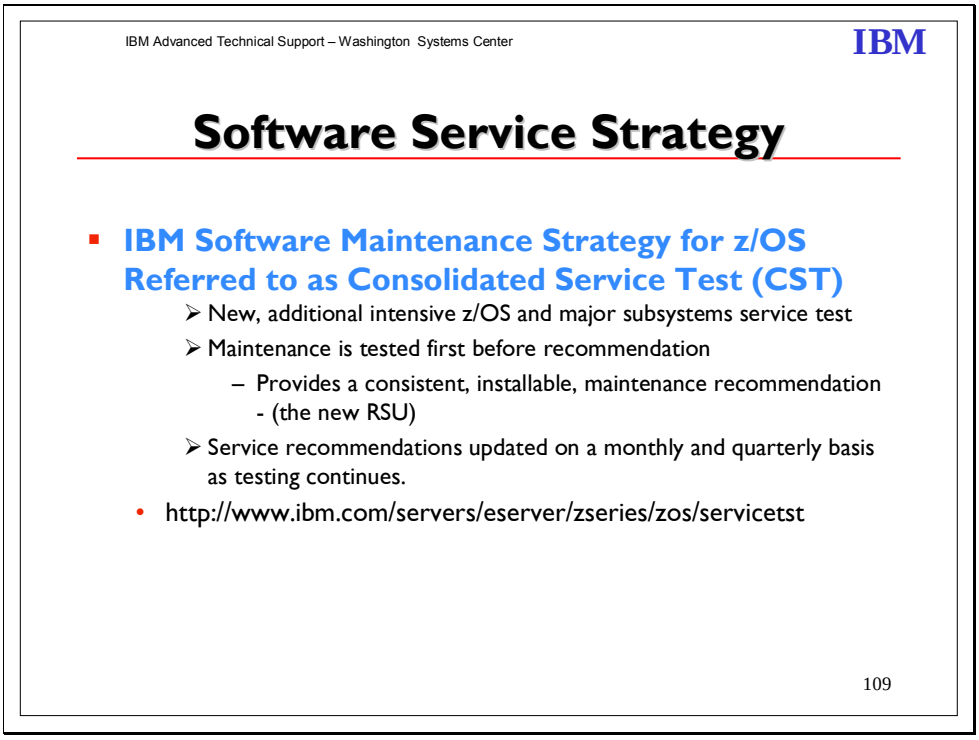

Consolidated service test is a team that installs, tests, and recommends service levels for key z/OS software products. The list below shows the products tested together.

As part of IBM's commitment to quality and continuous improvement, we established an additional service testing environment called Consolidated Service Test (CST). As a result, we're redefining our RSU (Recommended Service Upgrade) for the z/OS platform so that it contains service that has been through CST testing. Now, the CST team tests all the current PTFs for these products together, so that we can recommend PTF service for z/OS and key subsystems together in one RSU sourceid, free of charge to all z/OS customers. That means that when you order the current service deliverable (ShopzSeries) you'll receive and install tested service for all of the following products:

- CICS Transaction Gateway for z/OS
- CICS Transaction Server for z/OS
- DB2 for z/OS
- DB2 Connect
- Geographically Dispersed Parallel Sysplex (GDPS/PPRC)
- IMS
- IRLM
- JAVA
- WebSphere Application Server for z/OS
- WebSphere MQ for z/OS
- z/OS
- z/OS Problem Determination Tools
- IBM DB2 and IMS Tools
- IBM Tivoli
- IBM Tivoli Composite Application Manager for Transactions
- TKLM (Tivoli Key Lifecycle Manager)

IBM

SMP/E

- **SMP/E is its own separate product as of z/OS 1.2**
  - remains a base element in z/OS
    - no longer an exclusive element
- **SMP/E V3 Release 5 (latest release)**
  - Integrated in z/OS R10 and R11
  - General availability September 26, 2008
- **SMP/E V3 Release 4**
  - Integrated in z/OS 1.7
  - General availability September 30, 2005
  - Internet Service Retrieval
    - Request z/OS platform service order using the SMP/E RECEIVE command
    - No longer requires ICSF
    - Improvements in SMP/E commands: APPLY, RESTORE and LINK LMODS

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SMP/E V3R5
IBM SMP/E for z/OS V3.5 provides the following enhancements:

- New FIXCAT HOLDDATA will be provided by IBM that can be processed by SMP/E. This new function is designed to make it easier to determine what PTFs are needed for new hardware, software, and functions. This is expected to help you eliminate much of the manual effort formerly needed to work with Preventive Service Planning (PSP) buckets. A new REPORT MISSINGFIX command is also introduced to identify required fixes that are not yet installed.
- The SMP/E RECEIVE ORDER command and GIMGTPKG service routine have added reconnect and retry capabilities for HTTPS and FTP operations that fail due to network outages and anomalies.
- The SMP/E RECEIVE ORDER command has been enhanced to ensure the latest HOLDDATA is obtained, even for PTF orders that cannot be completely satisfied.
- The SMP/E 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. The PRINT subentry of the UTILITY entry may also be added using ZONEEDIT.
- Changes have been made to the SMP/E HOLDDATA reports produced by the APPLY and ACCEPT commands to consolidate and reduce the report output, as well as offer an alternate destination for the HOLDDATA reports.
- Multiple additional enhancements simplify various tasks for acquiring, installing, and maintaining software.

SMP/E V3R4

RECEIVE FROMNETWORK support of SOCKS firewalls and secure FTP operations

The RECEIVE FROMNETWORK command has been enhanced to use the z/OS Communications Server FTP Client. This can allow SMP/E to:

- Access remote FTP servers through a local SOCKS firewall server.
- Provide secure transfers between the client and FTP server of the user and password, as well as file data. A secure transfer refers to encryption and authentication using Transport Layer Security (TLS).
- Access FTP servers using IPv6 addressing.
- Use the FTP.DATA configuration file to specify local site options for the FTP client. The FTP.DATA configuration file is optional, but must be used to specify the options for SOCKS firewall navigation and secure transfer.

Note: z/OS Communications Server V1.2 is required in order to enable SOCKS firewall navigation, secure transfers, and IPv6 addressing.

Support for Internet delivery of ServerPac

Internet packaging enhancements in GIMZIP and GIMUNZIP: Formerly GIMZIP packages could contain archive files only for sequential and partitioned data sets. The GIMZIP and GIMUNZIP service routines have been enhanced to allow archive files to also contain VSAM ESDS, KSDS, LDS, and RRDS data sets, as well as UNIX files and directories. Additionally, when building a package using GIMZIP, a unique ID value may be assigned to each archive file. This ID value may then be used to identify a specific archive that is to be processed by GIMUNZIP, as opposed to using the archive file's name. When extracting data from an archive file, formerly the GIMUNZIP service routine would only extract data from a GIMZIP archive into a new data set allocated directly by GIMUNZIP. GIMUNZIP has been enhanced to support extracting archive file data into existing data sets. GIMUNZIP will now determine if the output data set already exists. If the data set already exists, then GIMUNZIP will copy the data from the archive file into the existing data set. If the data set does not already exist, then GIMUNZIP will allocate a new data set and then copy the data into the new data set.

New service routine to transfer GIMZIP packages: A new service routine, GIMGTPKG, has been created to get GIMZIP packages independently of the RECEIVE FROMNETWORK command. Using GIMGTPKG, the ServerPac installation can transport a GIMZIP package of archive files from a remote FTP server to a local z/OS system. GIMGTPKG uses the same techniques as the RECEIVE FROMNETWORK command to transport the package, but it does so without the infrastructure required to run an SMP/E command. GIMGTPKG stores the files of a GIMZIP package in the SMPNTS directory for later use.

RECEIVE assignment of SOURCEID values to existing SYSMODs

The RECEIVE command has been enhanced to assign the source ID value specified on the SOURCEID operand of the command to SYSMODs found in the SMPPTFIN input stream, even if they are already received. Formerly, the source ID value was not assigned to SYSMODs that are already received. This allows SYSMODs to be assigned a more consistent set of source ID values regardless of when and from what actual source the SYSMODs were received.

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SMP/E usage of IEBCOPY COPYMOD statement when copying load modules

To allow reblocking of load modules to the destination data set's block size, SMP/E will use the IEBCOPY COPYMOD statement whenever copying load modules. This reblocking helps provide more efficient use of space in SMPTLIB data sets produced by the RECEIVE command and in target and distribution libraries updated by the APPLY, ACCEPT, and RESTORE commands.

REJECT command addition of the CHECK operand

The CHECK operand is now allowed on the REJECT command. The CHECK operand indicates whether REJECT should perform a trial run of the command without actually updating the global zone or any data sets. This provides a way to test for errors that might occur during actual command processing and to receive reports on the changes that would be made.

Entry name wildcard allowed for CSI Query dialog

The CSI Query dialog will allow a wildcard (pattern) for the entry name specification. A selection list of all entry names that match the specified pattern will be displayed when using a wildcard. Patterns of the form ABC* or *DEF may be specified, where ABC and DEF are strings from 0 to 7 characters long.

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SMP/E 3.5

- IBM SMP/E for z/OS V3.5 (5655-G44) is available as of September 26, 2008
  - Included in z/OS V1.10 and z/OS 1.11
- SMP/E V3.5 provides
  - Programmatic Processing of PSP Buckets
    - New FIXCAT HOLDDATA support to relate PTFs to Fix Categories
    - Long (64 character) SOURCEID support with extensive wildcarding capabilities
    - A new REPORT MISSINGFIX command to identify required fixes not yet installed.
    - New Fix Category Explorer to help manage the list of fix categories with interest
  - Extensions to SMP/E's Internet delivery infrastructure
    - Network reconnect capabilities for HTTPS and FTP operations
    - Support for user-specific FTP client parameters
    - More complete PTF order fulfillment for RECEIVE ORDER
  - Various enhancements to simplify the use of SMP/E
    - *ZONEEDIT command enhancements*
    - *HOLDDATA report changes*
    - *BYPASS (HOLDSYS) message severity changes*
    - *SMP/E dialog enhancements*
    - *UNIX file utility input for LMODs*

IBM Education Assistant: http://publibz.boulder.ibm.com/zoslib/pdf/IEA-PDF-SMP35-SimplifyingPSPBuckets.pdf

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++HOLD FIXCAT

- A HOLDDATA type FIXCAT (fix category) to associate an APAR to a particular category of fix for target system PTFs identified as minimum levels
  - PSP buckets
  - Coexistence PTFs
- 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
- FIXCAT type ++HOLDs will be included with ERROR ++HOLDs:
  - Delivered with ***all*** existing IBM product and service offerings
  - Included in the same file (SMPHOLD)

Detailed presentation available through IBM Education Assistant

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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 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 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.

Create Metadata that Associates PTFs with Fix Categories

SMP/E will support new HOLDDATA constructs (FIXCAT type HOLDDATA) which will be delivered in existing IBM service delivery offerings. The FIXCAT HOLDATA will specify an APAR (REASON) that provides a fix for the held SYSMOD (FMID) that is associated with one or more Fix Categories. Similar to ERROR HOLDs, the RESOLVER operand identifies the SYSMOD that resolves the held SYSMOD. More specifically, the resolving SYSMOD supersedes the reason ID APAR that caused the SYSMOD to be held.

Unlike ERROR HOLDs, it is optional whether the APAR identified in FIXCAT HOLDs will affect processing for the held SYSMOD (FMID). The user has to explicitly express an interest in a Fix Category for it to affect subsequent SMP/E processing. If one or more Fix Categories for the APAR match any of those that are of interest to the user, then the FMID will not be APPLYd or ACCEPTed until the APAR is resolved. The APAR is resolved when a SYSMOD that matches the APAR name, or a SYSMOD that supersedes the APAR, is APPLYd or ACCEPTed.

SMP/E will support new HOLDDATA constructs (FIXCAT type HOLDDATA).
Specifically,

- RECEIVE processing is updated to process FIXCAT HOLDs
- SMP/E commands will allow users to express interests in one or more fix categories

- SMP/E APPLY, ACCEPT, and REPORT commands will conditionally process the FIXCAT HOLDs based on user's interest and what is currently installed.
- A new REPORT command will identify missing fixes in one or more fix categories

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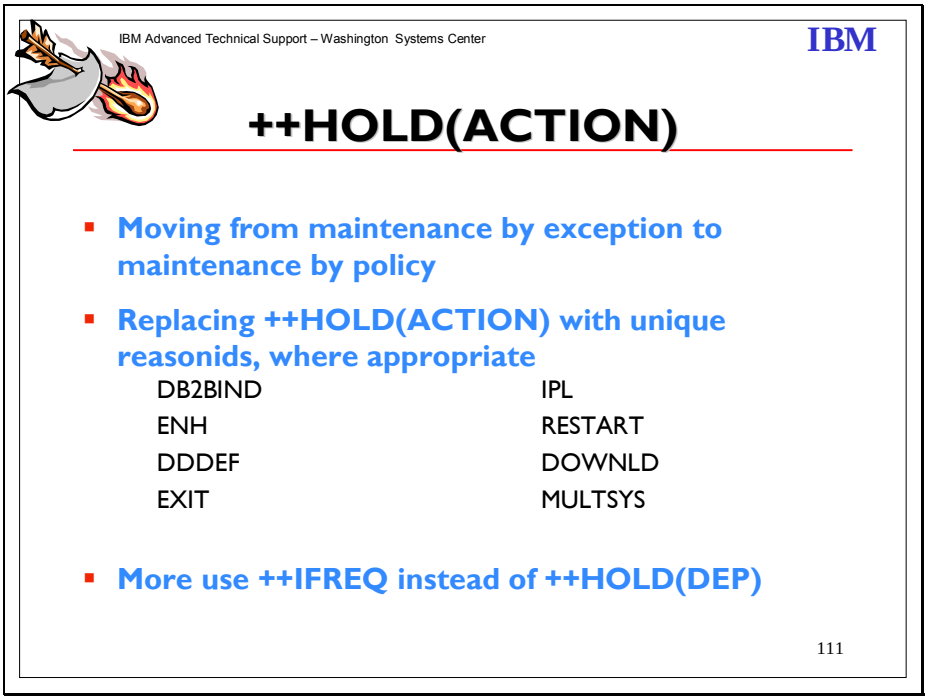

Structured HOLDDATA

The COMMENT portion of the existing ++HOLD MCS is structured so it is easier for customers to read and determine what action is needed and when the action needs to be performed. This will improve usability of the HOLDDATA and cut down on the time it takes to research HOLDs.

The structured HOLD format is loosely based on, and similar to the structure imposed for PTF coverletters. The focus is on making it easier for a human to read and understand the information for a system HOLD. The following standard sections will be used:

Function Affected

The Function Affected field will identify the functional entity affected by the information in the ++HOLD statement. The function identified will be meaningful to the system programmer that has to read and interpret the information, and does not necessarily need to correspond to product "components", Change Team boundaries, etc. It will identify functional entities which the user may decide to use, or not.

This field will provide a kind of hierarchy of components (functional entities), with the product (or, element of z/OS) at the top level, and with various levels of subcomponents at lower levels. These subcomponents would likely be product specific. The intent is to clearly describe what part of the user's system is affected by the ++HOLD information, starting at a high level, and going to the lowest level reasonable.

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Description

The Description field is a short description of the detail described by the hold, with a quick glance, the system programmer should get some idea what the hold is about, what type of action needs to be performed, etc. Key phrases and words should be used by all change teams for the sake of consistency. The description values will be categorized by the type of hold. That is, each hold reasonID will have a defined list of description keywords. This will be a dynamic list, which can (and should) be added to as necessary. Below is a list of valid hold reasons and the description values for each reason.

ACTION
Allocate new data set
Reallocate existing data set
Update configuration
Update security definition
Update Parameter
Execute utility
Recompile/relink application
Client/workstation update
File Tailor
Installation notes
Other (A catch-all category for actions which do not fit with the existing descriptions.)

ENH
Enhancement/Exploitation (Timing)

EXIT
Change to sample user exit or interface

IPL
Special instructions regarding the need for an IPL.

RESTART
Special instructions regarding subsystem and started tasks restart, (e.g coldstart). The sample short description could be 'coldstart'

DDDEF
A library or path is being added, deleted or requires reallocation.

DOWNLD
Client code needs to be downloaded (e.g. to a workstation)

MULTSYS
This PTF identifies fixes needing to be applied to multiple systems for one or more of the following reasons:
Preconditioning: to identify maintenance that requires other maintenance to be installed on other systems in a complex before this maintenance can be installed or deployed.
Coexistence (toleration): to identify maintenance requiring other maintenance to be installed on other systems in a complex, before the new function in this PTF can be installed or deployed. In exception conditions, a PTF may be considered a coexistence PTF if it is used to identify other maintenance to be installed on other systems in a complex, before function originally shipped in the product (FMID) can be deployed. This would be limited to cases where the need for coexistence service wasn't known when the product (FMID) was originally made available.

Complete fix (exploitation): to identify maintenance that needs to be installed and deployed on multiple systems before the change can be made effective.

Timing

This section contains some information to further qualify the hold. For example, is the action a pre- or post-APPLY action? Does the action enable exploitation of new function? More than one characteristic value may be specified for each hold. For example, Post-APPLY and Exploitation. Timing *may* only appear on ACTION holds.

In textual form (for human readability), the hierarchy could be specified as a list of component levels. Each level appears on a separate line, the first line being the highest in the hierarchy, and the last level specified corresponds to the scope of the action.

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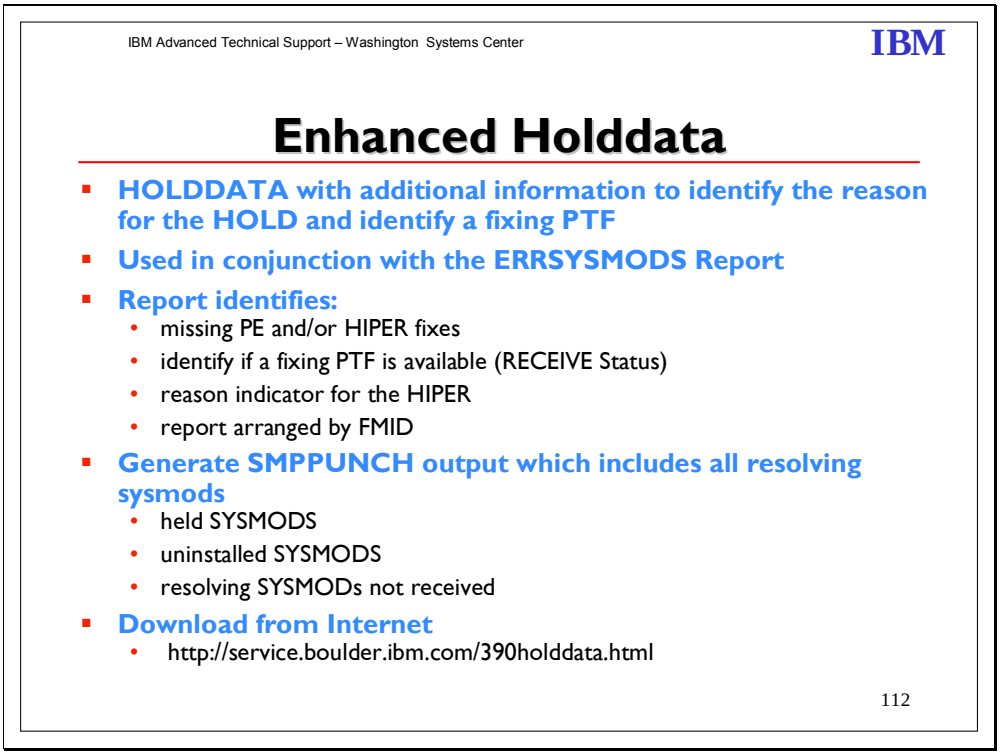

To display the Enhanced HOLDDATA, use the SMP/E REPORT ERRSYSMODS command. The SMP/E report, when used with Enhanced HOLDDATA, identifies missing critical service that applies to your specific system. This allows you to identify any missing PE, HIPER, and year 2000 fixes for any target zone. Additionally, the report identifies whether a corrective PTF is available, whether the corrective PTF is already in RECEIVE status, and the reason indicator for a HIPER.

Enhanced HOLDDATA is available through ESO packages, with CBPDO orders, through the S/390 Service Update Facility (SUF), and from the World Wide Web. For more information, see the ESO Memo to Users Extension, the CBPDO Memo to Users Extension, or the Enhanced HOLDDATA Web site at: http://service.boulder.ibm.com/390holddata.html

Enhanced HOLDDATA can be processed and reported on by any release of OS/390, but displaying the additional (enhanced) information provided with Enhanced HOLDDATA is only possible starting with OS/390 R3. (OS/390 R3 and R4 require SMP/E PTF UR49243. Starting with OS/390 R5, the PTF is integrated.) The REPORT ERRSYSMODS command continues to support nonenhanced HOLDDATA. For details about the REPORT ERRSYSMODS command, see z/OS SMP/E Commands.

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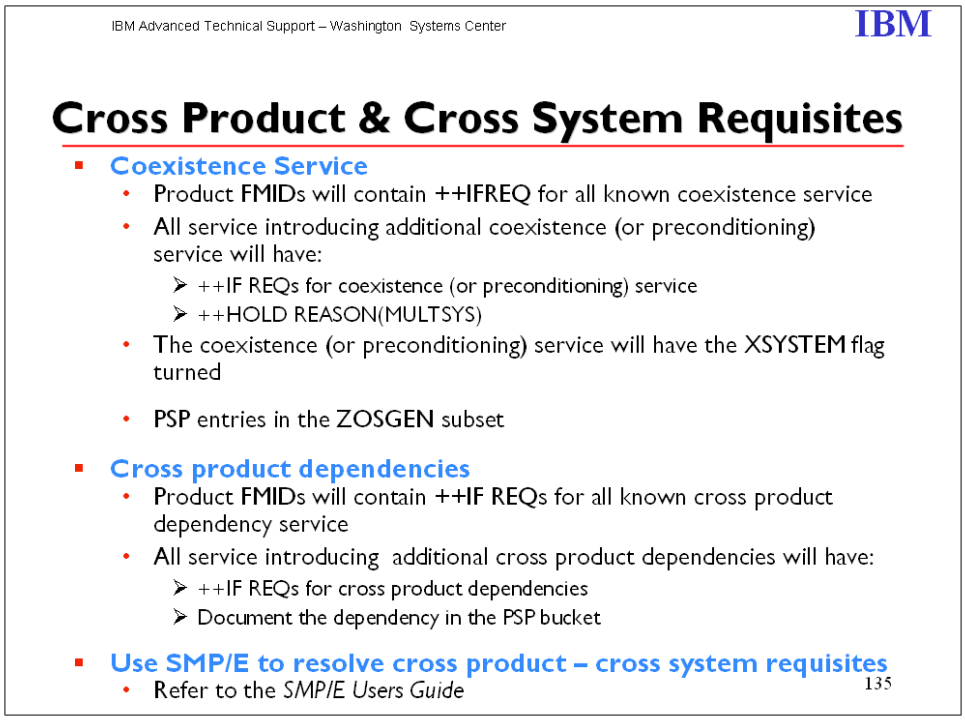

In OS/390 Release 3, SMP/E introduced the capability to automate the checking of cross-zone requisites. These cross zone requisites can be for cross product dependencies on the same system, as well as for cross system "Preconditioning", "Coexistence" ("toleration"), or "Completing a fix" ("exploitation") PTFs. Product packagers can and will use ++IF REQs to identify these requisites.

There are different methods that can be used for cross-zone processing. However, customer setup is required. A default zone group can be defined or the XZGROUP operand can be added to the install jobs. Once set up, SMP/E can identify cross-zone requisites needed in the 'set-to zone' which are in effect for the current APPLY/ACCEPT commands, as well as any cross-zone requisites in other zones for SYSMODs currently being installed. SMP/E checks if the requisite is already installed, or if it needs to be installed as part of the same SMP/E APPLY/ACCEPT command. Once products use ++IF REQs for MULTSYS PTFs, SMP/E will be able to be used to verify and install cross-zone requisites, thereby satisfying the ++HOLD REASON(MULTSYS) exception condition.

Note: If SYSMODs being installed into the set-to zone have requirements against the other cross-zones, that service must be APPLY'd to those zones before installation can be completed into the set-to zone.

See the *SMP/E Users Guide* for setting this up.

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Latest DOC APARs

- z/OS and z/OS.e DOC APAR and PTF ++HOLD Documentation (Web only)
- **Updated weekly (with closures from prior week)**
  - DOC APARs and ++HOLD for documentation changes from PTF cover letters
  - Facilitates:
    - Searching for changes (IBM BookManager BookServer Search facility)

http://publibz.boulder.ibm.com/cgi bin/bookmgr_OS390/BOOKS/ZIDOCMST/CCONTENTS

Or from the z/OS library page:

Latest z/OS DOC APARs and PTF ++HOLD DOC data

Obtain the latest updates to z/OS elements and features documentation.

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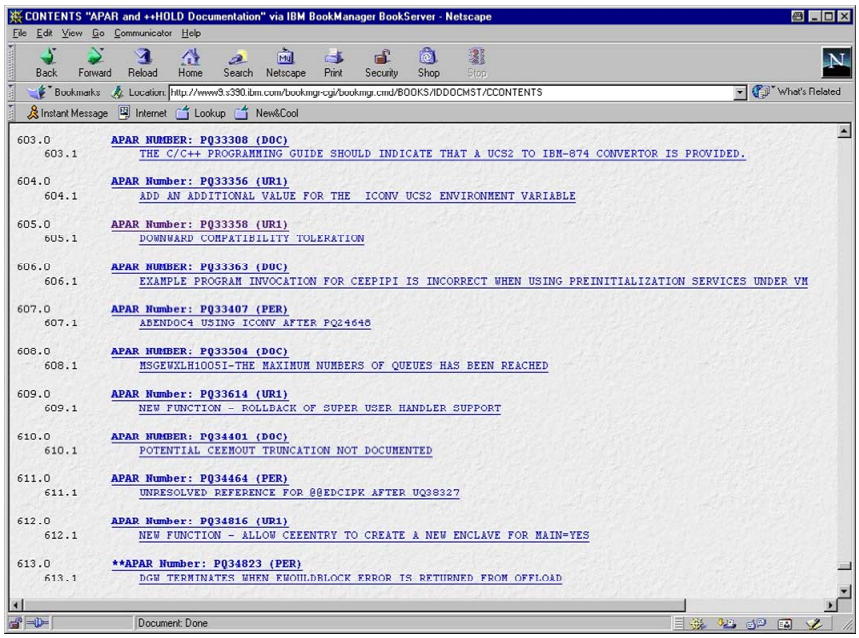
Sample List



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January 11, 2011

Abstract: Possible corrupted backup copy for z/OS 1.10, 1.11, 1.12 users of zHPF (High Performance FICON) & PDSE users with PTF's for OA30025 or OA34009 applied.

Description: Only users performing logical dumps of PDSE data sets under the following conditions, (this is also true for HSM BACKUP and MIGRATION):

- PTF's for OA30025 or OA34009 are installed
- The PDSE to be backed up resides on a device which supports zHPF channel programs
- zHPF processing is enabled

PDSE backups taken after the installation of PTFs for OA30025 or OA34009 should be considered as suspect. Please see APAR OA35260 (Media Manager) & OA35296 (PDSE) for additional information.

Recommended Actions:

- Apply ++APARs for OA35260 & OA35296 as soon as possible, or
- Backoff PTF's for OA30025 and/or OA34009, or
- Disable zHPF until ++APAR can be applied

October 6, 2010

Abstract: Potential data corruption for IMS or DB2 for z/OS following rebuild of lock structure in data sharing mode.

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Description: During rebuild of a lock structure in a DB2 V8 or DB2 V9 data sharing environment, two problems may occur when locks are being rebuilt asynchronously into the new structure:

1. The IRLM may incorrectly conclude that the rebuild is complete before all locks have been rebuilt into the new lock structure. This can cause new lock requests to be granted prematurely, resulting in incompatible locks being held across the data sharing group.
2. The IRLM may ABEND before all locks have been rebuilt. In this case, locks that were not rebuilt in time will be lost and will not be reacquired on restart.

In both cases potential data loss or data corruption may result either during or following the rebuild event.

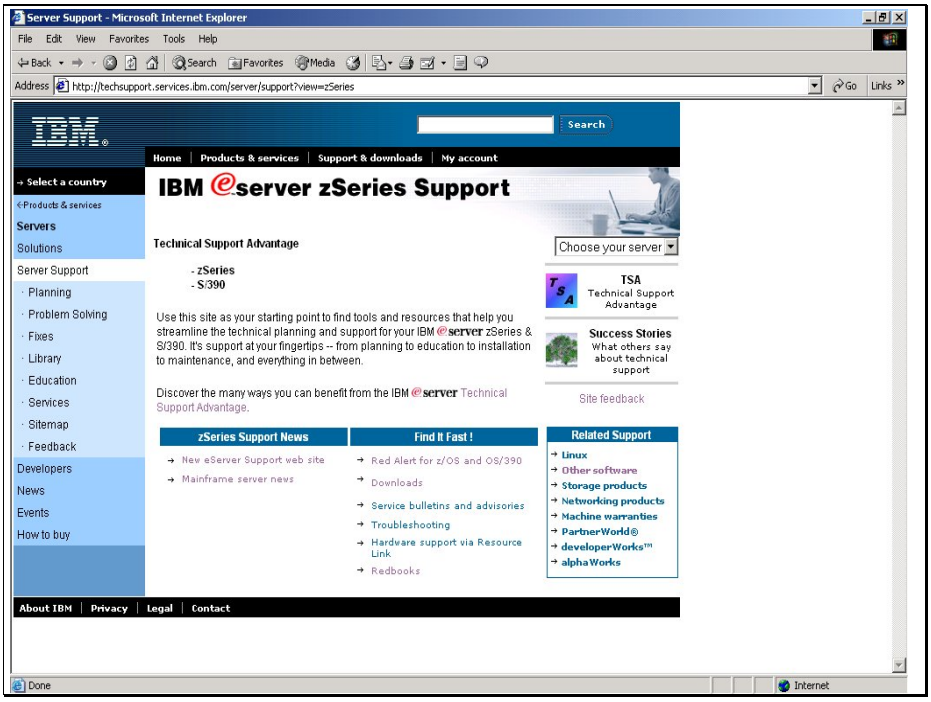
Since the problem is in IRLM, all versions of IMS may also be affected.

No recent DB2, IMS or IRLM maintenance has affected the possibility of encountering this issue.

The resolution to the above issues will be provided by IRLM APAR PM23662.

Recommended Actions:
Install ++APAR for PM23662 which is now available. If possible, avoid rebuild of IRLM lock structures until the solution for PM23662 is applied to all members of the data sharing group. If rebuild of the lock structure is unavoidable, then consider performing the rebuild with a single active member. This would require quiescing all the other members. If data corruption is detected following a lock structure rebuild, quiesce and restart all members of the group to prevent further problems.

Alternatively, for customers planning to do a Rebuild before the ++APAR can be installed on all members of the data sharing group (e.g. CF upgrade or processor upgrade with ICF in the near term), please contact IBM Support for IRLM to determine if a procedural bypass can be provided in your configuration.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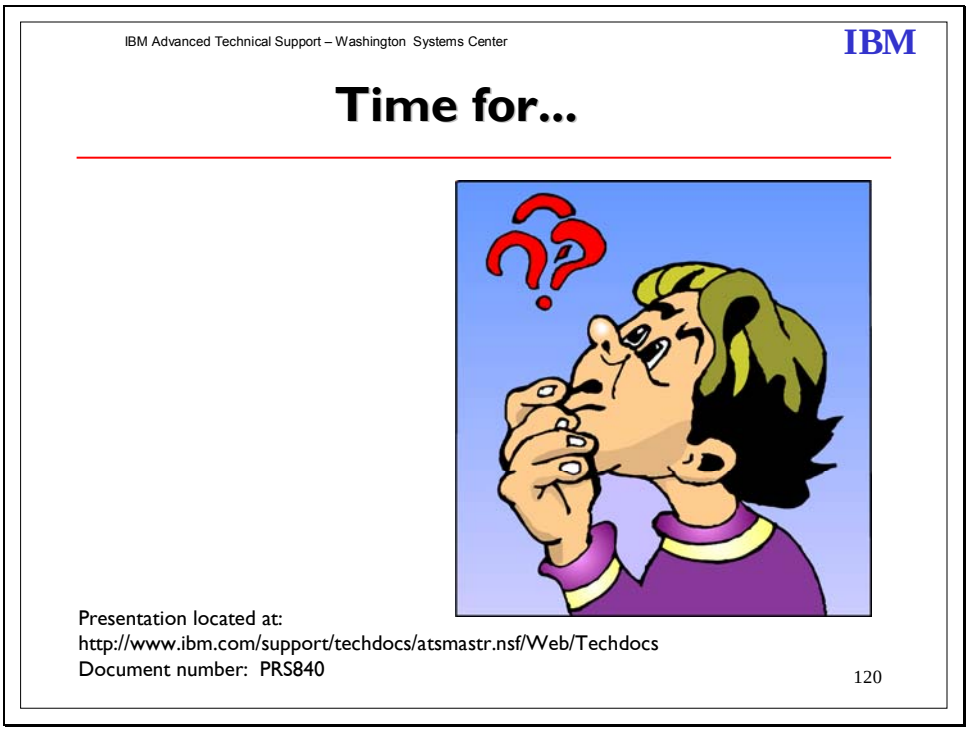
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Document number: PRS840
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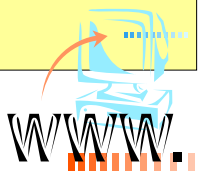
Old Information, but still useful



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Products installed on your system
Products licensed to your system
ShopzSeries uses this information to identify:
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Licensed release upgrades to your installed products
Version upgrades to your installed products
You can also review your licenses for your software
Electronic delivery
ServerPac, SystemPac, CBPDO, service
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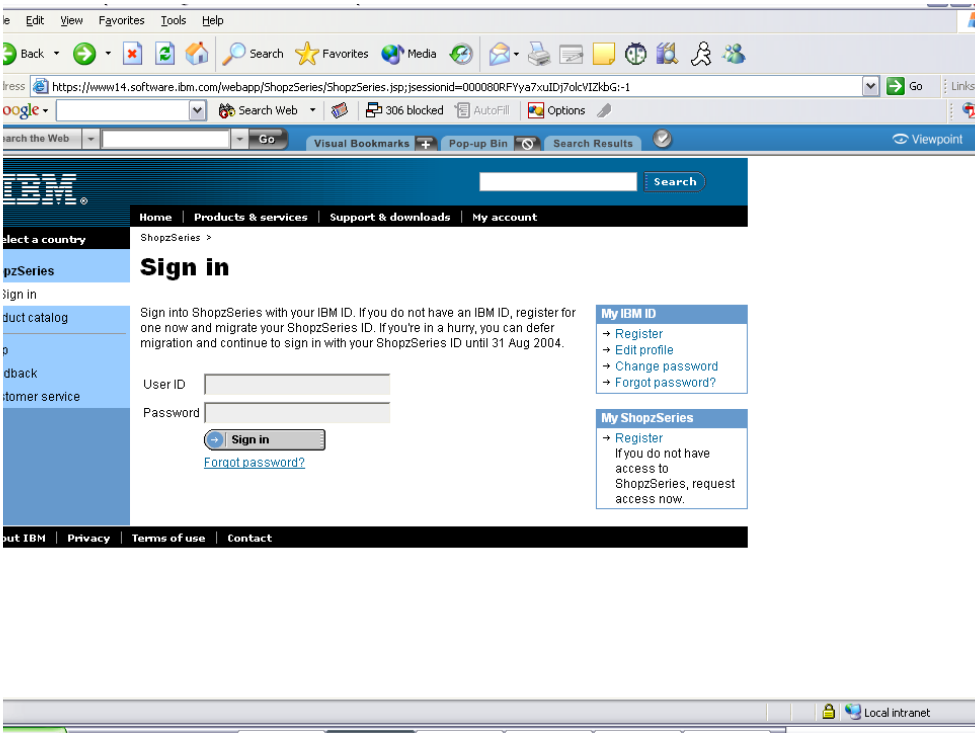
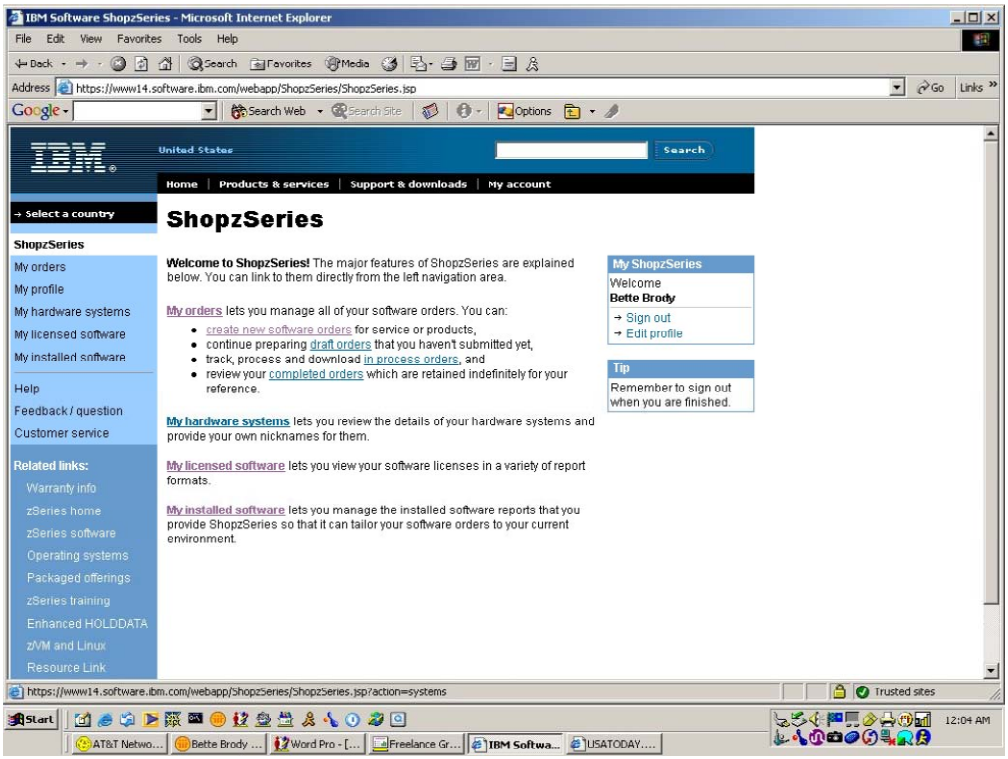
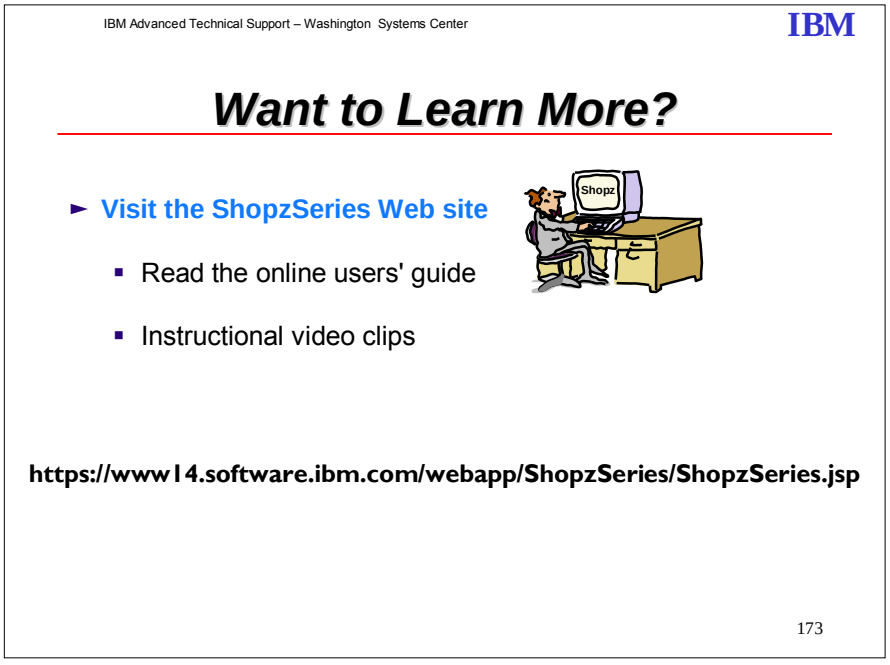

Edit View Favorites Tools Help
Back Search Favorites Media
https://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp;jsessionid=000080RFYya7xuIDj7olcVIZkbG:-1
Search Web 306 blocked AutoFill Options
Visual Bookmarks Pop-up Bin Search Results Viewpoint
Search
Home | Products & services | Support & downloads | My account
ShopzSeries >
Sign in
Sign into ShopzSeries with your IBM ID. If you do not have an IBM ID, register for one now and migrate your ShopzSeries ID. If you're in a hurry, you can defer migration and continue to sign in with your ShopzSeries ID until 31 Aug 2004.
User ID
Password
Sign in
Forgot password?
My IBM ID
Register
Edit profile
Change password
Forgot password?
My ShopzSeries
Register
If you do not have access to ShopzSeries, request access now.
Privacy | Terms of use | Contact
Local intranet





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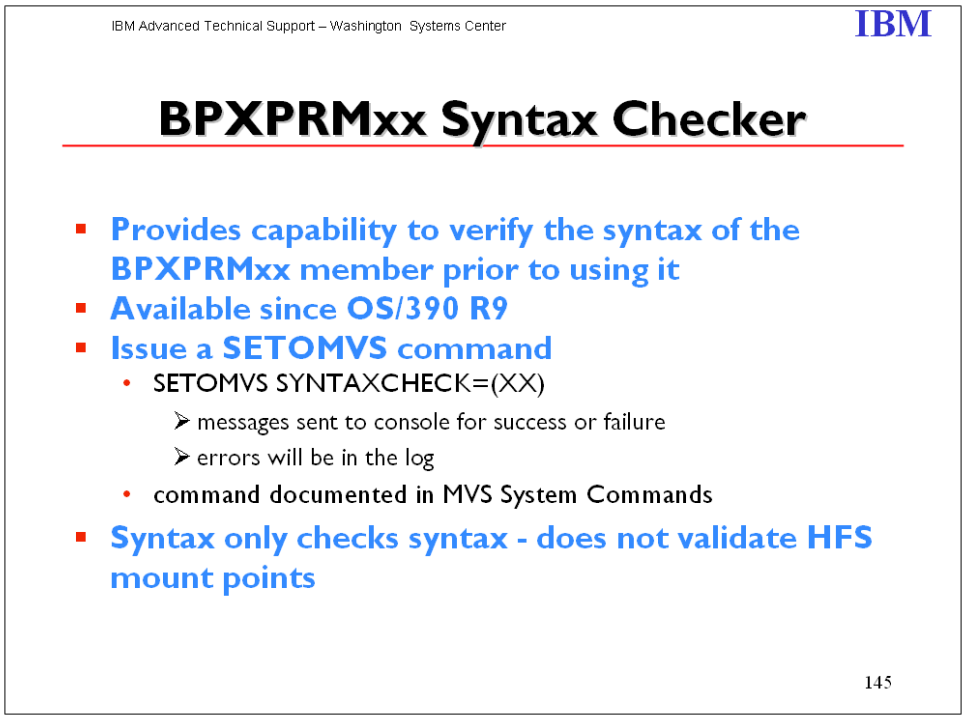


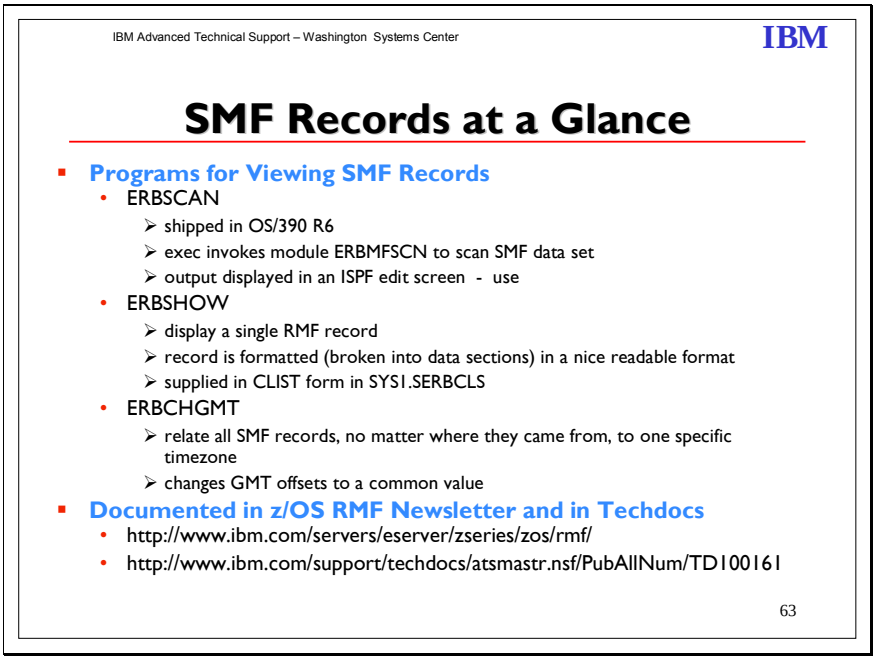
You can use the SETOMVS SYNTAXCHECK operator command to check the syntax of a BPXPRMxx parmlib member before doing an IPL.

SYNTAXCHECK=(xx)
Specifies that the operator wishes to check the syntax of the designated parmlib member. For example, to check the syntax of BPXPRMZ1 the operator enters:

SETOMVS SYNTAXCHECK=(Z1)

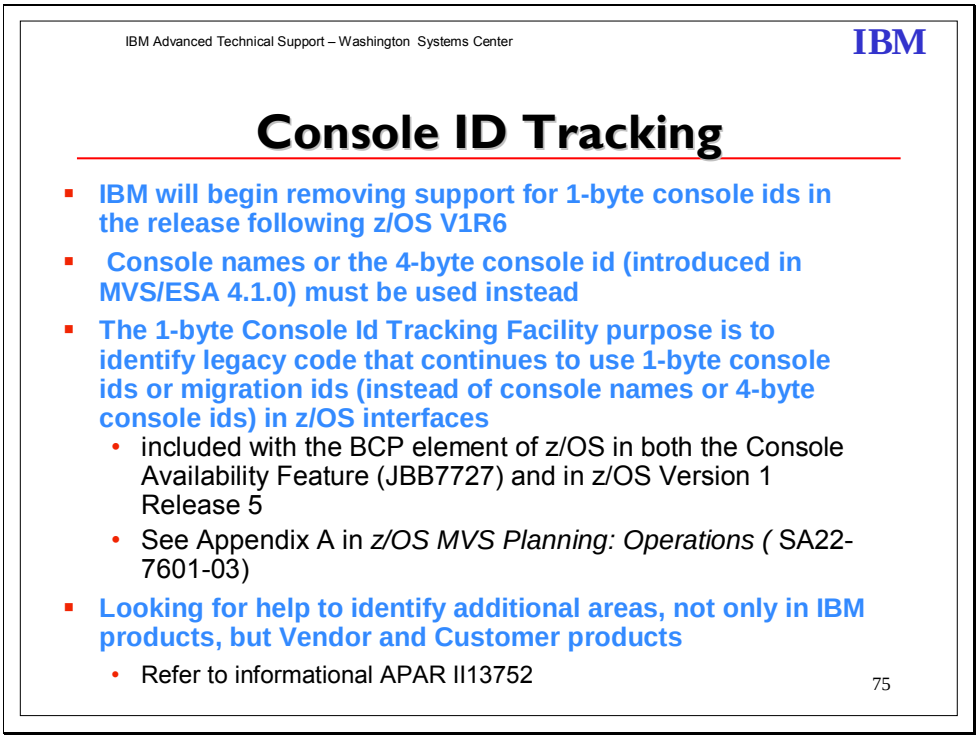
The system returns a message indicating either that the syntax is correct or that syntax errors were found and written into the hard copy log. This command parses the parmlib member in the same manner and with the same messages as during IPL.

Note: SYNTAXCHECK checks only syntax and does not verify that HFS datasets or mount points are valid.



The first program, **ERBSCAN** shipped in OS/390 Rel 6. The ERBSCAN exec invokes module ERBMFSCN to scan an SMF dataset. The output listing of ERBMFSCN is then displayed in an ISPF EDIT screen. The user may then display a single RMF record by entering the command "ERBSHOW recno" in the EDIT command line. In this case the ERBSHOW exec is invoked as an EDIT macro, which will then re-invoke this exec with the specified record number. The corresponding record is formatted (broken into its data sections) and displayed in another EDIT window. ERBSHOW in supplied in CLIST form in SYS1.SERBCLS.

ERBCHGMT
Found in SYS1.SAMPLIB. This program provides a function to change GMT offsets to a common value. This function is needed when you have systems in a sysplex with different timezones and want to create postprocessor Sysplex reports.



The Console ID Tracking facility is designed to assist with the identification and removal of one-byte console IDs and one-byte migration IDs. In future releases, only four-byte IDs will be accepted. While four-byte IDs have generally replaced one-byte IDs, some services still accept one-byte IDs. The users of services that still accept one-byte console and migration IDs are known as violators, and instances of one-byte ID usage are known as violations.

Because no interfaces are being changed, the Console ID Tracking facility does not present any compatibility issues. To prepare for the removal of one-byte console IDs, the Console ID Tracking facility will provide the following new functions:

- The SETCON operator command, which is used to activate and deactivate the Console ID Tracking facility.
- The DISPLAY OPDATA,TRACKING operator command, which is used to display the current status of the Console ID Tracking facility, along with any recorded instances of violations.
- The CNIDTRxx parmlib member, which is used to list violations that have already been identified in order to prevent them from being recorded again.
- The CNZTRKR macro, which is used to invoke the Console ID Tracking facility.

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z/OS consoles 1-byte tracker exclusion list

- **Console Id Tracking facility Exclusion List**
  - SYS1.PARMLIB member sample for z/OS 1.4.2 (console enhancement feature) or z/OS 1.5, z/OS 1.6
- **Function: provides exclusion statements to be used by the Console Id Tracking facility so violation instances which match an exclusion statement will not be recorded by the facility.**
- **Refer to information APAR II13752**

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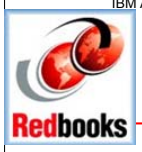

Redbooks, Pieces, Papers

- **System z Mean Time to Recovery Best Practices (SG24-7816-00)**
  - Publish Date: February 27, 2010
  - Last Update: March 22, 2010
- **ABCs of z/OS System Programming Volume 3 (SG24-6983-03)**
  - Last Update: March 11, 2010
- **ABCs of z/OS System Programming Volume 12 (SG24-7621-00)**
  - Publish Date: January 28, 2010
- **Introduction to the System z Hardware Management Console (SG24-7748-00)**
  - Publish Date: February 4, 2010

http://www.redbooks.ibm.com

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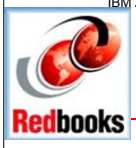

Redbooks, Pieces, Papers

- **IBM z/OS Parallel Sysplex Operational Scenarios** (SG24-2079-01)
  - Publish Date: May 29, 2009
- **IBM z/OS Metro/Global Mirror Incremental Resync** (REDP-4429-00)
  - Publish Date: January 9, 2009
- **DS8000 Copy Services for IBM System z (SG24-6787-04)**
  - Publish Date: February 6, 2009
  - Last Update: December 4, 2009 [corrections made]
- **z/OS Distributed File Service zSeries File System Implementation z/OS V1R11** (SG24-6580-04)
  - Publish date: February 2, 2010

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Redbooks, Pieces, Papers

- Co-locating Transactional and Data Warehouse Workloads on System z (SG24-7726-00)
  - Publish Date: July 28, 2010
- IBM System Storage Data Encryption (SG24-7797-00)
  - Publish Date: June 9, 2010
- I/O Configuration Using z/OS HCD and HCM (SG24-7804-00)
  - Publish Date: April 30, 2010
  - Last Update: May 18, 2010
- Security on the IBM Mainframe (SG24-7803-00)
  - Publish Date: April 30, 2010
- System Programmer's Guide to: Workload Manager (SG24-6472-03)
  - Publish Date: February 23, 2007
  - Last Update: April 20, 2010
- z/OS Version 1 Release 11 Implementation (SG24-7729-00)
  - Publish Date: March 11, 2010
  - Last Update: April 7, 2010

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Interesting Papers

- A Clear Key / Secure Key / Protected Key Primer
  - **WP100647** @ http://www.ibm.com/support/techdocs
  - July 2010
- IBM Handbook Using DS8000 Data Replication for Data Migration
  - **WP101716** @ http://www.ibm.com/support/techdocs
  - July 2010
- IBM HyperSwap Technology April 2010
  - **WP101289** @ http://www.ibm.com/support/techdocs
  - April 2010
- How to Generate WTO Messages from RMF Performance Exceptions
  - **WP100402** @ http://www.ibm.com/support/techdocs
  - March 2010
- Crypto Express3 Operating System Support Requirements
  - **TD105435** @ http://www.ibm.com/support/techdocs
  - May 2010

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Interesting Papers

- **Planning Considerations for Running zAAP Work on zIIPs**
  - **WP101642** @ http://www.ibm.com/support/techdocs
  - March 2010
- **Restore Server Time Protocol configuration information across a Power on Reset**
  - **TD105103** @ http://www.ibm.com/support/techdocs
  - Last Update: March 2010
- **Sample Procedure(s) for Crypto Management**
  - **WP101629** @ http://www.ibm.com/support/techdocs
  - January 2010
- **Analyzing OMEGAMON z/OS Runtime Environments with REXX**
  - **TD103816** @ http://www.ibm.com/support/techdocs
  - March 2010
- **Certificate Problems Related to Daylight Savings Time**
  - TD105442 @ http://www.ibm.com/support/techdocs
  - February 2010

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z/OS Parallel Access Volume (PAV) Analysis Tool

- **Tool to determine whether or not the number of PAV-alias devices can be reduced**
- **Highlights**
  - Helps understand PAV-alias utilization in a dynamic PAV environment
  - Assists in analyzing I/O configuration
  - Provides I/O activity to all PAV-alias devices for each LCSS
  - Data is written to a sequential data set
  - Data is processed by a graphical tool
  - Last update: February 5, 2007

http://www.ibm.com/servers/eserver/zseries/zos/unix/bpxa1ty2.html#pavanalysis

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APARS Worth a Second L👀k

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OA28192

- **Catalog was corrected to now allow a value of up to 400 for the maximum number of service tasks**
  - Each Catalog service task requires 5K of common storage (CSA/ECSA)
- **Increasing the maximum number of tasks from the prior maximum of 200 to 400 will require an additional 200*5K = 1M of common storage**
- **Label for the "CURRENT # SERVICE TASKS" field in the MODIFY CATALOG,REPORT display was changed to "# ACTIVE SERVICE TASKS" to more accurately describe the value of this field**

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OA29619

- New function in z/OS V1R11
- Allows users to specify which zFS read-write filesystems are to be made sysplex aware
  - zFS file system is mounted non-sysplex aware (by default).
  - zFS is enabled to allow zFS read-write file systems to be sysplex-aware
    - Can specify individual file systems in IOEFSPRM configuration file
  - it must be explicitly requested on a file system basis

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OA27495

- Extends specialty engine usage and enables zAAP eligible workloads to run on a on zIIP
  - z/OS R11 (support in base)
  - z/OS R9 and R10 with the PTF for APAR OA27495
  - Still require a zIPP/zAAP ratio to general purpose engines
  - Server: z9 and/or z10
  - Restriction: Cannot have a zAAP specialty engine installed

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OA26802

- **Improvements to System REXX**
  - REXXLIB concatenation
  - Multiple Parmlib Configurability
  - Syscall Host Command Environment
  - The way MODIFY AXR processes arguments in single quoted strings has been changed
  - TSO=YES execs will now run in address spaces using the primary Subsystem instead of MASTER
  - Two new external functions are provided:
    - AXRWAIT
      - allows the exec to wait for a specified number of seconds
    - AXRINFO
      - allows the invoker to obtain information about the environment in which the exec is running in

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OA25559

- **New Function: DFSMS supports solid state drives on DS8000**
  - New I/O statistics in SMF Records to assist in identifying good candidates for placement on SSD drives
  - Exploit performance advantages of SSD drives using SMS policy for storage management
  - DEVSERV command and DEVTYPE macro identify volumes backed by SSD or Disk Encryption
- **z/OS R11 base support and rolled back to z/OS R9 and R10**

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OA26084 and OA29017

- **High Perfomance FICON (zHPF)**
  - New support for multi track function for DS8000 to support >1 track's worth of data in a single transfer
- **Support in z/OS R9 and R10 (z/OS R11 base)**

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