

Migrating to z/OS V2.2 Part 1: Planning

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z/OS System Installation

IBM z Systems, Poughkeepsie NY USA



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IBM Systems Technical Events

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- **Content of z/OS V2R2**
 - Added, Changed, and Withdrawn Elements and Features
- **z/OS Ordering and Deliverables**
 - Products Related to z/OS
- **z/OS Policies**
 - z/OS End of Service dates
 - z/OS Coexistence-Migration-Fallback
- **Planning for z/OS V2R2:**
 - Ensuring System Requirements are Satisfied
 - Driving and Target System Requirements
 - Coexistence System Requirements
 - Some Migration Actions You Can Do NOW
 - Programmatic Verification of Migration Actions for z/OS V2R2
 - Using z/OSMF Workflow for z/OS migration
 - Some Installation Enhancements in SMP/E and ServerPac



- **Focus on z/OS migration, not HW migration.** If migrating to a new server level, see:
 - for z196 and z114: migration action in *z/OS Migration "Migrate to an IBM zEnterprise z196 or z114 server"*
 - for zEC12 and zBC12: migration action in *z/OS Migration "Migrate to an IBM zEnterprise zEC12 or zBC12 server"*
 - **for z13: migration action in *z/OS Migration* book, or attend session "z/OS Support for the IBM z13".**



z/OS V2R2 Elements (changing in z/OS V2R1 and V2R2)

- BCP
- Common Information Model (CIM)
- Communications Server
- Communications Server Security Level 3
- Cryptographic Services:
 - ICSF (FMID HCR77B0)
 - PKI Services
 - System SSL
- DFSMSdfp
- DFSMSdss
- DFSMShsm
- DFSMSrmm
- DFSMSstvs
- DFSORT
- Distributed File Service
- HCD
- HCM
- IBM HTTP Server powered by Apache (IHSA)
- IBM Knowledge Center for z/OS
- IBM Tivoli Directory Server
- IBM z/OS Management Facility
- Infoprint Server
- Integrated Security Services:
 - Network Authentication Service
- ISPF
- JES2
- JES3
- Language Environment
- Library Server
- Network File System
- RMF
- Run-Time Library Extensions
- SDSF
- Security Server - RACF
- TSO/E
- XL C/C++
- z/OS Font Collection
- z/OS OpenSSH
- z/OS Security Level 3:
 - IBM Tivoli Directory Server Security Level 3
 - Network Authentication Service Level 3
 - SSL Level 3
- z/OS UNIX
- zEnterprise Data Compression (zEDC) for z/OS

KEY:

Black (in **bold**) are base elements

Green (also in **bold**) are optional priced features

Brown (also in **italics**) are optional unpriced features with export controls

→ This element changed in z/OS V2R1, This element changed in z/OS V2R2

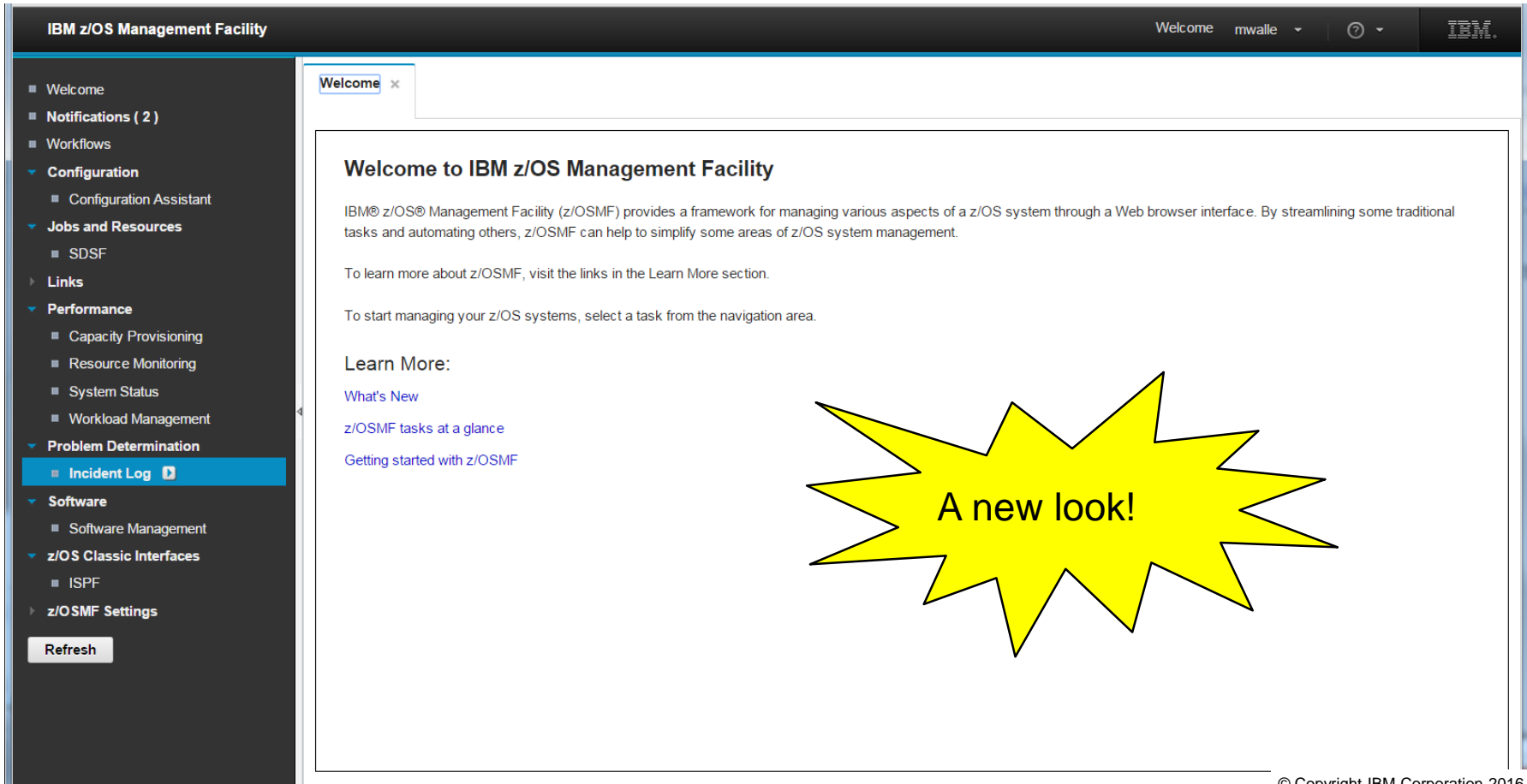
All other elements not listed have not changed since z/OS R13.

New in V2R1: z/OS Font Collection, and zEDC.

New in V2R2: IBM HTTP Server powered by Apache, IBM Knowledge Center for z/OS, z/OSMF, and z/OS OpenSSH.

IBM z/OS Management Facility:

- Provides a web-based interface that allows you to manage various aspects of your z/OS systems through a browser at any time, from any location.
- Previously, its own program product number (at no cost).
- Use requires IBM SDK **64-bit Java V7.1**, which is not included in z/OS.



IBM z/OS Management Facility

Welcome mwalla

Welcome x

Welcome to IBM z/OS Management Facility

IBM® z/OS® Management Facility (z/OSMF) provides a framework for managing various aspects of a z/OS system through a Web browser interface. By streamlining some traditional tasks and automating others, z/OSMF can help to simplify some areas of z/OS system management.

To learn more about z/OSMF, visit the links in the Learn More section.

To start managing your z/OS systems, select a task from the navigation area.

Learn More:

- [What's New](#)
- [z/OSMF tasks at a glance](#)
- [Getting started with z/OSMF](#)

A new look!

Overview:

- OpenSSH provides secure encryption for both remote login and file transfer. Some of the utilities that it includes are:
 - **ssh**, a z/OS client program for logging into a z/OS shell. It can also be used to log into other platform's UNIX shells. It is an alternative to **rlogin**.
 - **sftp** for file transfers over an encrypted **ssh** transport. It is an interactive file transfer program similar to **ftp**.
- Level in z/OS V2.2 is OpenSSH 6.4p1.
- This level is also provided in IBM Ported Tools V1.3, base feature.
 - Previously ported level was 5.0p1 in prior releases.
- There are possible migration actions between 5.0p1 and 6.4p1 due to open source changes.



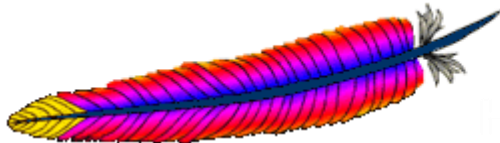
Overview:

- Knowledge Center for z/OS is a web application that provides IBM product publication content to web browser clients from the z/OS server system.
 - It is a Java web application deployed by the WebSphere® Liberty Profile packaged with the z/OSMF base element.
- Designed to provide enhanced search technology similar to that used for Information Centers.
- Designed to enable you to create your own local repositories and tailor the content presented from them.
- z/OS V2.2 ServerPac will help you complete the necessary setup tasks .



IBM HTTP Server Powered by Apache Overview:

- Replaces the IBM HTTP Server Powered by Domino
- z/OS V2.2 level is 9.0.0.0. A base exclusive element.
- IBM Ported Tools V1.2 and V1.3 HTTP Server feature are at level 8.5.5, and will run on z/OS V1.12, V1.13, and V2.1.
 - And now with a migration accommodation: z/OS V2.2!
 - It is recommended to use this migration accommodation if you need both IHSA 8.5.5 and 9.0 on z/OS V2.2.
 - If you use this migration accommodation, it is expected that you will move from IHSA 8.5.5 to 9.0 (and therefore only be using IHSA 9.0) on z/OS V2.2 before the End of Service for z/OS V2.1 (planned to be September 2018).
 - Thus, you will have approx. 3 years of “dual” IHSA 8.5.5 and 9.0 support on z/OS V2.2.



Apache

Some important thoughts about IBM HTTP Server

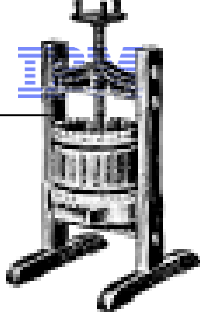


*A **strongly** suggested migration path if you are using IBM HTTP Server powered by Domino.*



1. **Are you affected? Use the latest (18 Sept 2015) “as is” health check from http://www-03.ibm.com/systems/z/os/zos/installation/HTTP_Health_Checker.html**
 - This check will simply tell you if you are using IBM HTTP Server powered by Domino.
2. **While on z/OS V1.13 or z/OS V2.1:**
 - Install IBM Ported Tools V1.3 HTTP Server (level 8.5.5, Apache level 2.2).
 - Migrate from IBM HTTP Server powered by Domino to the HTTP Server 8.5.5.
 - Use Redbook: **IBM HTTP Server on z/OS: Migrating from Domino-powered to Apache-powered (REDP-4987)**
 - Use developerWorks: <http://www.ibm.com/developerworks/>
 - Use z/OS UNIX Tools and Toys **ihsCMT** (<http://www-03.ibm.com/systems/z/os/zos/features/unix/bpxa1ty2.html>). This tool generates an approximation of an equivalent httpd configuration file for IHSA.
 - You can run the Domino and Apache servers side by side on z/OS V1.13 or V2.1.
 - z/OS Infoprint Server still needs the Domino server prior to z/OS V2.2!
3. **When installing z/OS V2.2:**
 - Migrate to IBM HTTP Server 9.0 (in the z/OS V2.2 base, Apache level 2.4).
 - Use “**Upgrading to 2.4 from 2.2**” <http://publib.boulder.ibm.com/httperv/manual24/upgrading.html> .
 - Refer to http://www-01.ibm.com/support/knowledgecenter/SSEQTJ_8.5.5/com.ibm.websphere.ihs.doc/ihs/cihs_upgrading2.html for the general process on how to move from 8.5.5 to 9.0 (although the documentation does not yet discuss z/OS or 9.0).
 - Configure **z/OS Infoprint Server (Infoprint Central)**, **PKI**, and **Library Server** to use the new z/OS V2.2 HTTP Server.
 - **Take advantage of the migration accommodation for “dual” IHSA (8.5.5 and 9.0), if necessary. Use Infoprint Server APAR OA48654. Refer WSC Techdoc (FLASH10857) for important usage details.**

New priced feature in z/OS V2.1: zEDC

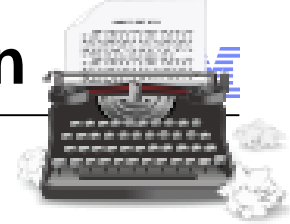


zEnterprise Data Compression (zEDC) Overview:

- Runs on zEC12 and zBC12 systems with the zEDC Express adapter.
 - Designed to support a new data compression function, providing high-performance, low-latency compression without significant CPU overhead.
- IFAPRDxx: ... FEATURENAME(ZEDC) ...
- Initially exploited by SMF compressing data written to log streams. And later:
 - Exploitation in updates to IBM 31-bit and 64-bit SDK for z/OS Java Technology Edition, Version 7 (5655-W43 and 5655-W44) (IBM SDK 7 for z/OS Java)
 - IBM Encryption Facility for z/OS (5655-P97) APAR OA43869, with the above Java updated.
 - IBM Sterling Connect:Direct® for z/OS V5.2 (5655-X01 and 5655-X09) also supports file compression using the zEDC Express feature
 - Support for the BSAM and QSAM access methods (APAR OA42195 in 1Q2014)
 - DFSMSdss exploits zEDC (3Q2014), ...
- Toleration PTFs on z/OS V1R12 and V1R13 for software decompression.
- PTFs for zEDC exploitation or software decompression have a fix category Of `IBM.Function.zEDC`.



New base element in z/OS V2.1: z/OS Font Collection



z/OS Font Collection Overview:

- By having fonts in the z/OS base, fonts are always available on z/OS systems!
- No need to separately order what is included below!
 - 1. AFP Font Collection for S/390 (5648-B33)**
 - Includes Japanese, Korean, Traditional Chinese, and Simplified Chinese
 - 2. IBM Infoprint Fonts for z/OS (5648-E76)**
 - Includes Japanese, Korean, Traditional Chinese, and Simplified Chinese
 - 3. PSF Compatibility Font feature (5655-M32)**
 - NOT the executable code or entire product, just the PSF feature for the compatibility fonts
 - 4. Selected object fonts (*not source!*)**
 - Pi and Special (5771-ABC), Math and Science (5771-ADT).
 - (Some publications documented other fonts, incorrectly.)
 - 5. World type fonts** that were not previously available in the z/OS environment.
 - Were part of the InfoPrint Font Collection V3.1 available on other platforms. Subset of TrueType fonts are in Infoprint Transforms to AFP for z/OS V2.3 (5655-N60).
 - Can be found the z/OS UNIX file system

- **z/OS Font Collection** installation information

- Uses these syslibs and path:

- SYS1.FONT300 (previously existing, new to z/OS)
- SYS1.FONTLIB (previously existing, new to z/OS)
- SYS1.FONTLIBB (previously existing, new to z/OS)
- SYS1.SFNTILIB (previously existing, new to z/OS)
 - Existing references to SYS1.FONTOLN should point to this data set now.
- SYS1.SFONDLIB (previously existing, new to z/OS)
 - These data sets use approx. 2000 cylinders
- /usr/lpp/fonts/worldtype/IBM/









- Some fonts will use a new separately provided file system:

- Mounted at /usr/lpp/fonts
- Approx. allocation size of a font file system:
 - zFS: 2048 3390 cylinders
 - HFS: 2028 3390 cylinders

Element and Functions Withdrawn from z/OS V2R1



<p>zFS multi-file system aggregates (from Distributed File Service)</p> 	<p>Base Element – copy zFS multi-file system aggregates to zFS compatibility mode aggregates.</p>	<p>z/OS V2.1</p> 
<p>zFS cloning support (such as zfsadm clone and zfsadm clonesys commands). Do not mount file systems containing a cloned file system (.bak).</p>	<p>Base elements – when support for cloning is removed, only zFS capability mode aggregates will be supported. Find (with <code>modify zfs,query</code> command) and copy any cloned files to compatibility mode aggregates.</p>	<p>z/OS V2.1</p>
<p>BIND 9.2.0 function (from the Communications Server)</p>	<p>Base Element support – for use as a caching-only name server, use Resolver cache function (in z/OS R11). For use as a primary or secondary authoritative name server, consider using BIND on Linux for System z.</p>	<p>z/OS V2.1</p>
<p>BPX.DEFAULT.USER</p> 	<p>Base Element support – use BPX.UNIQUE.USER instead (as of R11) or assign unique UIDs and GIDs. Use RACF OA42554 to help with home directory set up!</p>	<p>z/OS V2.1</p> 
<p>Capacity Provisioning using System z API with SE and HMC</p>	<p>Base Element support – will use BCPii instead. System z API will still be supported on the SE and HMC. Use Tracking Facility with OA35284. Look for “CPO-W:SNMP <i>usage domain name</i>”.</p>	<p>z/OS V2.1</p>
<p>Language Environment runtime options via USERMOD</p> 	<p>Base Element support – use CEEPRMxx instead (with z/OS R12 NONOVR support, if necessary)</p>	<p>z/OS V2.1</p>
<p>Windows-based tools: Capacity Provisioning Control Center <u>and</u> Configuration Assistant for Communications Server</p>	<p>Base Element support – Use the z/OSMF-based Capacity Provisioning application to allow you to control your Capacity Provisioning function.</p> <p>For configuration assistance for Communications Server, use the z/OSMF-based Configuration Assistant.</p>	<p>z/OS V2.1</p> 
<p>ICLI (Integrated Call Level Interface, from z/OS UNIX)</p>	<p>Base Element support – Investigate changing from ICLI to standard IBM DB2 Connect for data base connectivity. Use Tracking Facility with PTF UA67900. Look for “ICLI Server for SAP...”</p>	<p>z/OS V2.1</p>

Documentation Withdrawn from z/OS V2R1



•BookManager® books withdrawn

- Instead, use Knowledge Center or PDFs [Knowledge Center for z/OS V2.2 Link](#)
- Or, try a KC prototype to search with an element (below)! [KC Prototype by Element](#)

•Physical DVDs withdrawn

- Instead, use electronic delivery of documentation over the Internet

•Can get Dec 2015 zipped PDFs (currently: “z/OS V2R2 Acrobat Indexed PDF Collection 12/15 Refresh“, 1.5GB) using **SC27-8430-01** on IBM Publications Center – *with index!*

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Search Filters: z/OS 2.2.0 Auto-select Clear All Add Products...

z/OS 2.2.0

z/OS V2R2 Knowledge Center (home page)

- BDT
- BookManager
- Encryption Facility for z/OS
- EREP
- HLASM
- IBM HTTP Server
- IBM HTTP Server - Powered by Apache, Version
- IBM Tivoli Directory Server for z/OS

My Collections

Search Results

z/OS 2.2.0

z/OS V2R2 Search Scope Catalog - Experimental

Bookmark this page, then choose a search scope.

Choose a search category

- Choose a search category
- IBM z/OS System-Level
- IBM z/OS Management Facility
- IBM REXX Alternate Library
- IBM BDT
- IBM BookManager
- IBM z/OS XL C/C++
- IBM z/OS Common Information Model
- IBM z/OS Communications Server
- IBM z/OS Cryptographic Services
- IBM z/OS DFSMS**
- IBM z/OS DFSORT
- IBM Encryption Facility for z/OS
- IBM z/OS Distributed File Service
- IBM EREP
- IBM z/OS HCD
- IBM z/OS HCM
- IBM HLASM
- IBM HTTP Server (One book PDF only)
- IBM ICKDSF





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Element and Functions Withdrawn from z/OS V2R2




<p>TSO/E-based DNET function, a diagnostic tool for VTAM dump analysis (from Communications Server)</p>	<p>Base Element support – use similar functions available in IPCS for VTAM diagnosis instead.</p>	<p>z/OS V2.2</p>
<p>BookManager Build</p>	<p>Optional Feature.</p>	<p>z/OS V2.2</p>
<p>Simple Network Management Protocol (SNMP) subagent</p>	<p>Optional Feature – Infoprint Server. As an alternative to using a network management system to monitor PSF-controlled printers, you can use Infoprint Central</p>	<p>z/OS V2.2</p>
<p>IBM HTTP Server powered by Domino</p> 	<p>Base Element. Use the IBM HTTP Server Powered by Apache, which is available in z/OS Ported Tools – HTTP program product feature as a replacement Use Redbook for assistance.</p>	<p>z/OS V2.2</p> 
<p>Version 1 of the Standards Based Linux Instrumentation for Manageability (SBLIM) CIM client for Java</p>	<p>Base Element support. Convert to Version 2, which is included in z/OS V1R13.</p>	<p>z/OS V2.2</p>
<p>Several TCP/IP device drivers: Async Transfer Mode (ATM), Common Link Access to Workstation (CLAW), HYPERChannel, Channel Data Link Control (CDLC), SNALNK (both LU0 and LU6.2), and X.25.</p> 	<p>Base Element support – migrate to more recent device types such as OSA Express QDIO and Hipersockets.</p> <p><i>Support for SNA device drivers is not affected.</i></p>	<p>z/OS V2.2</p>
<p>JES2 z2 checkpoint level</p> 	<p>Base Element support – migrate to z11 checkpoint level (in R11)</p>	<p>z/OS V2.2</p>

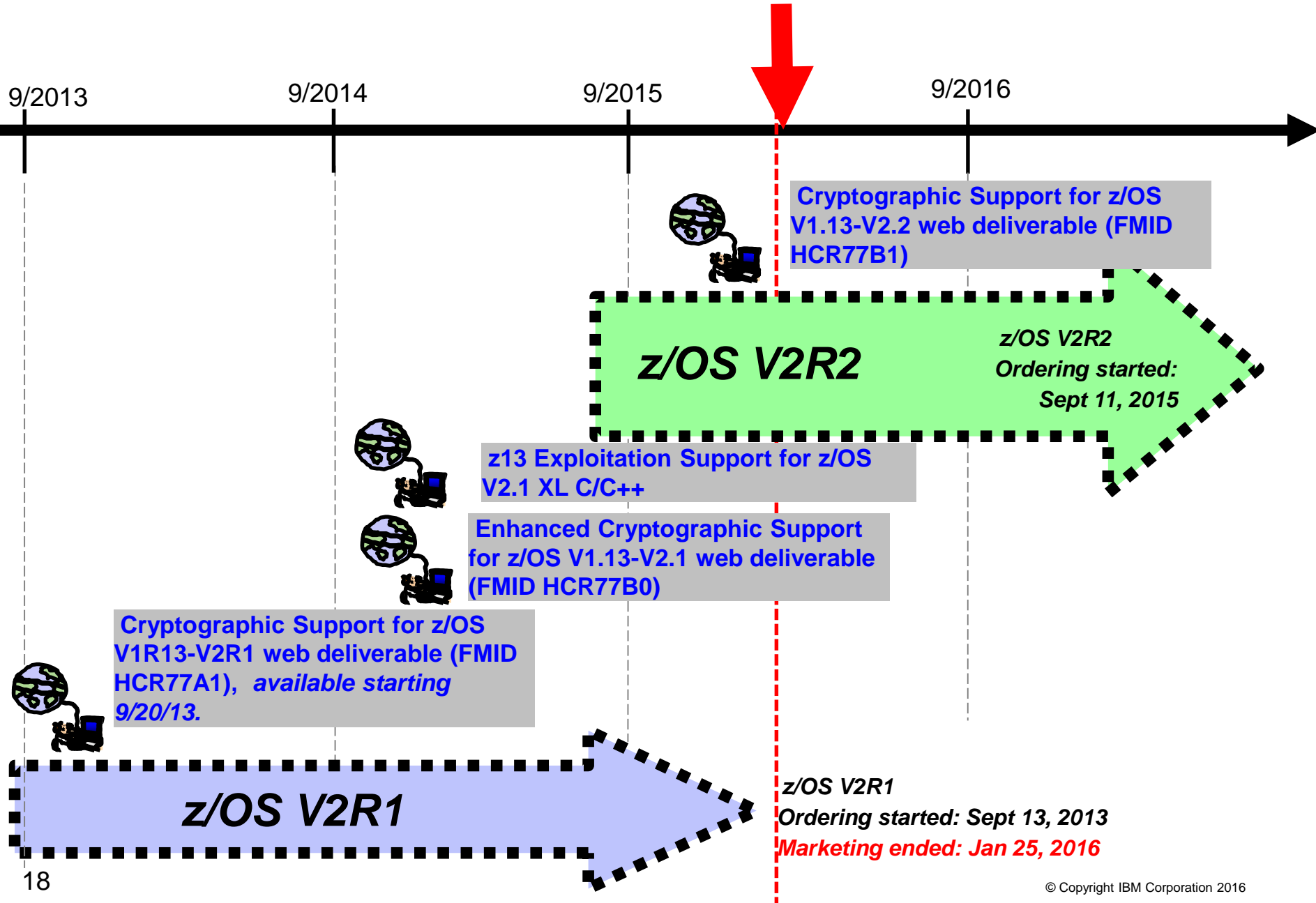
Functions Planned to be Withdrawn

in the releases after z/OS V2R2...



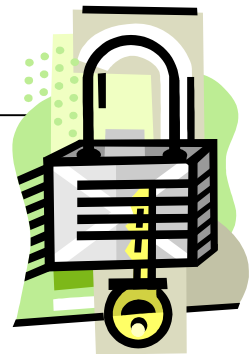
Simple Mail Transport Protocol Network Job Entry (SMTPD NJE) Mail Gateway and Sendmail mail transports	Base Element support: See presentation notes for recent replacement suggestions.	In the release after z/OS V2.2
Trivial File Transfer Protocol Daemon (TFTPD) function (from Communications Server)	Base Element support	In the release after z/OS V2.2
TCP/IP legacy device drivers for FDDI and Token Ring (LCS with LINKs FDDI and IBMTR), Token Ring (MPCIPA with LINK IPAQTR), and ENet and FDDI (MPCOSA with LINKs OSAENET and OSAFDDI).	Base Element support – migrate to more recent device types such as OSA Express QDIO and Hipersockets. <i>Support for SNA device drivers is not affected.</i>	In the release after z/OS V2.2
Consoles shared mode (from the BCP) 	Base Element support: migrate to distributed mode (in R10)	In the release after z/OS V2.2
DFSMSdfp TSO/E-based System Data Mover (SDM) related commands, except for the query commands.	Base Element support: IBM recommends you use the REXX version of these commands instead. The query commands (CQUERY, FCQUERY, XQUERY, XSTATUS), and the XSET command will remain,	In the release after z/OS V2.2

z/OS Ordering and Deliverables Schedule



Crypto Support in z/OS Releases

Your ICSF migration actions depend on where you are coming from, and where you are going...



Release *Level Integrated and Available*

z/OS V2R2	<p>ICSF FMID HCR77B0 is incorporated.</p> <ul style="list-style-type: none">• Cryptographic Support for z/OS V1R13-V2R2 Web deliverable (FMID HCR77B1) available 11/2015.
z/OS V2R1	<p>ICSF FMID HCR77A0 is incorporated.</p> <ul style="list-style-type: none">▪ Cryptographic Support for z/OS V1R13-V2R1 Web deliverable (FMID HCR77A1) available on 9/20/13.▪ Enhanced Cryptographic Support for z/OS V1.13-V2.1 Web deliverable (FMID HCR77B0).▪ Cryptographic Support for z/OS V1R13-V2R2 Web deliverable (FMID HCR77B1) available 11/2015
z/OS R13	<p>ICSF FMID HCR7780 is incorporated.</p> <ul style="list-style-type: none">▪ Cryptographic Support for z/OS V1R11-R13 Web deliverable (FMID HCR7790) available on 9/9/11.▪ Cryptographic Support for z/OS V1R12-R13 Web deliverable (FMID HCR77A0) available on 9/19/12. The last level of ICSF to support IBM z800 and z900 servers.▪ Cryptographic Support for z/OS V1R13-V2R1 Web deliverable (FMID HCR77A1) available on 9/20/13.▪ Enhanced Cryptographic Support for z/OS V1.13-V2.1 Web deliverable (FMID HCR77B0).▪ Cryptographic Support for z/OS V1R13-V2R2 Web deliverable (FMID HCR77B1) available 11/2015



Some popular (no-charge!) products for z/OS (5650-zos)

- **[IBM Ported Tools for z/OS V1 R3 \(5655-M23, 5655-M29\)](#)**

- The base product includes OpenSSH and Xvfb. It is updated with newer version of the associated open source code for Open SSH: specifically 6.4p1.

- The **[IBM HTTP Server Feature](#)** is at the V8.5.5 level.

- <http://www.rocketsoftware.com/portedtools/> has a port of bzip2, cURL, Perl, sudo, and PHP.

- **[XML Toolkit for z/OS V1 R10 \(5655-J51, 5655-I30\)](#)** – only contains XML V1R10 level.

- **[IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V6 \(5655-R32, 5655-I48\)](#)**

- **[IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V6 \(5655-R31, 5655-I48\)](#)**

- **[IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V6.0.1 \(5655-R32, 5655-I48\)](#)**

- **[IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V6.0.1 \(5655-R31, 5655-I48\)](#)**

- **[IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V7 \(5655-W44 , 5655-I48\)](#)**

- **[IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V7 \(5655-W43, 5655-I48\)](#)**

- **[IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V7.1 \(5655-W44 , 5655-I48\) **](#)**

- **[IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V7.1 \(5655-W43, 5655-I48\)](#)**

- **[IBM 64-bit SDK for z/OS, Java 2 Technology Edition, V8 \(5655-DGH , 5655-I48\)](#)**

- **[IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V8 \(5655-DGG, 5655-I48\)](#)**

** [prereq for z/OS V2.2 z/OSMF](#)

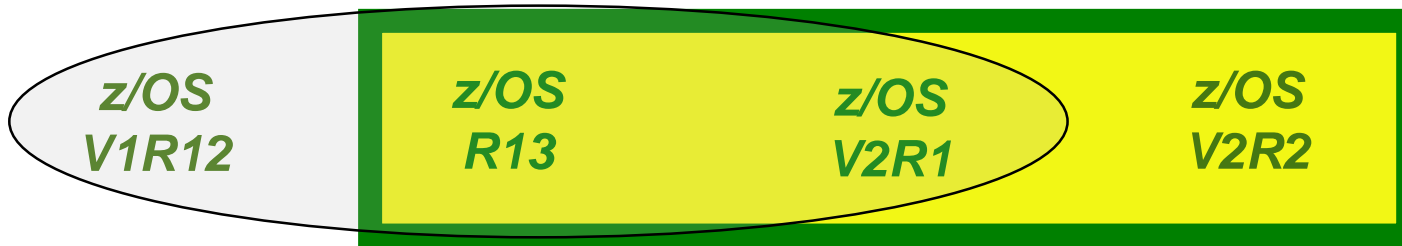


- **Priced service extensions available for older releases:**
 - R12: IBM Software Support Services:
from 1 Oct 2014 through 30 Sept 2017
- **With the V2 release cycle, IBM plans to provide 5 years of z/OS support, with 3 years of optional extended service (5+3).**

	GA Date	End of Service Date
z/OS V1R12	24 Sept 2010	Occurred on 30 Sept 2014 IBM Software Support Services available until 30 Sept 2017
z/OS V1R13	30 Sept 2011	Announced to be Sept 2016
z/OS V2R1	30 Sept 2013	Planned to be Sept 2018 (5 years!)
z/OS V2R2	30 Sept 2015	Planned to be Sept 2020 (5 years!)



z/OS V2R2 Coexistence

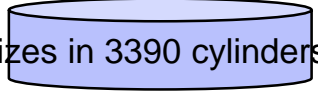




- **With two year release frequency, three consecutive releases for coexistence remains, for both z/OS and z/OSMF.**
- **z/OS R13, z/OS V2R1, and z/OS V2R2 are supported for coexistence, migration, and fallback.**
 - If you are running z/OS R12 and would like coexistence support, plan for a migration to z/OS V2R1.


Positioning for z/OS V2.2



- **Read Documentation and PSP buckets**
 - **z/OS V2.2 Migration** and **z/OS V2.2 Planning for Installation**
 - Software PSP buckets: ZOSV2R2: ZOSGEN, SERVERPAC, ...
 - Must use FIXCATs for coexistence verification.
 - Remember: V2.2 publications are in KnowledgeCenter and PDFs
- Approximate **DASD Storage Requirements for z/OS:**

 sizes in 3390 cylinders	z/OS R13	z/OS V2R1	z/OS V2R2
Target libraries (PDS and PDSE)	5,868	11,051 	11,169
DLIB	8,941	17,960	16,746
Root file system	3,293 (HFS) 3,309 (zFS)	3,300 (HFS) 3,319 (zFS)	5,200 (HFS) 5,219 (zFS) 
Font file system	-	2,048 (HFS or zFS)	2,048 (HFS or zFS)



 The 3390-9 capacity is 10,017 cylinders.

Positioning for z/OS V2.2



- **Ensuring System Requirements Are Satisfied**

- Driving System Requirements

- Requirements to install z/OS V2.2
- No change there:

- A coexisting system level suffices: z/OS R13 or higher

- **Position for secure electronic delivery! Happening soon!**

- Target System Requirements

- Product requirements for running on z/OS V2.2
- Hardware and Software

- Coexistence System Requirements

- Allows z/OS V2.2 to coexist with other z/OS systems

- **Migration Actions You Can Do NOW**

- **Using Programmatic Assistance – Health Checks and Workflow**



Electronic Delivery



Today, the electronic delivery options include:

1. Standard FTP **(IBM plans to withdraw this option 1Q2016!)**
 2. FTP using Secure Sockets Layer
 3. HTTP using Secure Sockets Layer, avail since Oct 19, 2014
 4. Download Director with encryption (no change is needed)
- Electronic delivery of ServerPac, CBPDO, and Internet delivery of PTFs ordered using Shopz and the SMP/E RECEIVE ORDER command are affected.
 - **Decide now** which secure option you would like to use: FTPS, HTTPS, or Download Director.
 - Use Connectivity Test Website to test the option you select:
https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?lang=en_US&source=cbct

Target System HW Requirements for z/OS V2R2



• Hardware Requirements

• Processor Requirements:

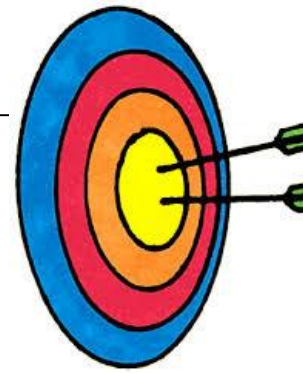
- IBM System z server: **z13, zBC12, zEC12, z114, z196, z10.**

• Coupling Facility: see

<http://www.ibm.com/systems/z/advantages/pso/cftable.html>

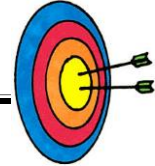
- Ensure you have installed any preconditioning and exploitation PTFs necessary before you use a new CFCC level. Use the HW fixcats.
 - z13 ships with CFCC level 20.
 - zBC12 ships with CFCC level 19.
 - zEC12 initially shipped with CFCC level 18, after Sept 2013 it has CFCC level 19.
 - z114 and z196 shipped with CFCC level 17
- Larger CF structure sizes may be necessary when changing CFCC levels.
- As it has been since CFCC 17, ensure that the CF LPAR has at least 512MB of storage.

Software Requirements for z/OS V2R2



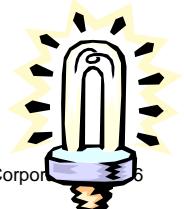
- **Software Requirements:**
 - **Coexistence Software** (on other z/OS systems)
 - **Target Software** (correct levels of IBM non-z/OS and non-IBM products on the z/OS system)
 - Generally, you may use the product levels on z/OS V2R2 from your prior system, as long as those product levels are still service-supported.
 - Note, however, that if you are using any of the functions in *z/OS V2R2 Planning for Installation*, Appendix B, **verify that those functional requirements are satisfied.**
 - z/OS V2R2 has an overall dependency on IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1 (5655-W44) and IBM 31-bit SDK for z/OS, Java Technology Edition, V7.1 (5655-W43). For the specific Java dependencies for each element, see *z/OS V2R2 Planning for Installation*, Appendix B.

Selected z/OS V2R2 SW Functional Requirements

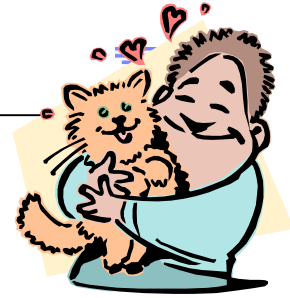


Function	Minimum functional dependency
z/OSMF	IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1 (SR3) (5655-W44)
BCP Predictive Failure Analysis (PFA)	IBM 31-bit SDK for z/OS, Java 2 Technology Edition, V7.1 or later
IP Services: SNMP NetView client support	Tivoli NetView for z/OS V5 (5697-ENV) R3 or later.
DFSMSdftp: full support in exploiting PDSE member generations with ISPF	IBM Data Set Commander V8.1 (5635-ISP) is beneficial
DFSMSdss: IMS backup-while-open support	Database Manager feature of IMS V12 (5635-A03) or later
HCD: migrate from the active switch configuration or to activate a switch configuration. And to perform the verification/priming function of the active I/O configuration	Tivoli System Automation for z/OS (5698-SA3)
Knowledge Center for z/OS	IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1 (5655-W44)
Infoprint Server: Infoprint Central	One of the following: – IBM 31-bit SDK for z/OS, Java Technology Edition, V7.1 (5655-W43) – IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1 (5655-W43)

- Use FIXCAT `IBM.TargetSystem-RequiredService.z/OS.V2R2`
- Website <http://www-306.ibm.com/software/support/lifecycle/> can be helpful.
- Use z/OSMF's Software Management report to help identify installed products that are approaching or are at EOS.



Target System PTF Verification for z/OS V2R2



1. RECEIVE the latest HOLDDATA. (If you pull HOLDDATA from the ftp website, make sure you use FULL!)
 - HOLDDATA is produced to associate a particular PTF with a minimum or functional level for z/OS V2R2.

```
++HOLD(HKM5530) FIXCAT FMID(HKM5530) REASON(AA48261)  
RESOLVER(UA77930) CATEGORY(IBM.TargetSystem-  
RequiredService.z/OS.V2R2) DATE(15188).
```

2. Run the REPORT MISSINGFIX command to see what is needed, but not yet installed.

```
SET BDY(GLOBAL). /* Your Omegamon z/OS V5.3 global */  
REPORT MISSINGFIX ZONES(OMEGTGT)  
FIXCAT(IBM.TargetSystem-RequiredService.z/OS.V2R2).
```

Coexistence System PTF Verification for z/OS V2R2



1. **RECEIVE** the latest HOLDDATA. (If you pull HOLDDATA from the ftp website, make sure you use FULL!)
 - **HOLDDATA** is produced to associate a particular PTF as coexistence between z/OS R13 or V2R1, with z/OS V2R2.

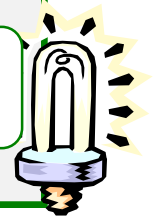


```
++HOLD(HBB7790) FIXCAT FMID(HBB7790) REASON(AA46739)  
RESOLVER(UA77067) CATEGORY(IBM.Coexistence.z/OS.V2R2)  
DATE(15125) .
```

2. **Run the REPORT MISSINGFIX command to see what is needed, but not yet installed.**

```
SET BDY(GLOBAL) . /* Your z/OS V2R1 global */  
REPORT MISSINGFIX ZONES(ZOS21T)  
FIXCAT(IBM.Coexistence.z/OS.V2R2,  
IBM.Function.HealthChecker) .
```

For the migration
health checks 😊!





Some Migration Tasks You Can Do NOW

1. Transition off of removed functions and elements:

- In V2.1: BPX.DEFAULT.USER, zFS multi-fs, Windows-based CPCC and CA, ...
- In V2.2: IBM HTTP Server Dominant, Apache, JES2 z2, ...
- Beyond V2.2: Consoles shared mode

2. Review documentation and PSP buckets, when available.

3. Prepare Driving and Target Systems:

- Driving systems – note regular ftp delivery removal in 1Q2016
- Target systems -
 - On the hardware server level?
 - DASD storage for z/OS V2R2 – much more space!
 - IBM product level research: FIXCAT **IBM.TargetSystem-RequiredService.z/OS.V2R2**
 - ISV research for z/OS V2R2
- Coexisting systems - FIXCAT **IBM.Coexistence.z/OS.V2R2** (and others!)

4. Use IBM Health Checker for z/OS FIXCAT **IBM.Function.HealthChecker**

- Activate the Migration Health Checks (they are shipped INACTIVE).

5. If you have z/OSMF V2.1, use the z/OS V2.2 Migration Workflow!

6. Perform z/OS V2R2 migration actions you can do NOW.

1. ZOSMIGREC_ROOT_FS_SIZE
2. XCF_SYSPLEX_CDS_CAPACITY
3. RSM_MEMLIMIT
4. IOS_FABRIC_MONITOR
5. SUP_HiperDispatchCPUConfig
6. CNZ_CONSOLE_OPERATING_MODE
7. ZOSMIGV2R1_CS_LEGACYDEVICE
8. ZOSMIGV2R1_CS_GATEWAY
9. ZOSMIGV2R2_Next_CS_SENDMAILDAEMON
10. ZOSMIGV2R2_Next_CS_SENDMAILCLIEN
11. ZOSMIGV2R2_Next_CS_SENDMAILMTA
12. ZOSMIGV2R2_Next_CS_SENDMAILMSA
13. ZOSMIGV2R2_Next_CS_SMTDPDAEMON
14. ZOSMIGV2R2_Next_CS_SMTDPMTA
15. ZOSMIGV2R1_DEFAULT_UNIX_ID
16. ZOSMIGREC_ZFS_RM_MULTIFS
17. ZOSMIGV1R11_CS_DNSBIND9
18. DMO_REFUCB
19. JES2_Z11_Upgrade_CK_JES2
20. JES3_DATASET_INTEGRITY
21. SUP_SYSTEM_SYMBOL_TABLE_SIZE
22. CEE_USING_LE_PARMLIB
23. SDSF_ISFPARMS_IN_USE
24. USS_HFS_DETECTED
25. ZFS_VERIFY_CACHESIZE
26. VSM_CSA_CHANGE
27. ICSFMIG77A1_CCA_COPROCESSOR_ACTIVE
28. ICSFMIG77A1_TKDS_OBJECT
29. ZOSMIG_HTTP_SERVER_DOMINO



z/OS Downloads site ([As-Is Downloads](#)) contain z/OSMF workflow files which are derived from the z/OS V2.2 Migration book.

✓ *Workflows are kept in sync with the latest book level!*

▪ **If you use z/OSMF V2.1, use the V2.2 migration workflow right away!**

- Can use the workflow from the beginning of your z/OS V2.2 migration planning activities, ***instead of the book.***
- Read the text accompanying the download to understand the benefits, and known observations.



▪ **New features in the z/OS V2.2 Migration Workflow!**

- Invocation of health checks to determine migration applicability.
 - A health check exception will mark the workflow step as failed, until re-run as successful.
- Ability to optionally provide feedback on your migration experience.
 - Provide feedback on every migration action, and on the migration as a whole, if you desire.
 - You can still complete each step without providing any feedback.

Health checks on several migration actions:

The screenshot displays the IBM z/OS Management Facility interface. The breadcrumb trail is: Workflows > zOS V2R1 to V2.2 Migration - Final GA test > 3.17.1.1.1. Activate z11 mode. The page title is "Properties for Workflow Step 3.17.1.1.1. Activate z11 mode". The "Perform" tab is selected, showing a "Review Instructions" section. The instructions describe submitting a job to run an IBM Health Check for z/OS. A yellow callout box points to the "Submit and Save JCL" option in the left sidebar and contains the text: "Mini-wizard to submit a job to run the health check, and analyze the output." The bottom of the interface shows navigation buttons: < Back, Next >, Save, Finish, and Cancel.

IBM z/OS Management Facility Welcome mwallé Log out IBM

Welcome x Workflows x

Workflows > zOS V2R1 to V2.2 Migration - Final GA test > 3.17.1.1.1. Activate z11 mode Help

Properties for Workflow Step 3.17.1.1.1. Activate z11 mode

General Details Dependencies Notes Perform Status Input Variables

Review Instructions

- Create JOB statement
- Review JCL
- Submit and Save JCL

Review Instructions

To proceed with a wizard for creating and submitting the JCL on **UTCPLXSC.ST6**, click **Next**. Or, you can choose to bypass this step. If so, first review and confirm that the instructions below have been done. Then, click **Finish** to mark the step complete.

Instructions:

This portion of the Workflow will guide you to submit a job to run an IBM Health Check for z/OS associated with this migration action, **IBMJES2,JES2_Z11_Upgrade_CK_JES2**.

This check will be activated if it is not already active. If the check is activated, it will be deactivated at the end of the job, so that it remains in the same state as it was found.

If the health check runs with no exception, this step will be marked "Complete" indicating that this migration action requires no more activity.

If the health check finds an exception, this step will be marked as "Failed". This tells you that further investigation (and possibly more work) is necessary to complete this migration action. If the step is marked "Failed", you should review the health check output (via any method you use to view health check output, such as SDSF) and correct any situation that you find appropriate. You can then re-run this Workflow step to submit the health check job again, until the health check no longer receives an exception, and the step is marked "Complete".

This health check has been removed in z/OS V2.2. If you attempt to run this step on a z/OS V2.2 system, it will not be found.

< Back Next > Save Finish Cancel

Close

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Optional feedback for every migration action, and overall:

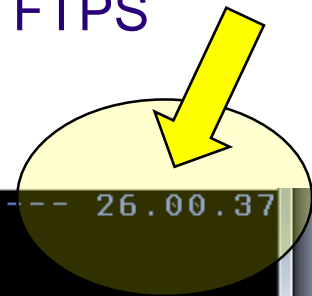
The screenshot shows the IBM z/OS Management Facility interface. The top navigation bar includes 'Welcome mwalle' and 'Log out'. The breadcrumb trail is 'Workflows > zOS V2R1 to V2.2 Migration - Final GA test > 4. Provide feedback to IBM on your migration experience'. The main heading is 'Properties for Workflow Step 4. Provide feedback to IBM on your migration experience'. Below this are tabs for 'General', 'Details', 'Dependencies', 'Notes', 'Perform', 'Status', and 'Input Variables'. The 'Perform' tab is active, showing a section titled 'Input Variables - Overall feedback (optional)'. This section contains four questions: 1. 'Do you think using z/OSMF Workflow was helpful for your migration?', 2. 'How would you rate your experience with this migration?', 3. 'Comments', and 4. 'If we may contact you about your answers, provide your contact information. This is optional.'. A yellow callout box points to the 'Overall feedback (optional)' section in the left sidebar and contains the text: 'Follow instructions if you wish to email the feedback to IBM.' At the bottom of the form are buttons for '< Back', 'Next >', 'Save', 'Finish', and 'Cancel'.

Follow instructions if you wish to email the feedback to IBM.

ServerPac Migration Action – Already done?



- Applicable to any ServerPac order created as of October 1, 2013.
Applicable to any z/OS V2.1 ServerPac order.
- You must have the CustomPac dialog level at least 26.00.00 for FTPS downloads, and 26.20.00 for HTTPS downloads.
 - The upper right corner of the primary panel will tell you the level.



```
CustomPac ----- IBM Corporation ----- 26.00.37
OPTION ==> _

CustomPac Order Management Menu

R  RECEIVE      - Receive an Order
I  INSTALL      - Install an Order
```

- Refer to *ServerPac: Using the Installation Dialog* for instructions. For electronic orders:
 1. Copy the EUPDATES job from the FTP server as instructed within Shopz, to your system.
 2. Customize the job to indicate what the hlq name of your master CustomPac dialog data sets are.
 3. Run the EUPDATES job.
- *You cannot perform this migration action until you receive your ServerPac order.*

Newer ServerPac Install Enhancements



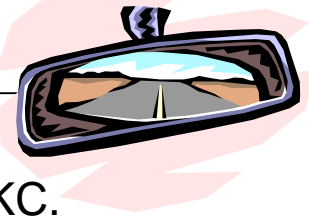
ServerPac in z/OS V2R2:

- Provide updated jobs, documentation to aid in the installation of V2R2 z/OSMF core function
- Provide support to specify if SMF Logstream or SMF Dataset is to be used in Full System Replacement install path.
- Supports extended format and extended addressability for zFS data sets.
 - For any zFS data set that exceeds 4GB size, you must define an SMS data class with extended format and extended addressability.
- Provide Support to set up Knowledge Center for z/OS.

ServerPac in z/OS V2R1:

- Provide a comparison between saved jobs to define RACF profiles for a prior order and the jobs generated for the current order.
- Orders that include RACF feature will provide a RACF database you can use for initial IPL when you do not have an existing security environment.

Migrating to z/OS V2.2 Part 1 Summary



- **Changing content of z/OS V2R2**
 - New z/OS V2.2 content: z/OSMF, IBM HTTP Server Apache, OpenSSH, KC.
 - New z/OS V2.1 content: zEDC and z/OS Font Collection
 - Prepare now for removed V2.2 content: **IBM HTTP Server (Domino), ...**
- **Timeline of z/OS ordering and deliverables:** associated products to consider
- **z/OS Policies**
 - z/OS V2R2 Coexistence-Migration-Fallback from z/OS V2.1 or z/OS R13.
- **Ensuring System Requirements are Satisfied**
 - Driving, Target SW, Target HW, and Coexisting System Requirements
 - Bigger z/OS root file system
 - z/OS V2.2 requires z10 or higher.
 - Target system requirements: general Java SDK V7.1 functional requirement.
 - Software delivery – HTTPS avail, regular FTP **planned to be removed 1Q2016**.
 - Use FIXCATs `IBM.TargetSystem-RequiredService.z/OS.V2R2`, `IBM.Coexistence.z/OS.V2R2`, `IBM.Function.HealthChecker`, ...
- **Use IBM Health Checker for Migration Actions:** Install and activate checks
- **Use z/OSMF Workflow for z/OS V2.2 migration:** Goodbye, book!
- **Migration action on ServerPac dialog:** required if not already done
- **ServerPac enhancements:** SMF to logstream, z/OSMF set up, KC set up, >4GB zFS