z/OS Upgrade Hint & Tips For z/OS 3.1

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Agenda

- z/OS 3.1 Release Overview & Continues Delivery & Big Picture – Reminder
- z/OS 3.1 Coexistence Policy
- z/OS Ordering Critical Dates
- Changes in FMIDs, new component, products , Withdrawn Functions, SOD
- General Tasks For Upgrade
- Installing z/OS 3.1 Using z/OSMF
    - Background history
    - Main tasks
    - Driving system requirements
    - Hints and some Learning Tips
- z/OS 3.1 Upgrade Actions
- How to get benefit from z/OS 3.1 Upgrade Workflow
- Looking at quickly steps through z/OS 3.1 Upgrade Workflow
- Top Critical Items Summary

z/OS Support Summary

- ✓ *Preview Feb 2019- GA announced July 2019 - GA Sep 2019*
- ✓ *Preview Feb 2021- GA announced July 2021- GA Sep 2021*
- ✓ *Preview Feb 2023- GA announced August 2023 - GA Sep 2023*

- ✓ *'Nothing has changed here with Continuous Delivery.'*
- ✓ *z/OS 3.1 ---- > No V no R in name … Just 3.1*
- ✓ *z/OS 3.1 has new program number 5655-ZOS.*

Release	z10 EC z10 BC WdfM	z196 Z114 WdfM	zEC12 zBC12 WdfM	z13 Z13s WdfM	z14 ZR1 WdfM	z15	z16	End of Service	Extended Defect Support
z/OS V2.2	X	X	X	X	X	X	X	9/20	9/23[2]
z/OS V2.3			X	X	X	X	X	9/22	9/25[2]
z/OS V2.4			X	X	X	X	X	9/24[1]	9/27[2]
z/OS V2.5				X	X	X	X	9/26[1]	9/29[2]
z/OS 3.1					X	X	X	9/28[1]	9/31[2]

Notes:

[1] - All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

[2] - Extended support dates are projected and are subject to change or withdrawal without notice.

WdfM - Server has been withdrawn from Marketing

Legend

Defect support provided with IBM Software Support Services for z/OS
Generally supported

We had talked about this in previous session today , sharing just for complete document

z/OS Version & CD Announcement Letters

IBM z/OS 3.1 GA Announcement	8 August 2023
Preview: IBM z/OS 3.1	28 Feb 2023
IBM z/OS V2.5 2Q 2023 enhancements	20 June 2023
IBM z/OS V2.5 1Q 2023 enhancements	21 March 2023
IBM z/OS V2.5 4Q 2022 enhancements	15 November 2022
IBM z/OS V2.5 3Q 2022 enhancements	20 September 2022
IBM z/OS V2.5 2Q 2022 enhancements	21 June 2022
IBM z/OS V2.5 1Q 2022 enhancements	15 Mart 2022
IBM z/OS V2.5 4Q 2021 enhancements	23 November 2021
z/OS 2.5 GA Date : 30 September 2021	
IBM z/OS V2.5 GA Announcement	27 July 2021
Preview IBM z/OS V2.5 Announcement	2 March 2021

Planned Availibility Date: September 29, 2023

At the end of each announcement, you can find links previous ones

We had talked about this in previous session today , sharing just for complete document

In this presentation

(2.4CD XQ20XX) – 2.5 Base items that were rolled back to 2.4 as z/OS 2.4 CD

(CD XQ20XX) – 3.1 Base items that were rolled back to 2.5 as z/OS 2.5 CD

IBM Continuous Delivery Model Announcement

IBM z/OS Continuous Delivery Redpaper

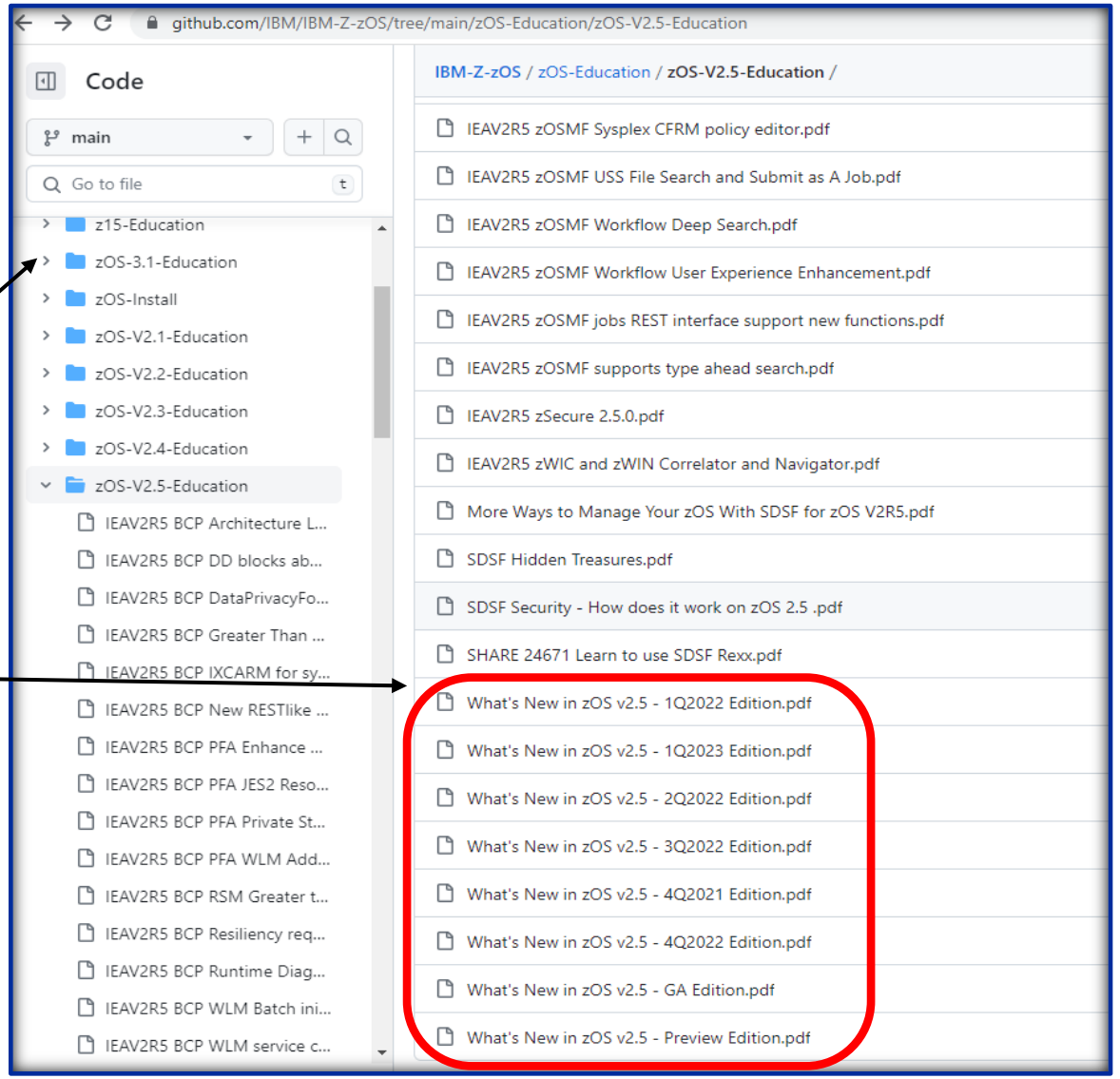
z/OS Version & CD Announcement Letters – GitHub For Presentations
IBM z/OS Education Assistance

- Check GitHub for presentation version of these announcements .
- You can see all changes with Continuous delivery in latest version
- What's new 3.1 GA and preview edition pdfs. +80 specific topic files
- 86 pdfs about details of the items related to V2.5

z/OS github entry
(https://github.com/IBM/IBM-Z-zOS/tree/main/zOS-Education/zOS-V2.5- Education)

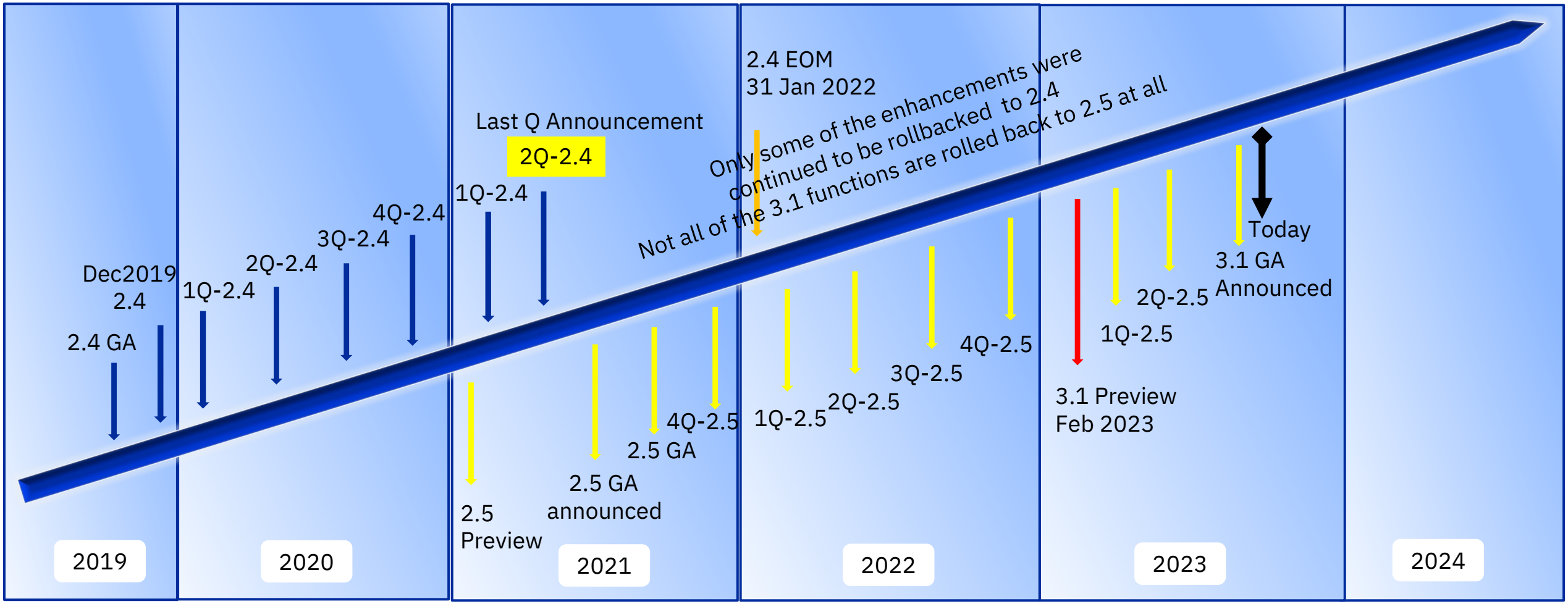
z/OS github entry
(https://github.com/IBM/IBM-Z-zOS/tree/main/zOS-Education/zOS-3.1- Education)

We had talked about this in previous session today , sharing just for complete document



z/OS Versions & CD Enhancements

How can I continue to get the latest enhancements ? ? 2.5 or 3.1 ? Benefit of being in current release!!!



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IBM z16 Highlights - z/OS zHW Support

IBM **z16 (3931) Model A01** Functions & Features

One hardware model, Five Features, 1-4 19” Frame System
Up to 85 user partitions, 32 TB per partition, 200 CPUs/zIIPs/IFLs per partition, up to 224 Pus -Up to 16 TB per z/OS LPAR with z/OS V2.5
•2 CP chips on a Dual Chip Module (DCM), 5.4 GHz •L1 Private 128K i & 128K d •L2 n/a •L3 Shared 32 MB / core, 192 MB effective shared •L4 n/a
256 GB HSA, 40 TB maximum, 10 TB per drawer
Channel Subsystem scalability •Up to six (6) Channel Sub Systems (CSSs) •4 Subchannel Sets per CSS
HiperDispatch Enhancements
IBM Z Integrated Accelerator for AI
Hardware Instrumentation Services (CPUMF)
New machine instructions
Crypto Express8S
OSA Express7S 1.2

(z/OS support in blue)

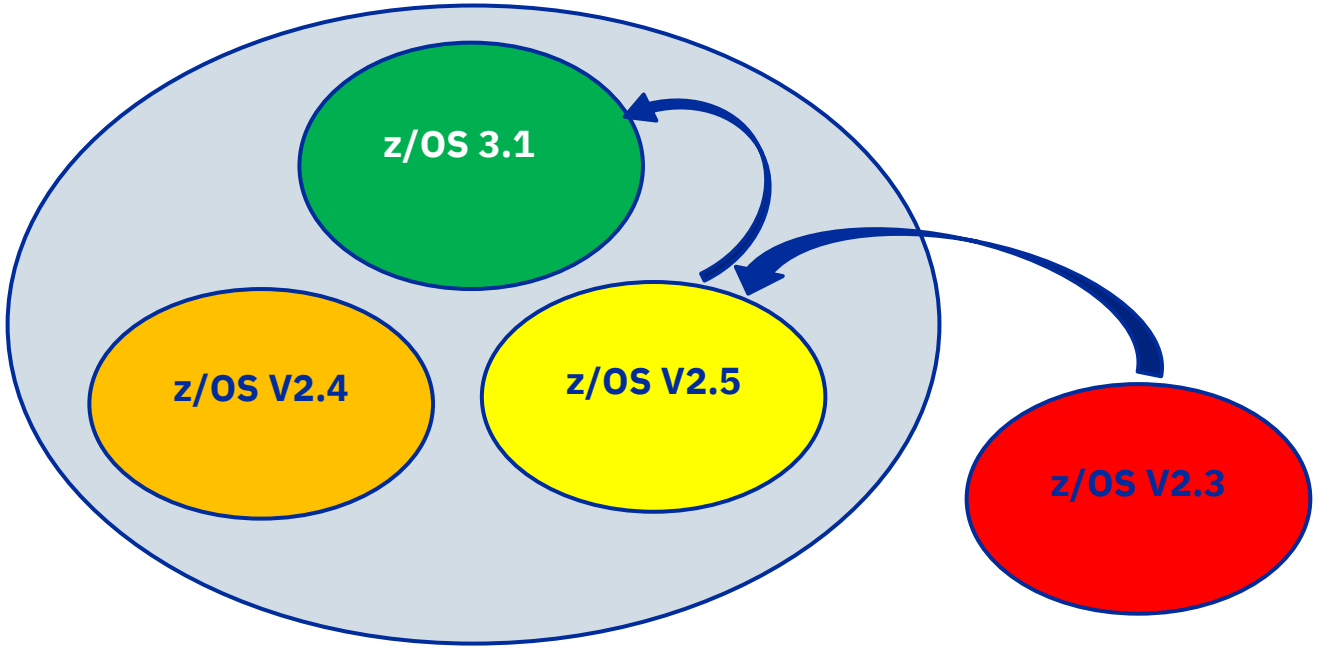
IBM System Recovery Boost
Coupling Express2 LR 10Gb (CX6-DX) PCIe adapter
CF Level 25 •Retry buffers for cache and lock commands •Cache residency time metrics •Scalability improvements •Request latency/performance improvements
ICA-SR 1.1 Max ICA SR per CEC 48 adapters/96ports (same as z15)
Max ICP CHPIDs per CEC – 64
10 GbE and 25 GbE RoCE Express 3 SR and LR (CX6-DX)
FICON Express 32S
zHyperLink® Express1.1 • Maximum 16 Adapters /32 ports
IBM Flexible Capacity for Cyber Resilience
Validated Boot

We had talked about this in previous session today , sharing just for complete document

- ***Industry First AI-Onchip***
- ***Hybrid Cloud***
- ***Industry First Quantum Safe Ready Platform***

z/OS 3.1 Coexistence Policy

Three consecutive releases for coexistence policy remains same.



IBM.Coexistence.z/OS.3.1 ---- > FIXCAT name for you to check which ptfs you need for coexistence.

This rule applies for upgrade purposes as well as sysplex coexistence between systems at different release levels.

Ordering - Critical Dates

September 19, 2023 -> z/OS 3.1 ordering begins

September 29, 2023 -> z/OS 3.1 general availability

If you decide on moving forward with z/OS 3.1 ,in addition to what is new in z/OS 3.1 , you will continue to get benefit more and will continue get several new functions, enhancements that are being developed for z/OS NEXT release in future months with Continuous Delivery

*z/OS V2.5 Q22023 was the **last CD Quarterly Announcement** for z/OS V2.5*

*There will be new **z/OS 3.1 Q42023 Continuous Delivery Announcement** in 4 th Quarter that will contain items from **z/OS NEXT!***

January 2024 -> Ordering complete for z/OS V2.5

Changes in FMID : FMID Related Information since V2.4

z/OS Elements		Changed in z/OS V2.5	Changed in z/OS 3.1	New in z/OS V2.5	New in z/OS 3.1	Base Element	Optional Priced Feature	Optional Unpriced Feature
XML Toolkit (V1.11 level)					●			
z/OS Data Gatherer				●				
IBM z/OS Change Tracker				●				
z/OS Advanced Data Gatherer				●				
BCP								
	Program Binder							
	Capacity Provisioning Manager							
	BCP Support For Unicode							
	Web Enablement Toolkit							
	AI Based Component (AIB)				●			
Common Information Model (CIM)								
z/OS Communication Server								
Cryptographic Services								
	ICSF(FMID HCR77E0)							
	PKI Services							
	System SSL							
DFSMSdfp								
HCD								
Future Function(related to IBM Documentation for z/OS)								
IBM Tivoli Directory Server								
IBMZ Deep Neural Network (zDNN)								
IBM z/OS Management Facility (z/OSMF)								
Integrated Security Services	Network Authentication Service							
ISPF								
JES2								

Changes in FMID : FMID Related Information since V2.4

z/OS Elements		Changed in z/OS V2.5	Changed in z/OS 3.1	New in z/OS V2.5	New in z/OS 3.1	Base Element	Optional Priced Feature	Optional Unpriced Feature
Language Environment								
Network File System								
TSO/E								
z/OS File System (zFS)								
z/OS Font Collection								
z/OS OpenSSH								
z/OS UNIX								
DFSMSdss								
DFSMShsm								
DFSMSrmm								
DFSORT								
HCM								
IBM z/OS workload Interaction	Correlator (zWIC)							
Infoprint Server								
RMF								
RUCSA								
SDSF								
Security Server - RACF								
z/OS Security Level 3								
	Communication Server							
	IBM Tivoli Directory Server Security Level 3							
	Network Authentication Service Level 3							
	System SSL Level 3							

Crypto Support in z/OS Release

z/OS 3.1 ICSF FMID HCR77E0 is incorporated in z/OS Release

z/OS V2.5 ICSF FMID HCR77D2 is incorporated in z/OS Release
Future ICSF HW support will be provided in PTFs
No Web deliverable
PTFs will be marked with HW FIXCAT

z/OS V2R4 ICSF FMID HCR77D0 is incorporated in z/OS Release
FMID HCR77D1 is web deliverable

No need to deal with 'Web Deliverable' separate process
Good News!

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

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

A **pax.z** file, which contains an archive (compressed copy) of the FMIDs to be installed. This file needs to be downloaded to a workstation and then uploaded to a host as a binary file.
For Web downloads, you perform the SMP/E installation work yourself.

Orderable no Charge Products

- IBM Java SDK for z/OS V11 (5655-DGJ-5655-I48) – IBM Semeru Runtime Certified Addition For z/OS
  Prereq for z/OS 3.1 (At GA) ▲
- IBM 31-bit SDK for z/OS V8 (5655-DGG, 5655-I48) → EOM – January 2024 EOS – September 2026 ▲
  Prereq for z/OS 3.1 for some functions (At GA)
- IBM 64-bit SDK for z/OS V8 (5655-DGH, 5655-I48) → EOM – January 2024 EOS – September 2026 ▲
- XML Toolkit is now inside z/OS
- IBM AI System Services for IBM z/OS (5655-164) → NEW PRODUCT ▲
- IBM Open Enterprise SDK for Node.js 16.0 ▲
- IBM Open Enterprise SDK for Node.js 18.0 ▲

▲ Subscription & Support is Priced

- DFSMStvs is part of the z/OS Base now
  DFSMStvs priced feature is now part the z/OS Base and is entitled to use as part of z/OS Base

More About IBM Java SDK for z/OS V11 (5655-DGJ-5655-I48) – IBM Semeru V11

z/OS 3.1 is designed with IBM Semeru 11 and later in mind. Java 8 is supported on z/OS 3.1, however, clients may find that operating system-provided Java facilities may require IBM Semeru 11. IBM Semeru 11 is the most current level of Java available on z/OS.

- At GA, z/OS 3.1 has an overall dependency on 'IBM Semeru 11 RunTimeCertified Edition 64 bit only.
  Most z/OS 3.1 Functions at GA : z/OSMF, SDSF, RACF,CommServer, SCRT, HCD...
- Some z/OS 3.1 functions still require IBM Java SDK 31-bit V8, but are planned to be converted to IBM Semeru 11
  z/OS PFA, CPM and InforprintServer (At GA)
- IBM 64-bit SDK for z/OS V8 and IBM 31-bit SDK for z/OS **V8 are supported for applications** as long as they remain supported.
- IBM has issued a statement of direction indicating a future plan to deliver IBM Semeru Java 17.

Client applications that previously used the 31-bit Java SDK might need to be modified to run in 64-bit mode.

Learn more → https://www.ibm.com/products/semeru-runtime-certified-zos

Functions Withdrawn from 3.1

- JES3 - Migrate to JES2 or if clients who want to continue with JES3 , may contact with PhoenixSoftware for JES3Plus
- IBM Bulk Data Transfer BDT Features
- IBM z/OS Global Mirror (XRC)
  Many years we have two critical Async Copy Methods (XRC and Global Mirror)
  Clients move to Global Mirror(GM) from XRC
- Distributed File Manager - > Use z/OS NFS instead
- ISFPARMS Assembler Macros - > Use ISFPRMXX instead
- Knowledge Center For z/OS (KC4Z) - > Use DOC4Z instead
- z/OS Alternate Base
  z/OS Alternate Base has been removed. This had been provided as alternate usage of Communication Server, which are no longer applicable

- HFS was withdrawn with z/OS V2.5
  Migrate all HFS files to zFS

Critical Ordering Changes

- **Do not forget to order if you need z/OS Security Level 3**
  z/OS Security Level 3
  - Communication Server Security Level 3
  - IBM Tivoli Directory Server Security Level 3
  - Network Authentication Service Level 3
  - System SSL Level 3

  Note that Communication Server Security Level 3 optional unpriced export controled feature is now part of the z/OS Security Level 3 feature
- **IBM JES3 and BDT Priced Features**
  - These prices features (as well as BDT Base element) have been removed from z/OS 3.1
  - JES2 will be installed into the z/OSMF Portable Software Instance base z/OS SMP/E zone and is not allowed to be removed.
- **z/OS Alternate Base**
  z/OS Alternate Base has been removed. This had been provided as alternate usage of Communication Server, which are no longer applicable
- **DFSMStvs is part of the z/OS Base now**
  DFSMStvs priced feature is now part the z/OS Base and is entitled to use as part of z/OS Base
- **XML Toolkit has been added as base element**
  This has been program product, not that it is in base, this product is not orderable with z/OS 3.1
- **IBM z/OS Change Tracker is new priced feature in z/OS 2.5 and 3.1**
- **From previous releases , continue with z/OS 3.1**
  Enabling z/OS Advance Gatherer Feature also implicitly enables z/OS WIC (Workload Interraction Correlator) Feature
  Ordering the RMF Feature causes z/OS Advance Gatherer feature to be enabled (More in future slides)

Functions Planned To Be Withdrawn with releases after z/OS 3.1

DFSMSdfp Checkoint /Restart

z/OS 3.1 is planned to be the last release to support DFSMSdfp Checkpoint/Restart.
The intent is not to require changes to applications with regards to usage of the CHKPT macro. Usage of the CHKPT macro is intended to be syntax checked and ignored. Any remaining z/OS software that still depends on checkpoint restart capability may need to be redesigned to remove the dependency on checkpoint/restart. Updates to allow identification of usage of Checkpoint/Restart are planned to be available via the Generic Tracking Facility, with the PTFs for APAR OA64519 on z/OS V2.4 and later. z/OS continues to provide Job restart processing, which works on a step basis as well as capabilities like Transactional VSAM which may provide the basis for solutions that could replace checkpoint/restart.

CIM (Common Information Model)

z/OS 3.1 is planned to be the last z/OS release in which IBM intends to include the Common Information Model (CIM) server. All z/OS software that depends on a CIM server running on z/OS will need to be upgraded to remove the dependency.

General Tasks For Your z/OS 3.1 Upgrade

Maybe you are/will be preparing project for z/OS Upgrades – This can be used as input to your project plan
Actually, most of them are inside z/OS 3.1 Upgrade Workflow with the order you need to perform now with z/OS 3.1

General Tasks (For your upgrade plan) 1/4

This is high level tasks for your project plan . We will talk about in detail for some critical items on these tasks in future slides (Note: z/OSMF z/OS 3.1 Upgrade Workflow contains all in sequence)

1- Learn what is new , hint and tips from several resources , presentations

You can do NOW

Check in Github ,Gary Puchkoff's presentation and many detailed pdfs related to specific topics (+80 pdfs)
We talked about this in previous session.
This is like z/OS Implementation Redbook distributed version with a lot more in detail
z/OS Introduction and Release Guide , z/OS Planning For Installation
Check and analyze z/OS 3.1 Upgrade Workflow
Check IBM z Solutions Center and C3(Comprensive Content Solution) Website that contains function specific pdf documents
(We mentioned this in previous session)

2- Receive the latest HOLDDATA .this includes FIXCATs you need for planning /installation/coexistence/target system requirements

You can do NOW

- IBM.DrivingSystem-RequiredService
- IBM.Coexistence.z/OS.3.1
- IBM.TargetSystem-RequiredService.z/OS.3.1
- IBM.Function.HealthChecker

3- Get z/OS 3.1 Upgrade Workflow (APAR OA63269) . If you did not do step2 . Nicest way to see what is changing and view for actions.Start doing actions and planning . It is also in IBM.Coexistence.z/OS.3.1 FIXCAT

You can do NOW

If you have z/OSMF active , configured, upload workflow to your z/OSMF
If you don't have z/OSMF active yet ,recommend you to configure and activate now so you can use the new workflow

Means there are detail slides about this task in this presentation

General Tasks (For your project plan) 2/4

You can do NOW

4- Prepare for Driving system requirements that you will use z/OSMF to install (FIXCAT: IBM.DrivingSystem-RequiredService)

You can do NOW

5- Have your teams get familiar with z/OSMF: Visit z/OSMF guild webpage which includes all capabilities, installation video review. You can use our previous presentation about z/OSMF as well. If you have time, you can try sample serverpac install with z/OSMF, if you did not do installation using z/OSMF before

You can do NOW

6- z/OS 3.1 Runs on HW z14 or higher. Make plans for upgrading your HWs if you are in z13 or below.
(Hope this is not the case! ☹ z16 has many great capabilities)

You can do NOW

7- Prepare for Target System Requirements

You can do NOW

8- For IBM Product Level Compatibility for fixes use IBM.TargetSystem-RequiredService.z/OS.3.1
For Release information check z/OS 3.1 Planning Installation Book
For ISVs search for product owned resources for z/OS 3.1 related needs
Make plans for applying these in parallel to your studies.

General Tasks (For your project plan) 3/4

You can do NOW

9- Get the latest z/OS Health Checker Updates . Some HCs will help you for upgrade. Activate the Upgrade HCs (They are inactive by default) FIXCAT: IBM.Function.HealthChecker

You can do NOW

10- Checking z/OSMF z/OS 3.1 Upgrade Workflow and resources in step1 perform as many of the upgrade action as you can in your existing systems so that you have fewer actions to perform after installing z/OS 3.1
In workflow 'actions to perform before installing z/OS 3.1` (SSD capable Sysplex CDS,,,,)
Prepare for removed functions and elements (z/OS V2R5 HFS, z/OS 3.1 JES3,BDT,XRC, ISFPARMS assembler macros..

You can do NOW

11- Check for coexistence and fallback ptfs needed using IBM.Coexistence.z/OS.3.1 FIXCAT and make a plan and install maintenance to your existing systems

General Tasks (For your project plan) 4/4

After September 19

12- Make entitlement renew for new program number for z/OS (Entitlement renew needs human interaction)
Order z/OS 3.1 serverpac in z/OSMF Portable Software Instance Format from Shopz

13- Install z/OS 3.1 serverpac in z/OSMF Portable Software Instance Format using z/OSMF Software Management

14- Perform the `Actions to be performed before first IPL ‘

15- IPL the new z/OS 3.1 system with your updated customization

16- Perform the actions after first IPL

17- **Do not forget to revisit and implement new features that are useful for you**.

Installing z/OS 3.1 ServerPac
As - > z/OSMF Portable Software Instance
Using -> z/OSMF Software Management

z/OS 3.1 ServerPac is only provided as a z/OSMF Portable Software Instance

z/OSMF Portable Software Instance

z/OSMF Software Management Installation of z/OS 3.1 ServerPac

- Uses a simplified web-based GUI replacing the ISPF CustomPac Dialog
  - Manages allocation and placement of data sets, cataloging, and deployment in z/OSMF Software Management
  - Customization and verification is done in z/OSMF Workflows
  - Data set merge and disconnect Master Catalog on driving system . **(CD)**
  - Remove temporary catalog aliases are supported **(CD 4Q2022)**
  - REST APIs to run missing critical updates, missing FIXCAT updates, and software update search **(CD 4Q2022)**

- New Portable Software Instance Package signing –IBM plans to ship z/OS 3.1 ServerPac and PTF's with a signature that clients can verify. This will provide a means to verify the integrity of software. **(CD 1Q2023)**

- IBM (and participating major ISVs) deliver z/OSMF Portable Software Instances as a common installation method for z/OS stack software.

  - IBM z/OS, IMS, Db2, and CICS Transaction Server and associated products, all can be installed with z/OSMF today. CBPDO remains available and is unchanged.
  - z/OS 3.1 ServerPac is only provided as a z/OSMF Portable Software Instance
    - z/OSMF is a driving system requirement for all IBM ServerPacs. . **(CD)**

As stated in Software Announcement 222-214, dated June 21, 2022, the CustomPac Dialog installation method choice from Shopz was removed on July 10, 2022. As a result, any ServerPac for z/OS, IBM CICS, IBM Db2, IBM IMS, or program products ordered through Shopz are packaged and installable only with z/OSMF.

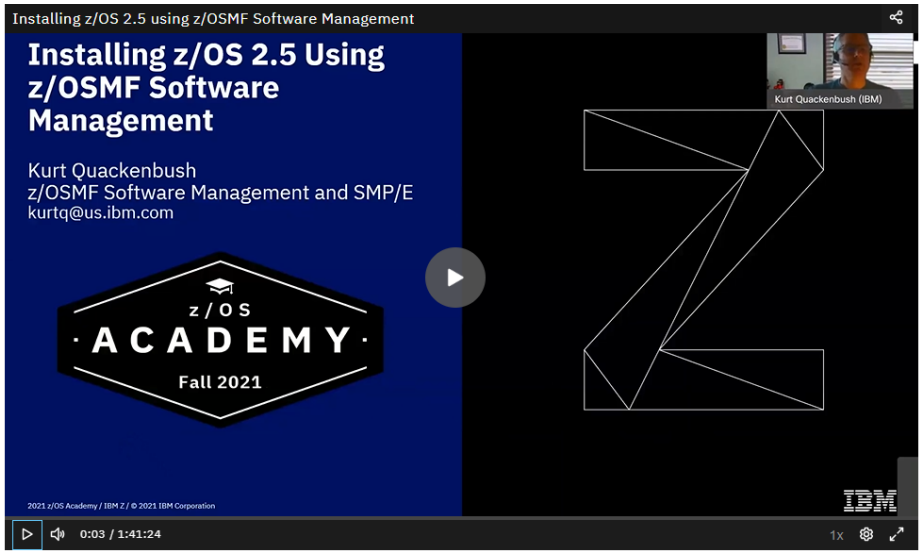
Resources For Learning Quickly

➢ IBM z Content Solutions Center

See “ServerPac Installation using z/OSMF” for more information:
https://www.ibm.com/support/z-content-solutions/serverpac-install-zosmf/

➢ z/OSMF Guild Webpage

Highly recommend to watch this if 3.1 will be your first usage of z/OSMF to install z/OS !



Driving System Requirements for Installing z/OS 3.1

Driving System Requirements for z/OSMF Portable Software Instance

- Minimaly with z/OS V2.4 with z/OSMF configured and active.
- z/OSMF Software Management available for use.
- Your USERID requires READ access to datasets that starts with **CB.OS* and CB.ST*** for IBM ServerPacs
- IBM. DrivingSystem-RequiredService FIXCAT contains all necessary ptfs.
  Use the SMP/E REPORT MISSINGFIX command and fix category “IBM.DrivingSystem-RequiredService” to determine if you’re missing any PTFs

```
SET BDY(GLOBAL).
REPORT MISSINGFIX ZONES(ZOS25)
FIXCAT(IBM.DrivingSystem-RequiredService).
```

Package Signing Verification (OPTIONAL and COMPATIBLE)

- A Key Ring wth RACF delivered STG Code Signing Certiciate Authority-G2 connection is needed
- There is no need to indicate anything during Shopz ordering . All product packages will arrive signed.
  It is up to clients to verify or not.

Driving System Requirements for Validated Boot

Validated Boot for z/OS is a solution that uses digital signatures to provide an initial program load (IPL)-time check that validates that IPL data is intact, not tampered with, and originated from a trusted source. It also enables detection of unauthorized changes to software executables. (We mentioned this in detail today in previous session)

To signing in-scope IPL artifacts for Validated Boot for z/OS, you must satisfy the following requirements on the driving system:

- z/OS V2R5 or later, plus the PTFs that are identified with the following SMP/E FIXCAT: IBM.Function.ValidatedBoot
- Signing certificate is set up on the driving system.

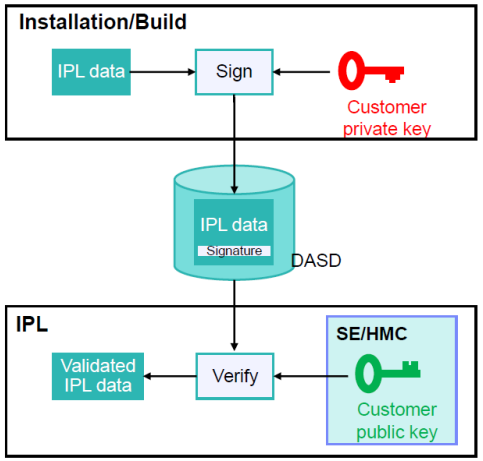
Use the SMP/E REPORT FIXCAT command to verify that all required PTFs are installed on your driving system.

To perform the validation of signatures, your target system must meet a separate set of requirements, including an IBM z16 with the appropriate microcode level, HMC security, and z/OS V2.5 or later with the PTFs that are identified with the SMP/E FIXCAT: IBM.Function.ValidatedBoot.

For information about how to get started with Validated Boot for z/OS, see Validated Boot for z/OS www.ibm.com/support/z-content-solutions/validated-boot-for-zos/ in IBM Z content solutions website.

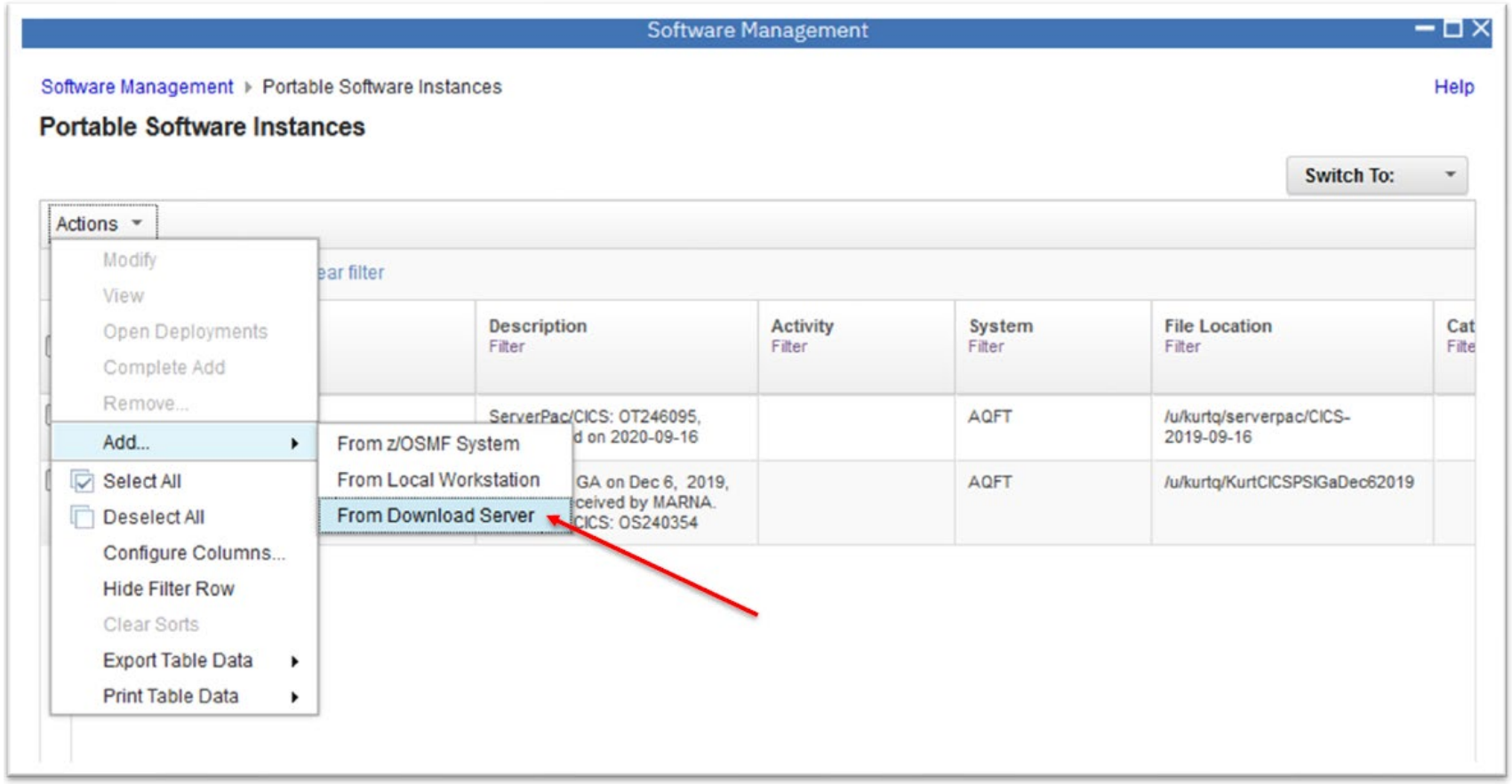
For pdf version of everything in IBM z Content Solution including Validated Boot

https://www.ibm.com/docs/en/zos/2.5.0?topic=z-content-solutions



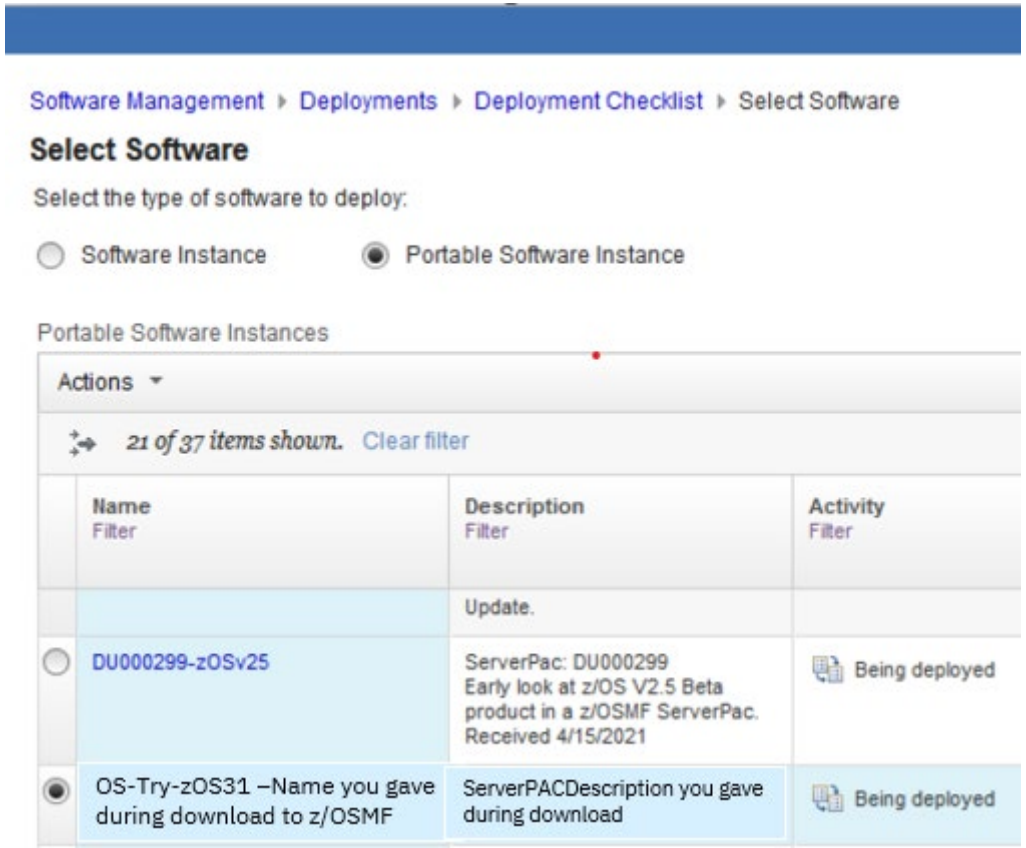
Getting z/OS 3.1 as Portable Software Instance using z/OSMF

Add a new Portable Software Instance in z/OSMF
Specify the files to be downloaded from server – similiar jcl as you used to do on receiving from Shopz
(z/OSMF uses SMP/E GIMGTPKG program to download)

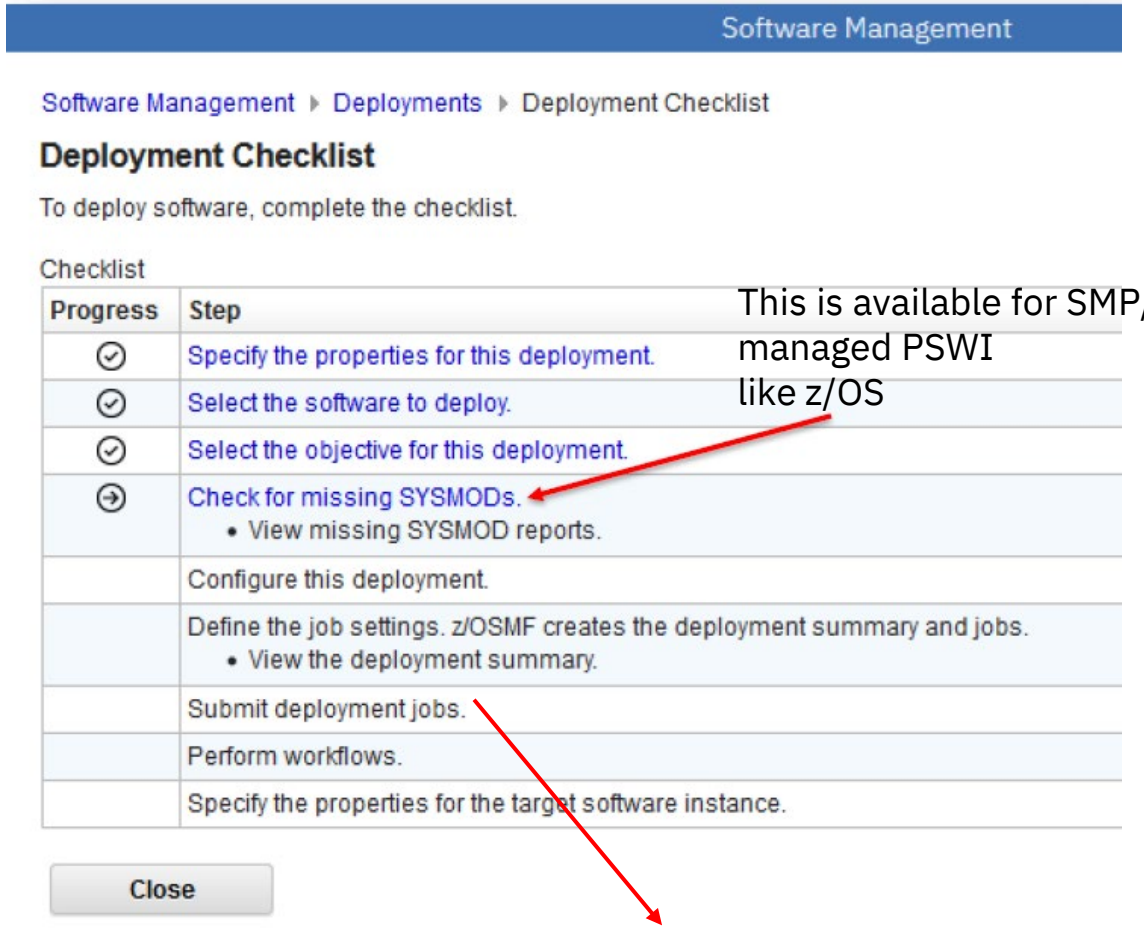


Installing z/OS 3.1 as Portable Software Instance

Choose your order that you downloaded



And start configuring as you used to configure in CustomPac Dialog



This is available for SMP/E managed PSWI like z/OS

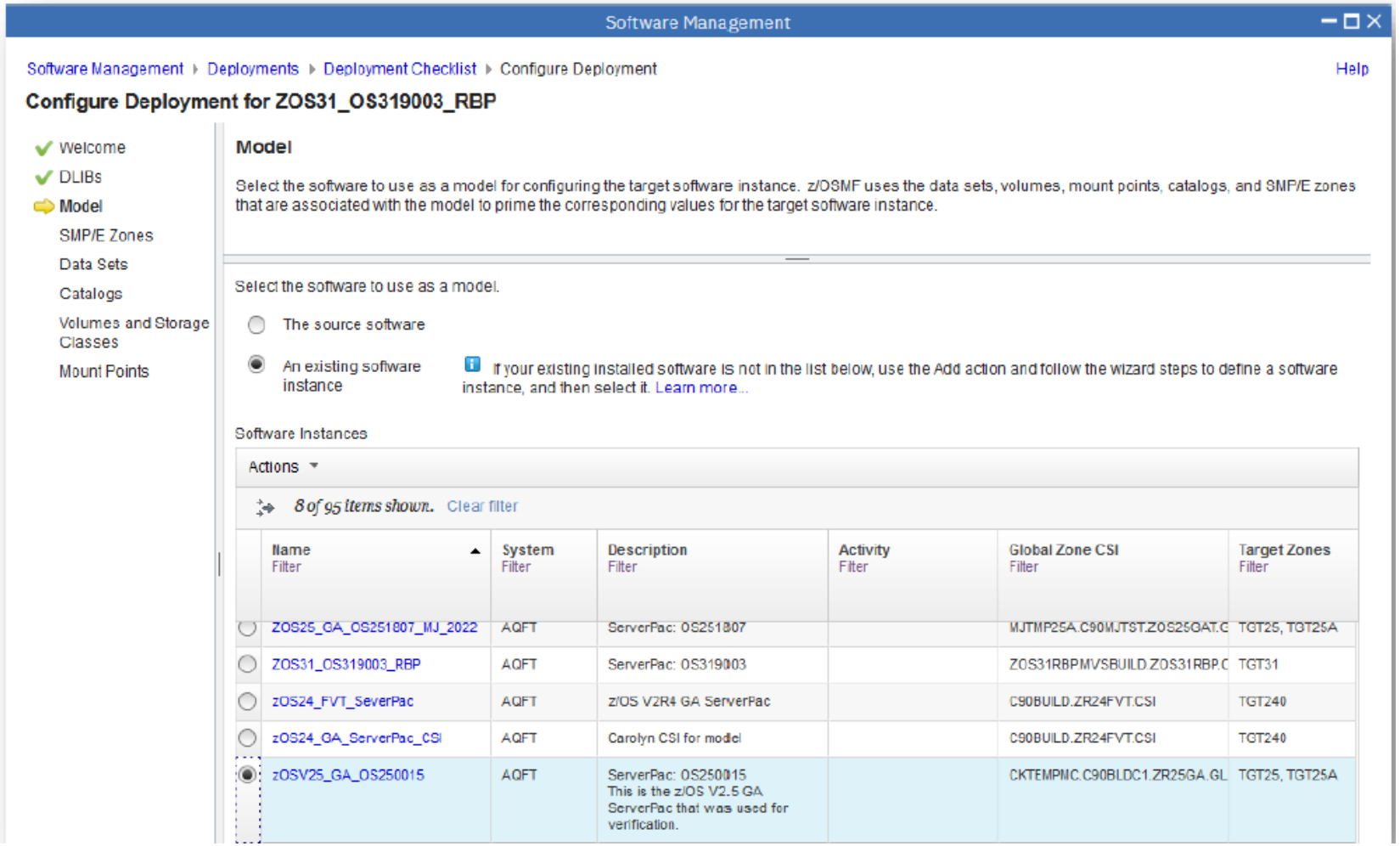
Configure everything (see next slide) and submit jobs

Installing z/OS 3.1 as Portable Software Instance

Similiar to what you used to do during installation in CustomPac Dialog, you can configure everything and jobs will be submitted using ‘submit deployment job’ step (in previous slide)

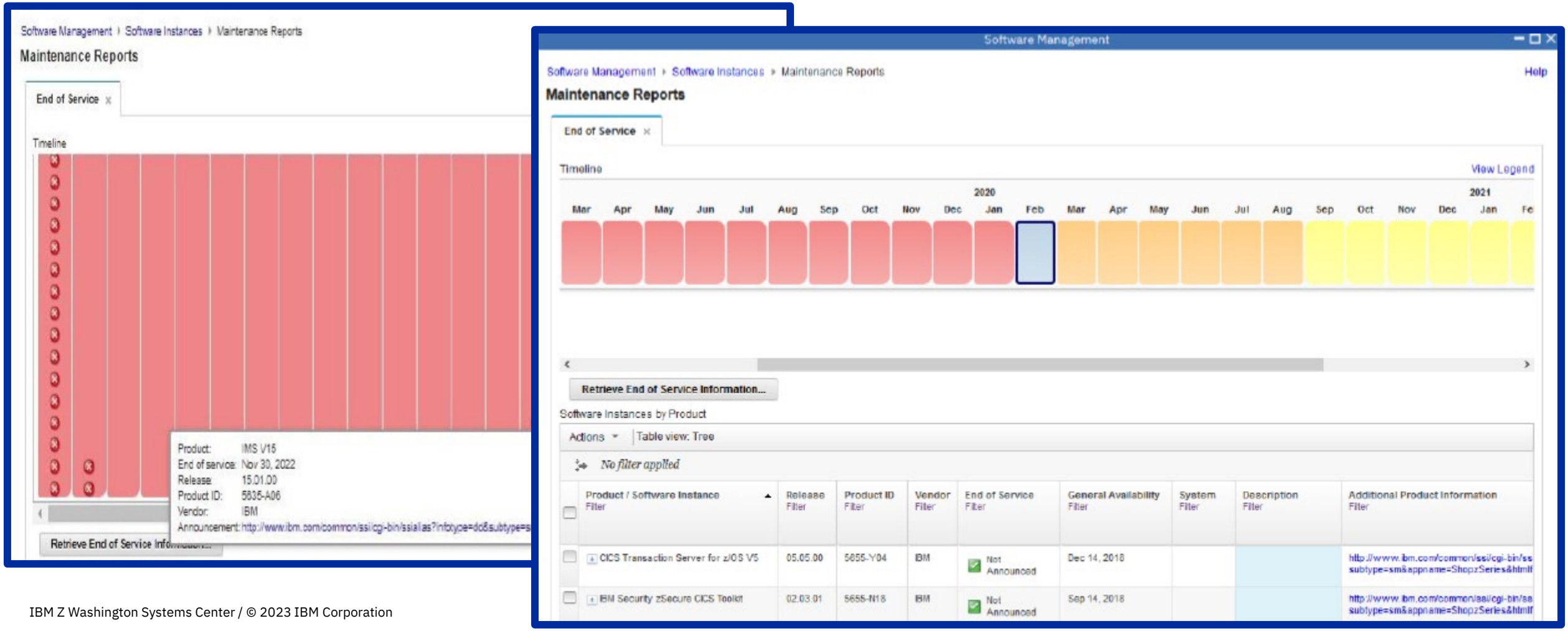
There are alot more capabilities with z/OSMF z/OS installation. Just some of them are :

- Reports
- SYSMOD Search
- Missing Critical Service



End Of Service Dates For IBM Products

- http://www.ibm.com/software/support/lifecycle/
- Use **z/OSMF Software Management** to look at the End of Service report

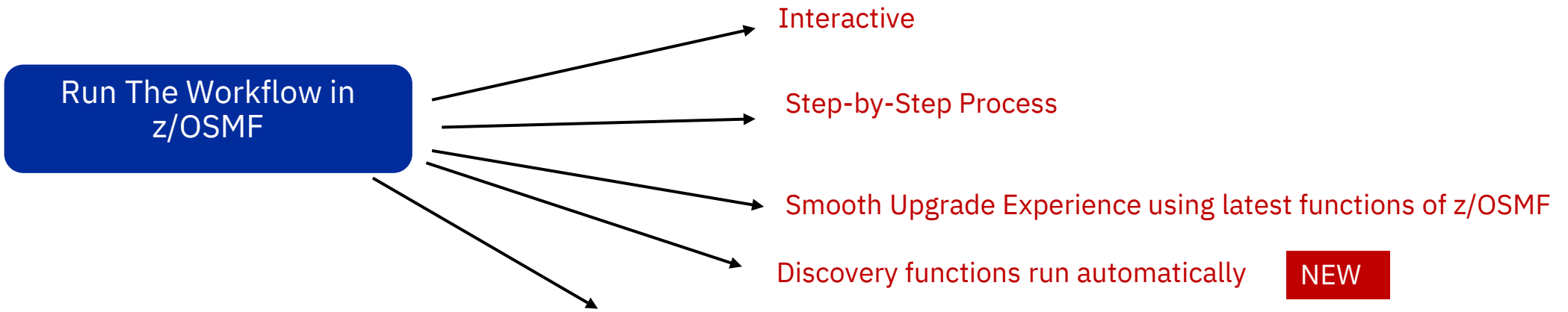


How To Get Benefit From z/OSMF z/OS 3.1 Upgrade Workflow ?

- How to get it and WHEN?
- How to use it ?
  - For learning what is new
  - For Planning and getting ready as a project plan
  - Single place to do everything as well from being to end
- Strength of using during upgrade
- What is new in upgrade workflow within z/OS 3.1 Upgrade Workflow

z/OS 3.1 Upgrade Workflow – z/OSMF

Provides the steps for upgrading to z/OS® 3.1 from your currently supported z/OS system



The z/OS 3.1 Upgrade Workflow is available in a choice of two z/OSMF workflows, depending on your upgrade path — from z/OS 2.5 or z/OS 2.4:

- zOS3.1_From_zOS2.5_Upgrade_Workflow.xml
- zOS3.1_From_zOS2.4_Upgrade_Workflow.xml

Now included with z/OS: IBM provides the upgrade workflows as part of the z/OS product.
Updates and fixes for the upgrade workflows are delivered through the standard z/OS service process.

APAR that ships z/OS 3.1 Upgrade Workflows OA63269 → It is also in **IBM. Coexistence.z/OS.3.1** FIXCAT

For the z/OS 3.1, IBM z16™, and IBM z15 workflows, the workflow definition files reside in file path **/usr/lpp/bcp/upgrade** after you install the associated PTFs on your z/OS system.

Earlier than GA Announcement, through new function website that we mentioned today in our previous session- Subscribe!

z/OS 3.1 Upgrade Workflow

➢ New Capability in z/OS 3.1 Upgrade Workflow Discovery Function

NEW

The z/OS 3.1 Upgrade Workflow includes the following functional enhancements:

- **Runs the SMP/E MISSINGFIX report** to determine whether any fix category (FIXCAT) APARs exist that are applicable and have not yet been installed.
- **Discovers which upgrade-related APARs are installed**, then **automatically skip steps** for which no actions are required if a given APAR is installed.

➢ There are Upgrade Related Health Checks (next slides)

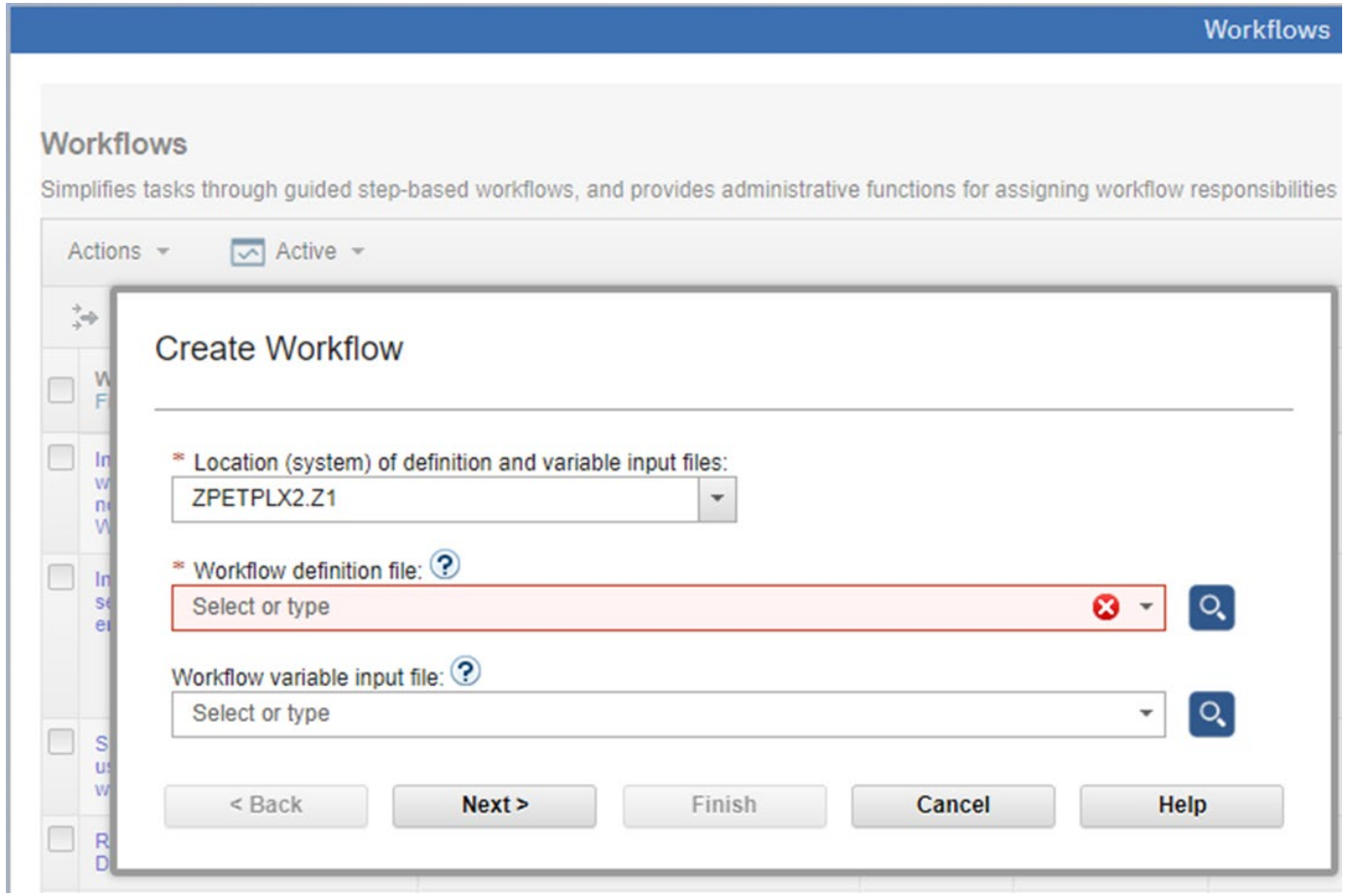
Nice Capability

These Health Checks can be directly invoked by the z/OS 3.1 Upgrade Workflow when using z/OSMF with one Click

z/OS 3.1 Upgrade Workflow – How to start using ?

1. Get OA63269 and apply

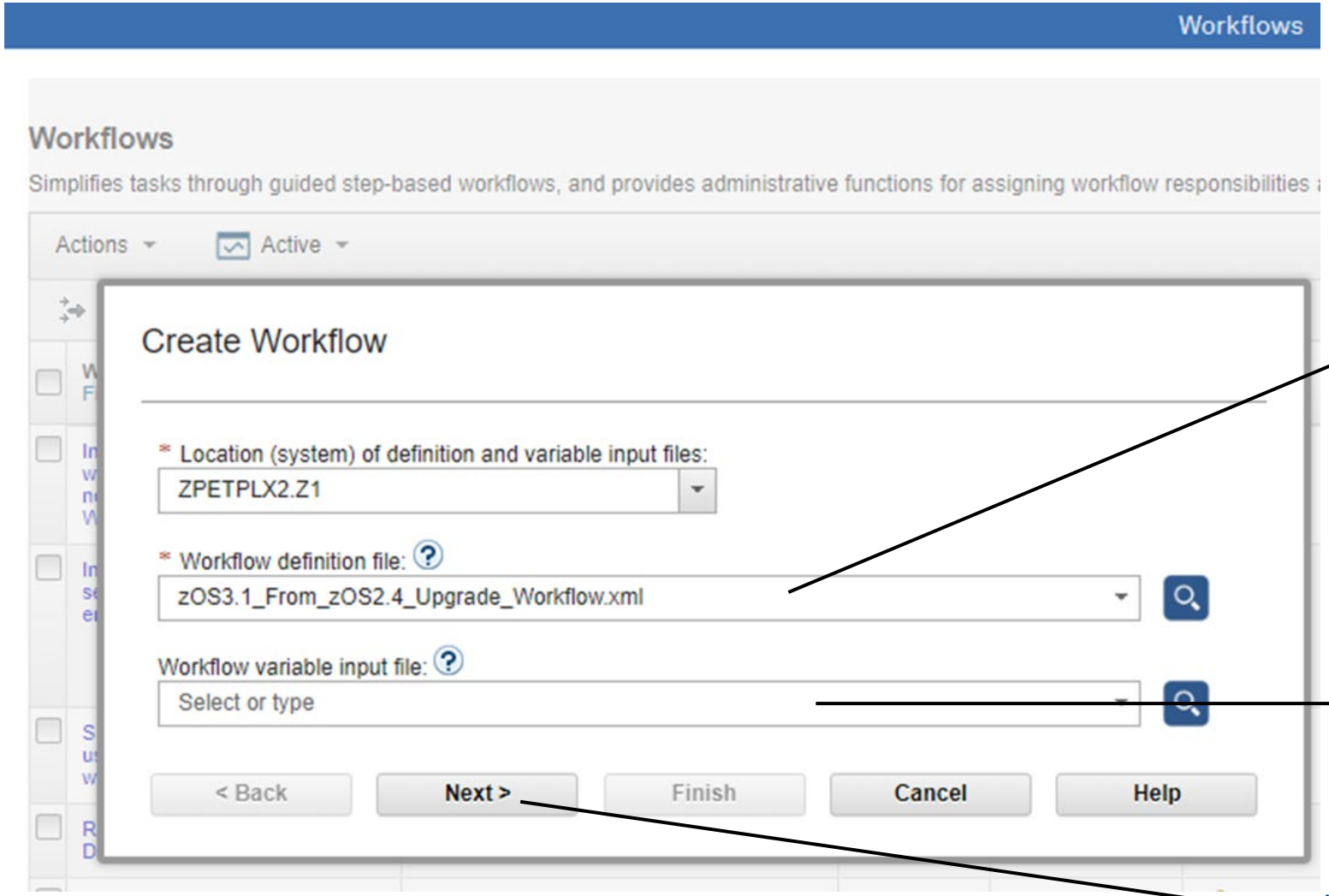
2. Create a new workflow in z/OSMF:
   In the z/OSMF Desktop, open the Workflows task.
   From the Actions menu, select **Create Workflow**. The Create Workflow dialog is displayed



Your user ID requires at least READ authority to the workflow XML files and the related .txt files

z/OS 3.1 Upgrade Workflow – How to start using ?

3 Write down the name of the workflow inside Workflow definition file box



APAR that ships z/OS 3.1 Upgrade Workflows is OA63269 and ptf puts workflow xml file in your zFS directory

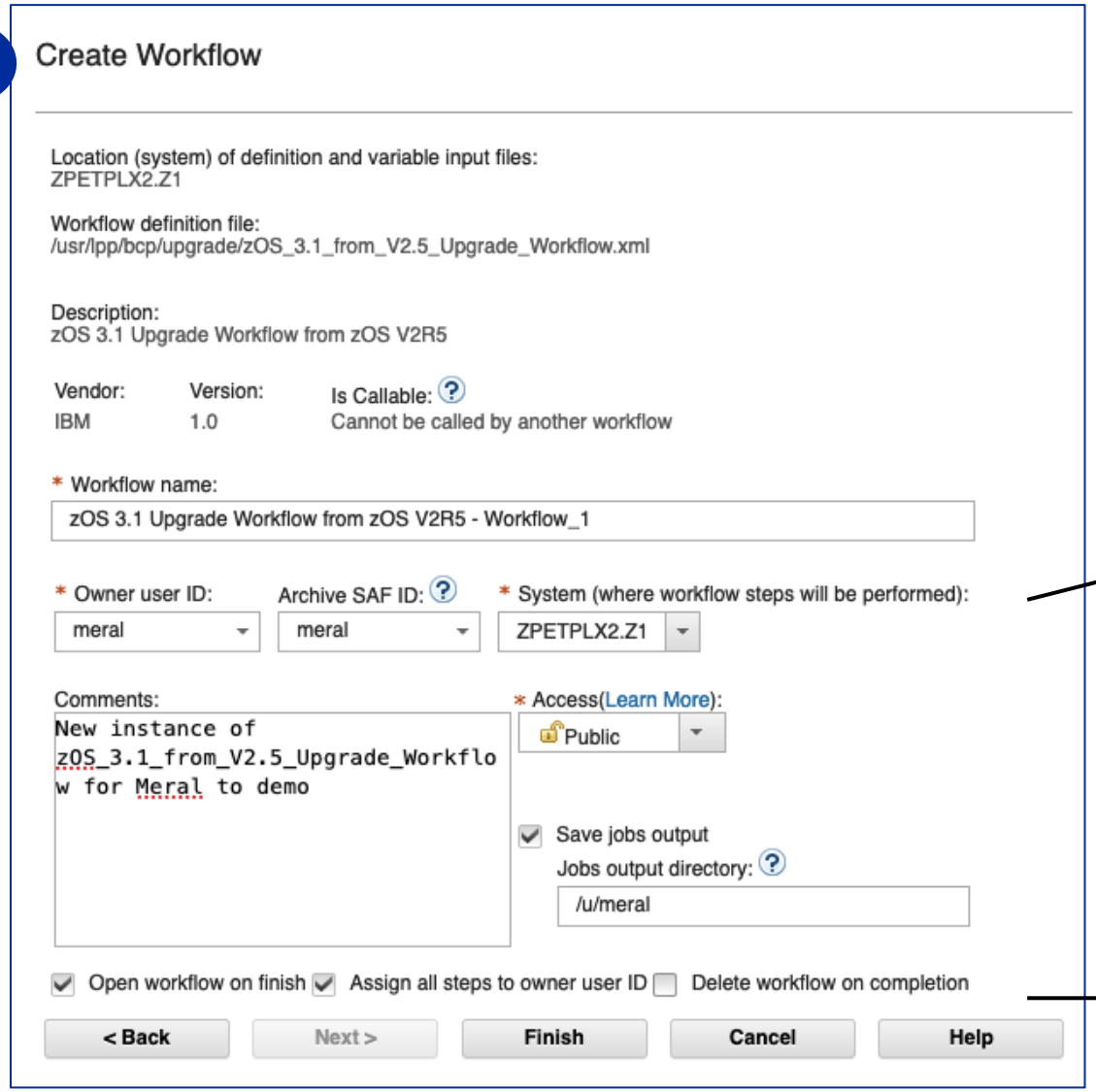
zOS3.1_From_zOS2.5_Upgrade_Workflow.xml

Leave this area empty

Click Next

z/OS 3.1 Upgrade Workflow – How to start using ?

4



Complete Fields

- System
- Workflow Name
- Owner UserID
- Comments
- Access Type

Select Open Workflow in Finish
Click Finish .
Done!
Start using / checking it !

z/OS 3.1 Upgrade Actions

z/OS 3.1 Upgrade Actions

Let’s look at same general policies .

These will be as reminder for the ones who had experienced before and we need to underline one critical item for everyone (see in red below)

Upgrading to a new z/OS Release is a two- step process

1- Upgrade : The installation of a new version or release of a program to replace an earlier version or release (Formerly called ‘migration’)

2- Exploitation : Usage of new enhancements available in the new release.

Upgrade is not Exploitation. When you upgrade, it does not mean some new enhancements are there. For several of them , action is needed.
Please don’t forget to revisit /check them and implement the ones that are useful for you after z/OS 3.1 Upgrade !

Upgrade actions are classified as types :

- **Required :** Required for all users
- **Required-IF** : Only required in certain cases
- **Recommended** : Good to do it
  - May be required in the future
  - Resolves performance or usability problem
  - Improves Workload

Upgrade actions are classified as when they may be performed:

- **Now**
- **Pre-First IPL**
- **PostFirst IPL**

z/OS 3.1 Upgrade z/OSMF Workflow – New Structure

Upgrade actions are now sequenced in the order in which you must perform them, rather than grouped by z/OS element.

NEW

In previous versions of the z/OS Upgrade Workflow, actions were organized by z/OS element.

The new structure helps to simplify the upgrade process by consolidating the steps for each phase of the upgrade.

Phase 1: Actions to perform before installing z/OS 3.1

Upgrade actions that you can perform on your existing system so that you have fewer actions to perform after you install the new release of z/OS.

You do not need the z/OS 3.1 level of code to make these changes, and the changes do not require the z/OS 3.1 level of code to run after they are completed.

Phase 2: Actions to perform before the first IPL of z/OS 3.1 (Configuring the new 3.1 target system before the first IPL)

Upgrade actions that you can perform after you have installed z/OS 3.1, but before the first time you IPL.

These actions require the z/OS 3.1 level of code to be installed, but do not require it to be active on your system.

Phase 3: Actions to perform after the first IPL of z/OS 3.1

Upgrade actions that you can perform only after you have IPLed z/OS 3.1.

You need a running z/OS 3.1 system to perform these actions.

Install Coexistence and Fallback PTFs (Required Action)

Install coexistence and fallback PTFs on your systems to allow those systems to coexist with z/OS 3.1 systems during your upgrade, and allow back out from z/OS 3.1 if necessary.

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

Acquire and RECEIVE the latest HOLDDATA onto your pre-z/OS 3.1 systems.
Use your normal service acquisition portals (recommended) or download the HOLDDATA directly from http://service.software.ibm.com/holdata/390holddata.html.
Ensure you select Full from the Download NOW column to receive the FIXCAT HOLDDATA, as the other files do not contain FIXCATs.

Run the SMP/E REPORT MISSINGFIX command on your pre-z/OS 3.1 systems and specify a Fix Category (FIXCAT) name **“ IBM.Coexistence,z/OS.3.1**”

The report will identify and missing coexistence and fallback PTFs for that system.

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.

Target System Requirements for z/OS 3.1

- HW Requirements
  IBM System Z Server z16 A01 , z16 A02, z15 T01 , z15 T02 , z14 , z14 ZR1

- Minimum Memory Requirements
  - 8 GB memory
  - If you are running z/OS 3.1 as guest of z/VM the z/VM release must be z/VM 7.2 or later
  - IBM Health Checker has HC about minimum memory requirements

- IBM. TargetSystem-RequiredService.z/OS.3.1 FIXCAT contains all necessary ptfs.
  Use the SMP/E REPORT MISSINGFIX command and fix category “IBM.TargetSystem-RequiredService.z/OS.3.1” to determine if you’re missing any PTFs

  SET BDY(GLOBAL).
  REPORT MISSINGFIX ZONES(ZOS25)
  FIXCAT(**IBM.TargetSystem-RequiredService.z/OS.3.1**).

- zFS Files: Root File System size will be close to 4 GB.
  Consider making it EA(Extended Addresability) capable to go beyond 4GB. For any zFS data sets that exceed the 4 GB size limit, you must define an SMS Data Class with extended format and extended addressability. **z/OS 3.1 ships with a version root file system that is extremely close to 4GB in size. If you merge other zFS data sets with this version root, it will exceed 4 GB in size**

Target Software for z/OS 3.1

You must determine the minimum product release levels and release levels for functional requirements.

- IBM middleware and application products require a specific level (version, release, or PTF) so that the products will run on z/OS 3.1. You cannot use the FIXCAT support to determine these release levels.
- FIXCAT 'IBM.TargetSystem-RequiredService.z/OS.3.1 ' is for fixes needed
- Instead, for release supports, you can refer to z/OS 3.1 Planning for Installation, Appendix B, for the functions of z/OS that require specific z/OS optional features, IBM middleware products, or IBM application products.
- **If you are upgrading from z/OS V2.4 or z/OS V2.5, you may generally use the product levels on z/OS 3.1 that you used on your prior z/OS release, as long as the product levels are still service-supported.**
- For Functional Dependencies, z/OS 3.1 Planning For Installation has tables in Appendix B.

For All Fixcats and Descriptions Check IBM Fix Category Values and Descriptions

IBM.TargetSystem-RequiredService.z/OS.3.1	Fixes required on other IBM products to allow them to run on z/OS 3.1.

z/OS 3.1 New and Changed Upgrade Actions (V2.5 to 3.1))

In z/OS 3.1 Upgrade Workflow , there is a complete list for new actions and changed upgrade actions as summary list.

We will not go through all of the list in this session, but we will mention in detail some critical ones

Please find in backup slides of this presentation list of all new and changed Upgrade Actions for z/OS 3.1 (V2.5 to 3.1)

Until you will get the z/OS 3.1 Upgrade Workflow , it may give you an idea

Critical Upgrade Actions Before First IPL – SSD Capable CDS

SSD capable Sysplex Couple Dataset must be used in sysplex

Ensure that sysplex uses SSD – capable sysplex Couple Datasets. To use SSD is actually a best practice for many years.

Sysplex CDSes must be formatted to support System Status Detection (SSD) Protocol

- z/OS 3.1 can not initialize a sysplex containing a downlevel sysplex CDS
- z/OS 3.1 can not join a running sysplex that contains a downlevel sysplex CDS

How to Check ? There are two ways to check it

1- Use XCF_SYSSTATDEF_PARTITIONING Health Check

2- Use `D xcf,cpl,type=sysplex` command and check that 'system status detection protocol is supported' for both primary and alternate sysplex CDS's

How to implement if it is not SSD capable ?

To format for SSD Capable Sysplex couple datasets, use the following items in format utility
NAME(SSTATDET) NUMBER(1)

Make the new sysplex CDSes used by the sysplex using SETXCF commands

Stop Using SDSF ISFPARMS Assembler Macros to configure SDSF

For many z/OS Releases, it has been recommended to configure SDSF with ISFPRMXX parmlib member.

There are several major advantages to using ISFPRMXX parmlib member format over assembler macros, modules.

With z/OS 3.1 , only option will be to use ISFPRMXX to configure SDSF .

If you are not using , you can convert to ISFPRMXX now!

If you are using ISFPRMXX , no action is needed

Get & Activate Upgrade Health Checks (Before,During, After)

The IBM Health Checker for z/OS infrastructure is exploited for upgrade purposes.
Health Checks that are helpful for determining upgrade action applicability are provided.
These checks ("Migration Health Checks") should be used prior to your upgrade to the new z/OS release to assist with your upgrade planning, and re-run after your upgrade to verify that the upgrade action was successfully performed

zOSMIGREC_ROOT_FS_SIZE *For 3.1*
XCF_SYSPLEX_CDS_CAPACITY *For 2.5 and 3.1*
XCF_SYSSTATDET_PARTITIONING *For 3.1*
RSM_MEMLIMIT *For 2.5 and 3.1*
ALLOC_TAPELIB_PREF *For 3.1*
SUP_ASVT_ABOVE_16M *For 3.1*
ZOSMIGV2R4_NEXT_WLM_SERVCOEFF *For 2.5 and 3.1*
ZOSMIGV2R4_NEXT_VSM_CHECKREGNLOSS *For 2.5 and 3.1*
JES2_UPGRADE_CKPT_LEVEL_JES2 *For 2.5 and 3.1*
SDSF_ISFPARMS_IN_USE *For 3.1*
SDSF_CLASS_SDSF_ACTIVE *For 2.5 and 3.1*
RMF_DDS_OPTS *For 2.5 and 3.1*
USS_HFS_DETECTED *For 2.5 and 3.1*

ZOSMIGV2R4_NEXT_CS_OSIMGMT *For 2.5 and 3.1*
ZOSMIGV2R4_NEXT_CS_DCAS_NTVSSL *For 2.5 and 3.1*
ZOSMIGV2R4_NEXT_CS_TN3270_NTVSSL *For 2.5 and 3.1*
ZOSMIGV2R4_NEXT_CS_FTPSRV_NTVSSL *For 2.5 and 3.1*

ZOSMIGV2R5_NEXT_CS_LSA *For 3.1*
ZOSMIGV2R5_NEXT_CS_OSADLH *For 3.1*
OPENSSH CONFIG CHECK planned *For 3.1*
ISPF_WSA *For 2.5 and 3.1*

VERY USEFULL!

Check Missing PTFs in FIXCAT IBM.Function.HealthChecker and apply ptfs to get all Health Checks and activate them (Migration HCs are usually come as inactive)

Please Revisit Your Health Checker Policy and plan for actions for the HCs that you decreased Severity or WTO type once upon a time for the ones you might said 'lets decrease it so that we will get rid of alarms and we will check them later ' and forgot them totaly ☹. (Some common usage issue)

Health Checks can be directly invoked by the z/OS 3.1 Upgrade Workflow when using z/OSMF

Update Your Check Customization (Health Check Updates)

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

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

New in z/OS V2R5:
VSM_CheckRegionLoss
RACF_ADDRESS_SPACE
RACF_ERASE_ON_SCRATCH
RACF_PROTECTALL_FAIL
RACF_PTKTDATA_CLASS
RACF_SYSPLEX_COMMUNICATION
IOS_ENDPOINT_SECURITY_LCUPATHS
ZOSMIGV2R5_NEXT_CS_OSADLH
ZOSMIGV2R5_NEXT_CS_LSA

Changed in z/OS V2R5:
RACF_SENSITIVE_RESOURCES
XCF_TCLASS_CLASSLEN

New in z/OS 3.1:
ICSF_STATUS
ICSF_CLEAR_KEYS
SUP_ASVT_ABOVE_16M

Changed in z/OS 3.1:

RACF_PASSWORD_CONTROLS (added password phrase interval)

RMF & z/OS Advance Data Gatherer (ADG) Structural Changes

Advanced Data Gatherer – (z/OS 2.5 GA)

In z/OS 2.5, the priced feature, RMF, continues to provide the same functional capability that clients have come to expect. The function of RMF is delivered in two parts

- **RMF**
- **z/OS ADG**

- The RMF feature continues to provide performance reports, which are based on the metrics from the ADG feature, and is designed to be entitled to all clients of the RMF priced feature.

- The ADG is a new, separately priced feature of z/OS that provides the function of gathering performance data in raw form.

- The **data gatherer base element** will generally be running all the time to capture utilization information
  - This usage is entitled with **base z/OS**

- In “advanced” mode it will also capture detailed performance information required by performance monitors like RMF.
  - Advanced mode is a priced feature **(The RMF priced feature includes entitlement to the ADG priced feature. No action is required of RMF clients as a result of this change)**

RMF & z/OS Advance Data Gatherer (ADG) Structural Changes

- A new browser-based UI is available with z/OS 3.1 for monitor 3 metrics and reports **(New 3.1)**
- The new UI supports setting thresholds and issuing alerts **(New 3.1)**

A new DDS server is coming with 64-bit exploitation and additional security options **(New 3.1)**

Pre-Req For z/OS V2.5 (V2R4 to 3.1 effected as well)
For z/OS V2.5, RMF and z/OS Data Gatherer, had several data sets restructured. Follow the RMF upgrade action to make the necessary parmlib and SYSPROC changes. If you are moving from V2R4 to 3.1 make sure you made all these changes (When the PTFs for APARs OA58281 and OA58759 are applied to z/OS V2.3 or V2.4, the RMF product is restructured into the Data Gatherer and Reporter components)

Some dataset names are changed in linklist,LPA. Procedures are changed.
For all details check in detail z/OS 3.1 Upgrade Workflow

Pre-Req For z/OS 3.1
For all details check in detail z/OS 3.1 Upgrade Workflow

Clients on z/OS V2.4 or later with an RMF license or z/OS V2.5 or later with an ADG license are entitled to use the z/OS Workload Interaction Correlator at no additional charge (See Next Slide)

z/OS Workload Interaction Correlator (WIC)

z/OS Workload Interaction Correlator enables z/OS components and middleware to generate cost-effective and enriched summary data. In z/OS 3.1:

Clients on z/OS V2.4 or later with an RMF license or z/OS V2.5 or later with an ADG license are entitled to use the z/OS Workload Interaction Correlator at no additional charge.

For more information on this entitlement and to view IBM recommended best practices for proactive problem diagnosis, see this IBM Best Practice: Always Collect Correlator SMF Records flash.

z/OS Workload Interaction Correlator support for z/OS Workload Interaction Navigator Inspector enables subject matter experts to **proactively identify workload anomalies so they have an opportunity to diagnose and address these anomalies before workload impacts, critical situations, and outages occur.** Correlator enables Inspector analysis over the last 8 weeks to transform activity anomalies with context into anomaly signatures and correlate and prioritize them based on workload resilience risk.

z/OS component exploitation of z/OS Workload Interaction Correlator has been extended to include I/O Supervisor (IOS), providing clients with 5-second synchronized, micro-summary, enriched I/O data. This enhancement provides subject matter experts, using IBM z/OS Workload Interaction Navigator, the insights needed to reactively diagnose and proactively avoid I/O-related workload impacts, critical situations, and outages.

Record Provider	SMF Record Type.Subtype	Min Hardware Requirements	Min Software Requirements	License Requirements
z/OS Supervisor	98.1	None	z/OS 2.2 with APAR OA55887 z/OS 2.3 with APAR OA57165 z/OS 2.4 or 2.5 with APAR OA62268	None
CICS	98.1024	z14	z/OS 2.3 with APAR OA57165 z/OS 2.4 or above with APAR OA62268 CICS 5.4 or above with APAR PH16392	Correlator[1]
IMS	98.1025	z14	z/OS 2.3, IMS 15 with APAR PH15062	Correlator[1]
Db2	100.n*	None	Db2 v12 with APAR PH18658	None

* Indicates all SMF record subtypes

[1] Indicates an IBM z/OS Workload Interaction Correlator license is required to generate this Correlator record. With Correlator Entitlement, customers running z/OS 2.4 and above with a Resource Monitor Facility (RMF) license or z/OS 2.5 with an Advanced Data Gatherer (ADG) license are entitled to a Correlator license at no additional cost. Otherwise, customers must purchase a separate Correlator license to generate this Correlator record.

Collect SMF 98 records

New Best Practice

Remove RMF Postprocessor XML Toolkit from Workstation

Pre-Req For z/OS 3.1
Remove RMF Postprocessor XML Toolkit from Workstation and use RMF Data Portal Postprocessor facility

The RMF Postprocessor XML Toolkit is part of the RMF™ product. With the toolkit, you can display a downloaded RMF Postprocessor XML report in a web browser locally without network access.
Due to new browser security standards, it is no longer acceptable to load JavaScript files from a local disk using a web browser. As a result, the RMF Postprocessor XML Toolkit is no longer usable.

As an alternative, IBM recommends that you **use the RMF Data Portal Postprocessor facility,** which provides similar functions as the RMF Postprocessor XML Toolkit.

If you use the RMF Postprocessor XML Toolkit, uninstall it from your workstation. It is installed on Windows as an MSI package of XML, JavaScript, and HTML files. It is installed into program group IBM RMF Performance Management.

Evaluate the meaning of OSPROTECT=SYSTEM

Changed with z/OS 3.1 - Action required if you need the old default behavior of OSPROTECT=SYSTEM.

z/OS provides controls that are intended to help to prevent unauthorized programs and users from being able to access restricted data using conventional means. Malicious or compromised unauthorized programs and users might use a security exploit to attempt to circumvent these controls and access restricted data. Introduced with APAR OA54807 for z/OS V2R3, the OSPROTECT system parameter specifies the operating system protection mode for unauthorized programs and users. In previous releases, either of two settings were possible for OSPROTECT:

- OSPROTECT=SYSTEM. Activates the default protection mode, which is intended to help prevent unauthorized programs and users from accessing restricted data using conventional means. OSPROTECT=SYSTEM is the default.

- OSPROTECT=1. Activates protection mode 1, which is intended to help prevent unauthorized programs and users from being able to indirectly read restricted data. This mode also includes the default protection mode level of protection

IBM recommends that you activate the stronger protection mode by using OSPROTECT=1.

In **z/OS 3.1, the meaning of OSPROTECT=SYSTEM is changed**. This setting, which remains the default, is now equivalent to specifying OSPROTECT=1. With the new meaning of OSPROTECT=SYSTEM, stronger protection is in effect by default. However, the system might experience a minor impact to system performance, workload execution, or both.

In z/OS 3.1, a new value is added: OSPROTECT=MIN. If you need to obtain the pre-z/OS 3.1 functionality of OSPROTECT=SYSTEM, you can specify OSPROTECT=MIN in your active IEASYSxx member. For OSPROTECT=1, you do not need to change it.

HCD: Remove unsupported processors from your IODF

Required if you unsupported processors are still defined in your IODF. In z/OS 3.1, HCD removes support for the following processors types because they are out of service:

- IBM z114, processor type 2818 models M05 and M10
- IBM z196, processor type 2817 models M15, M32, M49, M66, and M80

Previously, in z/OS V2R5, HCD removed support for older processor types
(IBM z10 EC, BM z10 BC, IBM z9 EC, IBM z9 BC, IBM z990, IBM z890)

You **cannot build a new production IODF** or modify a work IODF if an unsupported processor type is defined in the IODF.
This restriction applies to the z/OS system used to maintain the IODF

Check your currently active IODFs to determine whether you have any saved processor configurations for these out-of-service processors
If you still have any processor configuration for one or more of the out-of-service processor types, determine whether the processor is still in use. If not, delete the configuration. Otherwise, if the processor is still in use, the system that maintains the IODF cannot be upgraded to z/OS 3.1.

Accomodate new OpenSSH 8.4p1

z/OS OpenSSH is updated to OpenSSH 8.4p1. Previously, the product was based on OpenSSH 7.6p1.
In z/OS OpenSSH V3.1, significant new features include the following:

- Support is added for FIDO/U2F key authentication, which is standardized support for user-present hardware tokens.
- z/OS OpenSSH supports these for verification only where the actual hardware token is not required, such as the following situations:
  - z/OS SSHD authentication of a remote user with a FIDO/U2F token.
  - z/OS ssh client verification of a host key, where the server has a FIDO/U2F token.

- Less-secure algorithms are either deprecated or removed as defaults:
  - Diffie-hellman-group14-sha1 is removed from the default KexAlgorithms list.
  - If ssh-keygen is used to create new OpenSSH certificates with an RSA key, the rsa-sha2-512 algorithm is used by default.
  - The ssh-rsa (sha1) key algorithm is still supported as a default key algorithm, but is deprecated. It will be removed as a default in a future release.

For a list of the z/OS OpenSSH 3.1 changes that might require upgrade actions, see Steps to take in this workflow step.

Verify the default change for SVC dump processing

The default mode for SVC dump processing is changed to **OPTIMIZE=YES** in z/OS 3.1. In previous releases, the default mode was OPTIMIZE=NO.

Prior to z/OS 3.1, if SDUMP optimization was required, it was necessary to request it explicitly by using the CHNGDUMP command. In z/OS 3.1, the default mode is changed to OPTIMIZE=YES, to improve SDUMP capture times.

When OPTIMIZE=YES is in effect, and sufficient CPUs and free real memory are available, SDUMP processing attempts to capture data using additional parallelism and advanced in-memory capture processing. Below certain levels of resource availability, or if OPTIMIZE=NO is specified, SDUMP captures the dump without using this additional parallelism.

To check your current setting for SDUMP optimization, enter the command DISPLAY D,O at the operations
If the new default OPTIMIZE=YES is acceptable, consider whether the following clean-up actions are needed:
In previous releases, if you were specifying OPTIMIZE=YES explicitly through the CHNGDUMP SET command or through the COMMNDxx parmlib member, you can safely remove these invocations.

If your COMMNDxx parmlib member is shared with systems running prior z/OS releases, evaluate whether the differing defaults are acceptable in your environment.
If you require the previous default behavior (OPTIMIZE=NO), you must now explicitly request it through the CHNGDUMP SET,SDUMP, OPTIMIZE=NO command. You can enter this command at the operations console or include it in the active COMMNDxx parmlib member for your system.

Stop using OSA DEVICE/LINK/HOME statements

As of z/OS 3.1, it is no longer possible to define Open Systems Adapter Express (OSA Express) connectivity through the following TCP/IP profile statements:

- DEVICE
- LINK
- HOME

z/OS V2R5 was the last z/OS release to support the use of these statements.

In previous releases, these statements were defined in the TCP/IP configuration file (PROFILE.TCPIP).
If you use these statements with a device type of MPCIPA and a link type of IPAQENET to define network connections for OSA devices**, you must convert the statements to equivalent INTERFACE statements.**

The INTERFACE statement improves stack configuration for IPAQENET interfaces, and some functions like multiple VLAN support require that the QDIO interface is defined with the INTERFACE statement.

If you use these statements with a device type of LCS, there is not an INTERFACE equivalent for this and, as support for LCS is also withdrawn in z/OS 3.1, you must use different connectivity to access the LAN.

Let’s Look At Quickly Steps Through z/OSMF 3.1 Upgrade Workflow

For the ones who did not analyze what is there before it will hopefully courage you to jump in z/OSMF
For the ones who used it before but not seen 3.1 yet , you might have feeling of what is there to do action now to look at it
For some of us who don’t have time yet from busy work to have a look at it.
(It is much better than a migration book or actually, seeing workflow as flat file and has automation and discovery items)

z/OS 3.1 Upgrade Workflow – z/OSMF ALL Steps

Here is how z/OS 3.1 Upgrade Workflow look like

State Filter	No. Filter	Title Filter
Complete	1	Discover z/OS features in use
Complete	2	Introducing the z/OS 3.1 Upgrade Workflow
Complete	3	Discover what APAR(PTFS)s are installed to allow for possible skipping of step(s)
Complete	4	Upgrade actions before installing z/OS 3.1
Complete	5	Upgrade actions before the first IPL of z/OS 3.1
Complete	6	Upgrade actions after the first IPL of z/OS 3.1
Ready	7	Provide feedback to IBM on your upgrade experience

Discover z/OS Features in Use NEW

See next slide

NEW

Run a JCL to create list of installed APARs, for the ones no action is required z/OSMF skips those steps

No: 2 Introducing z/OS 3.1 Upgrade Workflow

No. Filter	Title Filter
1	Discover z/OS features in use
2	Introducing the z/OS 3.1 Upgrade Workflow
2.1	About This Workflow
2.2	Typical upgrade steps
2.3	Using IBM Health Checker for z/OS for migration checking
2.4	Elements and features that do not have upgrade actions
3	Discover what APAR(PTFS)s are installed to allow for possible skipping of step(s)

Information provided in previous slides about workflows.

Gives summary information about new and changed upgrade actions for 3.1

Gives a great summary of steps from begining to end for your z/OS 3.1 upgrade project (similar to first slide in this presentation)

Gives nice information about what is there for you in z/OS HC and how you can use those for upgrade.

Gives information about elements that do not have upgrade actions

No: 4 Upgrade Actions Before Installing 3.1

- See next Slide
- BCP
- Communication Server
- DFSMS
- HCD
- JES3
- RMF
- SDSF
- Security Server
- XL C/C++
- zCX
- z/OSMF

No: 4.1 Upgrade Actions for everyone before installing z/OS 3.1

4.1	Upgrade actions for everyone before installing z/OS 3.1
4.1.1	Review PSP buckets
4.1.2	Install coexistence and fallback PTFs
4.1.3	Use zSoftCap to identify the effect of capacity changes
4.1.4	Add or change volumes to keep your z/OS root file system in a single data set
4.1.5	Update processing to include usage of new SMF record types
4.1.6	Verify that you have enough XCF groups and XCF group members

No: 4.X Upgrade Actions Before Installing 3.1

4.2	BCP actions to perform before installing z/OS 3.1
4.2.1	BCP: Ensure that the sysplex uses SSD-capable sysplex couple data sets
4.2.2	BCP: Verify the default change for system use of non-executable memory
4.2.3	BCP: Evaluate your stand-alone dump data set allocations and your IPCS processing of them
4.3	Communications Server actions to perform before installing z/OS 3.1
4.3.1	IP Services: Ensure that FTP users have access to JES mode
4.3.2	SNA and IP services: Stop using LSA and LCS devices
4.3.3	IP Services: Stop using OSA DEVICE/LINK/HOME statements
4.4	DFSMS actions to perform before installing z/OS 3.1
4.4.1	DFSMSdfp: Back up SMS control data sets
4.5	HCD actions to perform before installing z/OS 3.1
4.5.1	HCD: Remove unsupported processors from your IODF
4.6	JES3 actions to perform before installing z/OS 3.1
4.6.1	JES3: Accommodate the removal of JES3

4.7	RMF actions to perform before installing z/OS 3.1
4.7.1	RMF: Remove the Postprocessor XML Toolkit from your workstation
4.8	SDSF actions to perform before installing z/OS 3.1
4.8.1	SDSF: Remove references to the SISFMIG and SISFLINK data sets
4.9	Security Server actions to perform before installing z/OS 3.1
4.9.1	Security Server: Stop sharing RACF databases between z/OS and z/VM
4.9.2	Security Server: Determine whether IRRUT200 users require READ access to IDCAMS
4.10	XL C/C++ actions to perform before installing z/OS 3.1
4.10.1	XL C/C++: Review the z/OS XL C/C++ Compiler and Runtime Migration Guide
4.11	z/OS Container Extensions actions to perform before installing z/OS 3.1
4.11.1	zCX: Replace Vim usage with Nano in the IBM zCX CLI container
4.12	z/OS Management Facility actions to perform before installing z/OS 3.1
4.12.1	z/OSMF: Check workflow definition files for undeclared referenced entities

No: 5 Upgrade Actions **Before First IPL**

5.2	BCP actions to perform before the first IPL of z/OS 3.1
5.2.1	BCP: Verify the default change for system logger use of IBM zHyperwrite
5.2.2	BCP: Verify the default change for SVC dump processing
5.2.3	BCP: Verify the default change for non-specific tape library requests
5.2.4	BCP: Verify the default change for ALLOCxx UNIT UNITAFF
5.2.5	BCP: Evaluate the new meaning of system default OSPROTECT=SYSTEM
5.2.6	BCP: Ensure that the ASVT resides above 16M
5.2.7	BCP: WLM CPU Critical option is automatically assigned to importance 1 work
5.2.8	Update automation for z/OS HyperSwap message IOSHM0604I
5.2.9	BCP: Create IPL text
5.2.10	BCP: Reassemble the stand-alone dump program
5.3	BDT actions to perform before the first IPL of z/OS 3.1
5.3.1	BDT: Stop using the Bulk Data Transfer (BDT) File-to-File feature
5.3.2	BDT: Stop using the Bulk Data Transfer (BDT) SNA NJE feature

5.4	Communications Server actions to perform before the first IPL of z/OS 3.1
5.4.1	IP Services: Update /etc configuration files
5.4.2	IP Services: Make changes for Netstat enhancements
5.4.3	IP Services: Implement the AT-TLS server-allowed KEX curves list
5.5	Cryptographic Services actions to perform before the first IPL of z/OS 3.1
5.5.1	System SSL: Ensure that user IDs have READ access to the CSFDSG resource
5.6	DFSMS actions to perform before the first IPL of z/OS 3.1
5.6.1	DFSMS: Accommodate change to SAF checking during VSAM open of VVDS data sets
5.6.2	DFSMSdfp: Stop using z/OS Global Mirror Extended Remote Copy (XRC)
5.6.3	DFSMS: Stop using Distributed FileManager (DFM)
5.6.4	DFSMSdfp: Ensure the Language Environment runtime library is available for DLLs
5.6.5	DFSMSdfp: Update SYS1.IMAGELIB
5.6.6	DFSMSdss: Build the IPLable stand-alone DFSMSdss image

No: 5 Upgrade Actions Before First IPL

5.7	Infoprint Server actions to perform before the first IPL of z/OS 3.1
5.7.1	■ Infoprint Server: Remount the Printer Inventory and copy the customized files
5.8	JES2 actions to perform before the first IPL of z/OS 3.1
5.8.1	■ JES2: Review changes applicable to exit routines and user modifications
5.8.2	■ JES2: Ensure that programs access checkpoint data in 64-bit storage
5.9	Language Environment actions to perform before the first IPL of z/OS 3.1
5.9.1	■ Language Environment: Update the CSD based on the newest CEECCSD
5.9.2	■ Language Environment: Upgrade load modules in the LPA
5.10	SDSF actions to perform before the first IPL of z/OS 3.1
5.10.1	■ SDSF: Review and reassemble user exit routines
5.11	Security Server actions to perform before the first IPL of z/OS 3.1
5.11.1	■ Security Server: Check for duplicate class names
5.12	z/OSMF actions to perform before the first IPL of z/OS 3.1
5.12.1	■ z/OSMF: Upgrade the IBM zERT Network Analyzer

No: 5 Upgrade Actions After The First IPL

6	Upgrade actions after the first IPL of z/OS 3.1
6.1	DFSMS actions to perform after the first IPL of z/OS 3.1
6.1.1	DFSMSdfp: Run OAM DB2 BIND jobs
6.2	Infoprint Server actions to perform after the first IPL of z/OS 3.1
6.2.1	Infoprint Server: Run aopsetup
6.3	RMF actions to perform after the first IPL of z/OS 3.1
6.3.1	RMF: Use a Monitor III reporter version equal to or later than your RMF Monitor III gatherer version
6.4	SDSF actions to perform after the first IPL of z/OS 3.1
6.4.1	SDSF: Remove dependencies on the non-scrollable main panel
6.4.2	SDSF: Stop using macro-based ISFPARMS module for SDSF configuration
6.4.3	SDSF: Stop using the ISFACR tool
6.5	Security Server actions to perform after the first IPL of z/OS 3.1
6.5.1	Security Server: Update the RACF database templates
6.6	XL C/C++ actions to perform after the first IPL of z/OS 3.1
6.6.1	XL C/C++: Update programs to use the __NORETURN macro

Top Critical Items – Summary

1. Usage of z/OSMF + Installation + Getting benefit from ALL of its capabilities + z/OS 3.1 Upgrade Workflow
2. Using and getting benefit from z Solution Center, Github detailed pdfs, z/OSMF Guild Page
3. Ensure that you have SSD capabile sysplex couple dataset
4. Default Change – SVC dump processing, Non specific Tape Library Reuqests,ALLOCXX unit UNITAFF ,system logger usage of zHyperwrite
5. Update z/OS Health Checker for usefull Checks that will help you during upgrade
6. Remove unsupported processors from IODF (HCD will not allow)
7. WLM Critical option is normally assigned to IMP 1
8. Java Semeru is required
9. z/OS Program Number is changed, Entitlement need to be renewed, may take time ,plan for order a head!
10. If you are upgrading to 3.1 , you WILL continue to get new capabilities that will be developed for z/OS NEXT as Quarterly Continues Delivery!
11. Root File System is close to 4GB limit. Consider using EA format for size > 4GB
12. Updates for RMF Structural Changes + consider getting benefit of WIC which will be free for ADG /RMF customers
13. No IBM JES3 , No XRC (z/OS Global Mirror)
14. After upgrade , please do not forget to revisit, evaluate and implement new features! .
15. Get Benefit from AI-Infused Operating System !

Some More Nice To Read References

If you are SHARE member and/or attend SHARE NOLA , Here are some presentations you may check for z/OS 3.1 Upgrade

SHARE NOLA :,Gary Puchkoff - What's New in z/OS 3.1: The Big Easy Edition
SHARE NOLA : Validated Boot – Dave Surman

SHARE NOLA : Installing z/OS 3.1 Using z/OSMF Software Management - Kurt Quackenbush

SHARE NOLA : Upgrade to z/OS 3.1, Part 1: Planning – Marna Walle
SHARE NOLA : Upgrade to z/OS 3.1, Part 2: Technical Actions – Marna Walle

SHARE NOLA : What's New for z/OSMF 3.1 xiao zhen zhu, Fiona King

SHARE NOLA : z/OS 3.1 WSC z/OS Hot Topics With New z16 - Meral Temel

THANK YOU!

BACKUP SLIDES

z/OS 3.1 New Upgrade Actions (2.5 to 3.1)

- Ensure that the sysplex uses SSD-capable sysplex couple datasets
- Default change for system use of non-executable memory needs to verified
- SVC dump processing default is changed, needs to be verified
- Non-specific tape library requests default is changed and needs to be verified
- ALLOCXX UNIT UNTADD default is changed and needs to be verified
- Evaluate the meaning of OSPROTECT=SYSTEM in IEASYSXX member
- Ensure that the AVT resides above 16M
- WLM Cpu critical option is automatically assigned to IMP 1
- Update automation for z/OS HyperSwap Message IOSHM0604I
- Be aware that the SYSBCPII ctrace buffer increased to 12M
- Accommodate the z/OS 3.1 architecture level set and supported storage devices
- Use z/VM V7.1 or later to run z/OS 3.1 as a guest (if applicable)
- System SSL: Ensure that user IDs have READ access to the CSFDSG resource
- DFSMS: Stop using Distributed File Manager (DFM)
- DFSMS: Accommodate change to SAF checking during VSAM open of VVDS data sets
- DFSMSdfp: Accommodate changed system processing for catalog RC228 RSN66 erross
- DFSMSdfp: Stop using z/OS Global Mirror (XRC)

z/OS 3.1 New Upgrade Actions (2.5 to 3.1)

- IP Services: Ensure that FTP users have access to JES mode
- IP Services: Implement the AT-TLS server-allowed KEX curves list
- JES2: Ensure that program access checkpoint data in 64-bit storage
- RMF: Remove the Postprocessor XML Toolkit from your workstation
- SDSF: Stop using macro-based ISFPARMS module for SDSF configuration
- SDSF: Stop using the ISFACR tool
- SDSF: Remove references to the SISFMIG and SISFLINK data sets
- SDSF: Remove dependencies on the non-scrollable main panel
- Security Server: Stop sharing RACF databases between z/OS and z/VM
- Security Server: Determine whether IRRUT200 users require READ access to IDCAMS
- XL C/C++ Update programs to use the __NORETURN macro
- zCX: Replace Vim usage with Nano in the IBM zCS CLI container
- zCX: Prepare existing zCX workflow instances for z/OS 3.1
- z/OSMF: Check workflow definition files for undecleared reference entities

z/OS 3.1 Changed Upgrade Actions in Workflow (2.5 to 3.1)

- Update your customization for modified IBM Health Checker for z/OS checks
- Remove deleted data sets, paths, and references
- Add references to new data sets and paths
- Migrate /etc, /global, and /var system control files
- Review PSP buckets
- Install coexistence and fallback PTFs
- BCP: Verify the default change for system logger use of IBM zHyperwrite
- SNA and IP services: Stop using LSA and LCS devices
- SNA services: Stop using the VTAM Common Management Information Protocol
- IP Services: Stop using OSA DEVICE/LINK/HOME statements
- IP Services: Make changes for Netstat enhancements
- HCD: Remove unsupported processors from your IODF
- JES2: Ensure that programs access checkpoint data in 64-bit storage
- JES3: Accommodate the removal of JES3
- RMF: Determine updates for RMF structural changes
- Security Server: Update the RACF database templates
- z/OSMF: Upgrade the IBM zERT Network Analyzer

Upgrade Actions Before First IPL

Starting in z/OS 3.1, the system uses non-executable storage for passing parameters to a program. (Required-IF for z/OS 3.1)
Required if you need executable storage for parameters or parameter lists

In previous releases, the system obtained the parameter area from executable storage. This change applies to parameters that are passed to a program through either of the following methods:

- Parameters passed through the PARM keyword or the PARMDD keyword on the EXEC statement.
- Parameter list that is passed by the system, by default, when PARM and PARMDD are omitted from the EXEC statement.

It is possible to override this change by specifying the following option in the DIAGxx parmlib member: (not recommended)

CBATTR EXECUTABLE(JCLPARM).

- Programs that are invoked from JCL and require the passed parameter area to be executable might receive ABEND0C4 errors.
- Parameter lists that are passed by the system, by default, when PARM and PARMDD are omitted from the EXEC statement.
- Programs that use the CHKPT macro might receive return code 08, reason code 117, from the CHKPT macro.

If you have programs that are invoked from JCL and require the passed parameter area to be executable, modify the programs to remove this requirement. (ACTION)
If you have programs that use the CHKPT macro, ensure that the programs can tolerate return code 08, reason code 117. Either change the programs to tolerate this return and reason code or change the programs to remove the use of the CHKPT macro. (ACTION)

The following options in parmlib member DIAGxx can be used to enable or disable the function:

- CBATTR EXECUTABLE(JCLPARM). This option causes the system to obtain the parameter list storage using the EXECUTABLE=YES option.
- CBATTR NONEXECUTABLE(JCLPARM). This option causes the system to obtain the parameter list storage using the EXECUTABLE=NO option.

The DIAGxx options enable or disable the behavior on a system-wide basis. It is not possible to make programspecific exceptions for these settings. Though not recommended, you might consider using the CBATTR EXECUTABLE(JCLPARM) specification in DIAGxx as a temporary workaround until the affected programs can be updated.

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