Migrating to z/OS V2.2 Part 2: Migration Actions

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Trademarks

IBM

- **Scope of presentation**
- **Definition of a "migration action"**
- **Overview of migration actions for z/OS V2R2 from z/OS V2R1 or R13:**
  - ❖ General Migration Actions
  - ❖ BCP
  - ❖ Communications Server
  - ❖ DFSMS and ICKDSF
  - ❖ Distributed File Service – SMB and zFS
  - ❖ For FIPS 140
  - ❖ JES2
  - ❖ JES3
  - ❖ z/OSMF
  - ❖ z/OS OpenSSH
  - ❖ z/OS UNIX
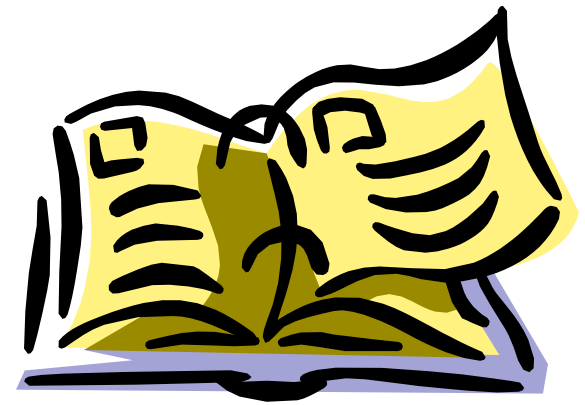
Scope of Presentation

- **This presentation is applicable to z/OS V2R2 migrations from either z/OS V2R1 or R13.**

- **Not fully inclusive of all migration actions, but rather gives you an overview of migration actions that are:**
    - Very important to understand
    - May be common to many users

- **Remember: Use the *z/OS V2R2 Migration* book for a complete list of all migration actions.**
    - **The latest level is GA32-0889-07.**
    - **The format of the *z/OS Migration* book that is targeted to your specific migration path:**
        - Chapter 1: Introduction   *for all users*
        - Chapter 2: General migration actions   *for all users*
        - Chapter 3: Migration from z/OS V2R1   *for V2R1 -> V2.2 users*
        - Chapter 4: Migration from z/OS R13   *for R13 -> V2.2 users*

Pick one!

4

Ye Olde Definition of "Migration Action":
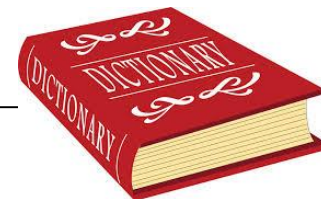
- **Upgrading to a new z/OS release is a two step process:**
  1. **Migration:** the installation of a new version or release of a program to replace an earlier version or release.
  2. **Exploitation:** usage of new enhancements available in the new release. Not covered in this presentation.

- **After a successful migration, the applications and resources on the new system function the same way they did on the old system, if possible.**

- **Migration actions are classified as:**
  - **Required**: required for all users
  - **Required-IF**: only required in certain cases
  - **Recommended**: good to do because it 1) may be required in the future, 2) resolves performance or usability problem 3) improves migration workload.
- **Migration actions are also classified as when they may be performed:**
  - **NOW, Pre-First IPL, or Post-First IPL**

5

Means "don't overlook!"   **Means some programmatic assistance is available**   **Means a cleanup action**

Elements with Migration Actions for z/OS V2R2

These elements have <u>new V2R2</u> migration actions:

- BCP
- BookManager Build
- CIM
- Communications Server
- Crypto Services – ICSF, SSL, PKI
- DFSMS
- DFSORT
- Distributed File Service – SMB
- HCD
- HLASM
- IBM HTTP Server
- IBM Tivoli Directory Server
- z/OS Management Facility

- ICKDSF
- Infoprint Server
- JES2
- JES3
- Language Environment
- Library Server
- RMF
- SDSF
- Security Server (RACF)
- XL C/C++
- z/OS Font Collection
- z/OS OpenSSH
- z/OS UNIX

> *means that some of that element's migration actions are discussed in these two presentations*

- *means that you need to look for that element's migration actions in the z/OS V2R2 Migration book*

General Migration Actions for z/OS V2R2

- **Migration Actions Pre-First IPL:**

  - **Accommodate new address spaces (Recommended)**
    - New in V2R2: **IBM HTTP Server Powered by Apache** (covered in Part 1)
    - **IBM Knowledge Center for z/OS**, is an address space that is an instance of the WebSphere Liberty Profile from z/OSMF.
    - **z/OSMF,** in address spaces IZUANG1 and IZUSVR1.

    - New in V2R1: **PCIE** (PCI Express) **and FPGHWAM** (HW Accelerator Mgr). Started automatically as of zEC12/zBC12 (regardless if zEDC or RoCE facilities are installed). They are persistent, and require no security customization. Expect either:
      - `IQP002I PCIE INITIALIZATION COMPLETE`, or
      - `IQP031I REQUESTED SERVICE IS UNSUPPORTED BY HARDWARE`
    - **IBM Health Checker for z/OS** and Generic Tracker, **GTZ**, (see later slides)
    - JES2 Converter/Interpreter **jesxCInn**, where jesx is the subsystem name, and nn is 01-25 for uniqueness. They are persistent, and used for interpretation process during conversion phase *only when* INTERPRET=JES is specified on JOBDEF. Default number of AS is 2, max is 25. Proper userid must be assigned to each AS, using started proc tables (ICHRIN03) or a STARTED class profile has been defined to match AS names.
    - **SDSFAUX**. SDSF APAR PI43902 (also applicable to z/OS V2R2) introduces a new optional address space for SDSF. SDSFAUX supplies several new panels and new commands to retrieve system information.

General Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

- **Remove references to deleted syslib data sets and paths (Required)**
  - Removed in V2R2: **BookManager BUILD**'s EOY.*, **IBM HTTP Server Powered by Domino**'s IMW.* and /usr/lpp/internet/, **SDSF**'s ISF.AISFMOD1, ISF.AISFSRC1, and ISF.AISFJCL1, **PKI**'s /usr/lpp/pkiserv/samples/ihs7.
  - Removed in V2R1:   ICLI's SYS1.FOMDATA and paths

- **Add references to new syslib data sets and paths (Required)**
  - New in V2R2: 8 **XL C/C++**'s CBC.* data sets, 5 **IBM HTTP Server Powered by Apache**'s HAP.* data sets and path /usr/lpp/ihsa_zos/IBM, 1 **z/OSMF** dlib IZU.AIZUFS and path /usr/lpp/zosmf/IBM, and **KC** dlib HKC.AHKCKC4Z and path /usr/lpp/kc4z/IBM
  - New in V2R1: **z/OS Font Collection** data sets (from Part 1), path /usr/lpp/booksrv/plugins/IBM for **Library Server**, /path /usr/lpp/hzc/include/IBM and /usr/lpp/hzc/lib/IBM for **zEDC**.

- **Update your health check customization for modified checks (Recom)**
  - New in V2R2: 17 checks. V2R1: 27 checks
  - Changed in V2R2: 10 checks   V2R1: 11 checks (incl.RACF_SENSITIVE_RESOURCES in both V2R2 and V2R1)
  - Deleted in V2R2: 6 checks   V2R1: 2 checks

8

BCP Migration Actions for z/OS V2R2

Migration Actions Before Installing:

- **Use LOGR Couple Data Set at format level HBB7705 (Recommended)**
  - Recommended to use the highest LOGR CDS supported by the lowest system in your sysplex.
    - This allows the latest System Logger features to be available.
  - The highest level, HBB7705, was introduced in z/OS V1R2 (in 2001).
  - Use `D XCF,C,TYPE=LOGR` to see your LOGR CDS level.
    - Should see:
      ```
      … ADDITIONAL INFORMATION:
      LOGR COUPLE DATA SET FORMAT LEVEL: HBB7705 …
      ```
  - Pre-V2R2, specify `ITEM NAME(SMDUPLEX) NUMBER(1)` to format at HBB7705 level.

Migration Actions After IPLing:

- **Plan for new default LOGR CDS format level of HBB7705 in IXCL1DSU utility (Required-IF, as of V2R2)**
  - As of V2R2, there is a new default NUMBER() value for the SMDUPLEX item when formatting a LOGR CDS.
    - `NUMBER(1)` is the default, and results in an HBB7705-level CDS.

BCP Migration Actions for z/OS V2R2

Migration Actions Before First IPL:

- **Format the ARM Couple Data Set (Required-IF, as of V2R2)**
  - As of V2R2, if you want to use ARM functions, you must reformat the ARM CDS to the V2R2 level (HBB77A0).
    - Otherwise, V2R2 systems can join the sysplex, but are not ARM-capable

  - Use `D XCF,C,TYPE=ARM` to see your ARM CDS level.
    - Should see:

      ```
      ... ADDITIONAL INFORMATION
          FORMAT DATA
            VERSION 1, HBB77A0 SYMBOL TABLE SUPPORT
          ...
      ```

      With APAR
      OA46977
      (IBM.Coexistence.z/OS.V2R2)

  - You must use the V2R2 level of IXCL1DSU format utility.
    - Either from a V2R2 system, or STEPLIB to V2R2 MIGLIB.

BCP Migration Actions for z/OS V2R2

Migration Actions Before First IPL:

- **Plan for HWIREXX helper program restriction for z/OS BCPii (Required-IF, as of V2R1 APAR OA45932)**
  - As of OA45932 (RSU1411), the BCPii helper program HWIREXX requires READ authority to the `FACILIITY` class resource `HWI.HWIREXX.execname`.
    - HWIREXX provides the capability to easily run BCPii API calls from basic REXX execs, without the need to code an assembler program with an AXREXX macro invocation.
  - Otherwise, expect HWIREXX return code 112 (decimal).

- **Ensure PARMDD and REGIONX are not used as job statement symbols (Required-IF, as of V2R1 and V2R2)**
  - As of V2R1 (for `PARMDD`), and V2R2 (for `REGIONX`), there are new keywords on the JCL EXEC statement and PROC statement.
  - You must ensure that you do not use symbols with these same names. Change to use another symbolic name, or expect a JCL error.
    - Meaning, no `PARMDD` or `REGIONX` on the EXEC or PROC statement as symbols.
    - E.g. `//PROC1 PROC PARMDD=ABC, //JSTEP1 EXEC PROC1,REGIONX=ABC,` or `//STEP1 EXEC PGM=MYPROG,PARM=' &PARMDD'`

11

BCP Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

- **Convert your existing IBM Health Checker for z/OS set-up for automatic start-up (Required IF, as of V2R1)**
  - As of z/OS V2R1, Health Checker starts automatically at IPL!
  - First time user: follow steps in *IBM Health Checker for z/OS User's Guide.* (You may want to set all checks' WTOTYPE to HARDCOPY.)
  - Existing user:
    - Make sure your proc can be found at IPL (default HZSPROC), or specify the name in IEASYSxx HZSPROC=.
    - Remove any existing START HZSPROC (perhaps in COMMNDxx).
      - System rejects subsequent attempts to start Health Checker.
    - Recommended to specify your HZSPRMxx members in IEASYSxx HZS=(aa,bb,....) and use HZSPRM='PREV' on HZSPROC for easy restarts. HZSPROC HZSPRM='aa,bb,…' is still supported.
    - Optionally specify HZSPDATA(dsn) in HZSPRMxx.
  - Of course, WARNUND in IEASYSxx is supported for sharing.

BCP Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

- **Move from the console tracking facility to the Generic Tracker (Required IF, as of V2R1)**

  - As of z/OS V2R1, Generic Tracker facility (GTZ) replaces the console tracking facility. Lots of enhancements in the Generic Tracker!
  - Existing users of CNZTRKR service do not need to change.
  - GTZ will auto-start and initialize at IPL;

    ```
    GTZ0105I GENERIC TRACKER IPL-TIME INITIALIZATION STARTING
    GTZ0106I GENERIC TRACKER IPL-TIME INITIALIZATION COMPLETE
    GTZ0001I GENERIC TRACKER INITIALIZATION STARTING
    GTZ0002I GENERIC TRACKER INITIALIZATION COMPLETE
    ```

  - Userid associated with GTZ needs access to read parmlib concatenation data sets.
  - Although it is started, tracking is disabled.
  - Must replace any existing controls and commands for the console tracking facility, with Generic Tracker controls and commands:
    - Support in IEASYSxx GTZ= points to GTZPRMxx members. SETGTZ and SET GTZ commands available.
    - GTZPRINT utility and GTZQUERY service available.
    - Convert CNIDTRxx to GTZPRMxx. Sample tool provided!
  - Of course, WARNUND in IEASYSxx is supported for sharing.

Communications Server Migration Actions for z/OS V2R2

- **IP Services: Verify that the changed `DHGroup` default is acceptable (Required-IF, as of V2R1 and V2R2, both with APAR PI43832; R13 with APAR PI43833)**
  - As of the APAR, the default value for the `DHGroup` parameter on the `KeyExchangeOffer` statement in the IPSec policy is changed from `Group1` to `Group2`.
    - `DHGroup`: Specifies the Diffie-Hellman group used during the phase 1 key exchange.
    - `Group1`: Modular exponentiation group with a 768-bit modulus. (It is considered weak and is not recommended.)
    - `Group2`: Modular exponentiation group with a 1024-bit modulus.
  - z/OSMF Config Assistant-generated IPSec policies specify a value and do not default.
  - Coordinate with the owners of each remote IKE peer that is associated with the z/OS policy changes to ensure that the remote peer's policy is compatible with the default change.

- **IP Services: Use the new maximum segment size adjustments if required (Required IF, as of V2R2)**
  - As of V2R2, new function automatically adjusts of the Maximum Segment Size (MSS) that is used on a TCP connection to avoid fragmentation. This new function is turned on by default.
  - Use the auto-adjusting function by default, or disable the function.
    - A performance degradation can result if the MSS is not configured to avoid fragmentation.
  - If you decide to disable the function, specify the subparameter `ADJUSTDVIPAMSS NONE` on the `GLOBALCONFIG` statement. `AUTO` is the default.

15

Communications Server Migration Actions for z/OS V2R2

Migration Actions Before First IPL:

- **IP Services: Verify the new default for the QUEUEDRTT parameter (Required IF, as of V2R2)**
  - As of V2R2, there are new outbound serialization enhancements, controlled by the QUEUEDRTT parameter on the TCPCONFIG profile statement.
  - Default has changed from 20 to 0.
    - 20: only TCP/IP connections with a round-trip time (RTT) of 20 milliseconds or more are eligible to use outbound serialization.
    - 0: all connections are eligible to use outbound serialization.
  - Use new default, or update QUEUEDRTT as desired. Range is 0-50.
- **IP Services: Decide whether to accept the new FIXED CSM default (Required IF, as of V2R2)**
  - As of V2R2, communications storage manager (CSM) fixed storage for buffers is increased from 100 MB to 200 MB.
  - Use new default, or update FIXED MAX(…) in your IVTPRM00 parmlib member.
  - Use `D NET,CSM` to look at the FIXED MAXIMUM (on message IVT5538I):

```
IVT5536I TOTAL  ALL SOURCES        21376K    8040K    29416K
IVT5538I FIXED  MAXIMUM =      120M  FIXED  CURRENT =    26969K
IVT5541I FIXED  MAXIMUM USED =    27097K SINCE LAST DISPLAY CSM …
```

16

Communications Server Migration Actions for z/OS V2R2

Migration Actions Before First IPL:

- **IP Services: Check automation on IKE daemon syslogd messages (Required IF, as of V2R2)**

  - As of V2R2, all IKED messages written through syslogd contain a thread identifier, preceding the message ID. Messages from different IKED threads may be interleaved.

  - Verify automation.

  - Example at z/OS V2R1:

    ```
    Jul 28 11:39:26 mvs046 IKE: EZD1061I IKE connecting to PAGENT
    Jul 28 11:39:26 mvs046 IKE: EZD1062A IKE retrying connection to PAGENT
    Jul 28 11:39:34 mvs046 IKE: EZD0923I IKE has received the STOP command
    Jul 28 11:39:34 mvs046 IKE: Message instance 0: EZD0967I IKE release
    CS V2R1 Service Level CS130924 Created on Sep 24 2013
    ```

- Example at z/OS V2R2:

  thread ID

  ```
  Jul 28 15:10:47 mvs046 IKE: (00000001) EZD1061I IKE connecting to PAGENT
  Jul 28 15:10:47 mvs046 IKE: (00000001) EZD1062A IKE retrying connection
  to PAGENT
  Jul 28 15:11:06 mvs046 IKE: (00000003) EZD0923I IKE has received the STOP
  command
  Jul 28 15:11:06 mvs046 IKE: Message instance 0: (00000001) EZD0967I IKE
  release
  CS V2R2 Service Level CS140728 Created on Jul 28 2014
  ```

Communications Server Migration Actions for z/OS V2R2

Migration Actions You Can Do NOW:

- **IP Services: Be aware of IP Fragment IDS enhancements (Require V2R1)**

  - Prior to V2R1, When IP Fragment IDS attack type is enabled, only IPv4 traffic was monitored.

  - As of V2R1, IP Fragment attack type of the IDS will monitor both the IPv6 and IPv4 traffic for suspicious fragments. It also will check for overlays that change the data in the packet.

- **IP Services: Prepare for the additional of IPv6 support for policy-based routing (Required IF, as of V2R1)**

  - Prior to V2R1, if you are using policy-based routine on a stack running as dual-mode (IPv4 and IPv6) and didn't specify the source and destination IP address, it only applied to IPv4 packets.

  - As of V2R1,that same rule applies to both IPv4 and IPv6.

  - If you want it to continue to apply to only IPv4 packets, change the rule to have either the source or destination IP address be 0.0.0.0/0.

DFSMSdfp Migration Actions for z/OS V2R2

- **<u>Migration Actions Before Installing:</u>**

  - **Determine whether you need DISABLE(REFUCB) in parmlib member DEVSUPxx (Required-IF, as of V2R2)**
    - REFUCB allows the system to automatically update the UCB when a DSS COPY, RESTORE, or ICKDSF REFORMAT, INIT, and FLASHCPY has changed the volser or VTOC location. It applies only to volumes shared within a sysplex.
      - If the device is ONLINE, REFUCB issues a `VARY ONLINE, UNCONDITIONAL` command, which updates both the volser and VTOC location in the UCB.
      - If the device is OFFLINE, no action is taken.
    - As of V2R2, REFUCB is enabled by default.
    - A new health check, DMO_REFUCB, verifies that you are using the recommended value of `ENABLE(REFUCB)`
    - Use new default as recommended, or update as desired:
      - `DEVSUPxx` with `DISABLE(REFUCB)`, and
      - check DMO_REFUCB with `ENABLE(NO)`

ICKDSF Migration Actions for z/OS V2R2

- **Migration Before First IPL:**

  - **Accommodate new default for `INIT` and `REFORMAT` commands (Required-IF, as of PI25913)**

    - `VERIFYOFFLINE` on `INIT` and `REFORMAT` verifies device is offline before processing.
    - As of PI25913, if `UNIT` is specified on `INIT` or `REFORMAT`, -and- the storage control microcode and support is there, -and- the device is not a minidisk, `VERIFYOFFLINE` is the default (and doesn't need to be specified).
    - If the device is online during `VERIFYOFFLINE` processing, the command will terminate.
    - To prevent the verification from taking place, use `NOVERIFYOFFLINE`.

DFSMShsm Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

- **Update applications that depend on LIST command output (Required-IF, as of V2R2)**
  - As of V2R2, `LIST DUMPCLASS` command output has slightly changed:
    - New `MINSTACK` value appears, `STACK` position changes.
    - Applies to all destinations: `OUTDATASET`, `SYSOUT`, or `TERMINAL`
  - `LIST` command output is not a programming interface, but update any applications as needed for these changes.

```
CLASS=COMDUMP    UNIT=3490       REUSE=Y   RESTORE=Y   RESET=N   DISABLE=N   REQD=*   A
VAILABLE=Y
DAY=02   FREQ=000   RETPD=000006   TAPEEXPDT=*******   VTOCCOPIES=001   RECRST=YES
ZCOMP=NO
DISP=WEEKLY COMBAT DUMPS
HWCOMP=NO    ENCRYPT=NONE    ENCRYPT_TYPE=*********   ICOUNT=*****
ENC_KEY=***********************************************************
MINSTACK=001  STACK=001
ARC0140I LIST COMPLETED,       6 LINE(S) OF DATA OUTPUT
COMMAND REQUEST 00000023 SENT TO DFSMSHSM
***  _
```

DFSMShsm Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

- **Accommodate default value change for dump VTOC copies (Required-IF, as of V2R1)**
  - Prior to V2R1, the default value was 2 for `VTOCCOPIES` of the `DEFINE DUMPCLASS` command.
  - As of V2R1, the new default is 0 when hsm dumps copy pool volumes.
    - The default value of 2 remains when hsm dumps non-copy pool volumes.
  - VTOC copies are not needed in a FRBACKUP/FRRECOV environment.
  - If you want old behavior for FRBACKUP/FRRECOV environment, specify `VTOCCOPIES(2)` on DEFINE DUMPCLASS for each dump class used to dump copy pool volumes.

22

DFSMSdss Migration Actions for z/OS V2R2

- **<u>Migration Actions Post-First IPL:</u>**

  - **Accommodate new default behavior for full-volume and track restore operations (Required-IF, as of V2R1)**

    - The data-set-changed indicator (DS1DSCHA) in the VTOC indicates whether or not the data set has changed since its last backup. Before V2R1:

      - During <u>full-volume</u> restore, dss unconditionally turned off DS1DSCHA for each ds restored to the target volume.

      - During a <u>tracks</u> restore, if any of the VTOC track was restored, DS1DSCHA might be turned off for all ds on the volume.

    - Based on numerous requirements, as of V2R1, the default has changed. Now, dss turns off DS1DSCHA only if the RESET keyword was specified on the DUMP.

      - Also, a RESET keyword is added to the RESTORE FULL and RESTORE TRACKS commands, to specify whether DS1DSCHA is to be reset (turned off).

If you use FIPS 140, these migration actions may be applicable to you:

- **IP Services: Ensure ICSF is active before starting the NSS daemon in FIPS 140 mode** **(V2R1)**
- **IP Services: Ensure ICSF is active before starting the IKE daemon in FIPS 140 mode** **(V2R1)**
- **IP Services: Ensure ICSF is active before starting the Policy Agent when AT-TLS groups are configured in FIPS 140 mode** **(V2R1)**
- **System SSL: Ensure ICSF is available when running System SSL in FIPS 140-2 mode** **(V2R1)**

Something in common: **As of z/OS V2R1, FIPS 140 support now requires ICSF services.**

DFS Migration Actions for z/OS V2R2
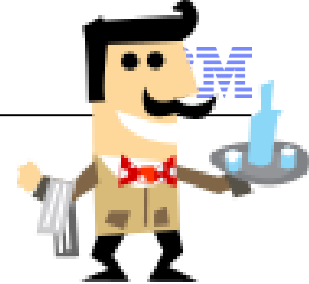
Migration Actions you can do NOW:

- **SMB: Add `_BPX_UNUSEDTASKS=KEEP` to the DFSCNTL environment file (Required-IF, as of V2R2, before with OA39909)**

  - Before V2R2 and OA39909, SMB users did not have to specify that medium weight threads were to be kept.

  - With V2R2 and OA39909, SMB users must keep the original threading behavior by setting the `_BPX_UNUSEDTASKS=KEEP` environment variable.

  - Add this value to the SMB DFSCNTL environment file
    - Usually found in `/opt/dfslocal/home/dfscntl/envar`

  - You can stop and restart SMB to pick up this change
    - Ensure you use `C DFS` (not `STOP DFS`) and then `S DFS`

  - Failure to do this means SMB server will not start
    ```
    DFSKERN S069 422 SA03
    BPXP023I IOEP01100I
    IOEP01123A RESTART SIGKILL
                  or
    SYSTEM ABEND S069 - REASON CODE 04
    ```
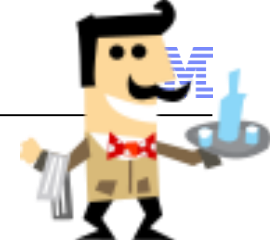
Migration actions new for zFS in V2R2 ?

- **None! Thank you zFS team!**

- **zFS does have many excellent *exploitation* items in V2R2, which do <u>not</u> cause any migration actions:**
  - Providing support for 64-bit addressing (AMODE64)
  - With 64-bit support, some caches now support a larger value range
  - Improved monitoring of zFS performance
  - `fsinfo query` command (with `-exceptions` keyword!)
  - zFS can be run in the OMVS address space
  - The IOEFSPRM configuration options file has new options
  - …

26

Migration Actions you can do NOW:

- **zFS: Determine whether to accept the new default values for certain zFS variables (Required-IF, as of V2R1)**

  - As of z/OS V2R1, IOEPRMxx parmlib member variables `meta_cache_size`, `metaback_cache_size`, `user_cache_size`, (for better performing caches) or `convert_auditfid` have new defaults.
    - If `meta_cache_size` and `metaback_cache_size` are not specified, it is typically 10% of the real storage available during zFS initialization*, ***
    - If `user_cache_size` is not specified, it is typically 10% of real storage available during zFS initialization**, ***
    - If `convert_auditfid` is not specified, the default is on. so that all files and directories in zFS file systems can be uniquely identified in SMF audit records.

*See *zFS Admin* book for calculations when real is <64M, 64M-100M, 100M-(200G+100M), and >200G+100M.

**See *zFS Admin* book for calculations when <256M, 256M-2G, and >2G.

***Use health check for specific calculations to help know what the default values will be pre-V2R1.

JES2 Migration Actions for z/OS V2R2

Migration Actions you MUST do NOW:

- **Activate z11 mode (Required in z/OS V2R2)**
  - Determine your z11 checkpoint activation readiness with the $D ACTIVATE command. This command indicates if activation to z11 mode will succeed.
    - Activation of LARGEDS support is required.
  - Run the JES2 $ACTIVATE command to activate z11 mode following the considerations for this command found in *z/OS JES2 Commands*.
  - After V2R2, you may **not** fallback to z2 mode.

Migration Actions Before First IPL:

- **Review changes applicable to JES2 exits (Required)**
  - Review the z/OS JES2 Installation Exits book (section "JES2 exit migration considerations") for changes that may impact you.
  - Generally, assembly errors in JES2 exits indicate that you were affected by a JES2 data area change.

JES3 Migration Actions for z/OS V2R2

Migration Actions Pre-First IPL:

Be aware JES3 honors the DSI setting in SCHEDxx (Required-IF, as of V2R2)

- Before V2R2, if you specified Data Set Integrity (DSI) for IATINTK and IATINTKF in SCHEDxx, ENQs occurred only for batch allocations of JES3 data sets in the JES3 proc with DD statements.

- As of V2R2 in the same situation, JES3 will *additionally* obtain ENQs for all dynamic allocations of JES3 data sets.

- Recommended to specify DSI for IATINTK and IATINTKF in SCHEDxx.
  - To prevent accidental damage to your ds due to lack of ENQ.
  - New health check will verify setting.
  - IEFSDPPT still has coded NODSI for IATINTK and IATINTKF.

- If you have set DSI in SCHEDxx, note the new ENQs:
  - ENQs might have unintended consequences.

- Any DD allocations in your JES3 proc (if any), should have DISP=SHR. Not DISP=OLD.

- Verify use of unique spool data set names.

z/OSMF Migration Actions for z/OS V2R2

Migration Actions After First IPL:

- **Migrate to the new release of z/OSMF (Required, as of V2R2)**

    - If you were a previous z/OSMF user, you can run the script `izumigrate.sh` to create a customized IZUPRMxx parmlib member from your current settings.
        - IZUPRMxx replaces the interactive scripts you used previously to configure z/OSMF.
    - If you want to start using z/OSMF, follow the *z/OSMF Configuration Guide.*
        - Summary is: 1) security set up 2) create a USERDIR file system (`/var/zosmf/`) and IZUPRMxx, 3) start z/OSMF server.
    - Use ServerPac full-system replace jobs and doc to create an initial instance of z/OSMF. Then add the plug-ins following the *z/OSMF Configuration Guide.*
    - ServerPac software-only and CBPDO users follow the *z/OSMF Configuration Guide* and samples.

- **Recreate all table filters in the z/OSMF user interface (Required-IF, as of V2R2)**

    - Before V2R2, table filters were saved and reused for subsequent table views.
    - As of V2R2, z/OSMF has a more modern interface consistent with other IBM products. This interface doesn't support the filters that were previously saved.
    - Recreate the filters you set in previous z/OSMF releases.

30

Security Server Migration Actions for z/OS V2R2

<u>Migration Actions Before Installing:</u>

- **Accommodate the removal of generated default passwords on RACF commands (Required, as of V2R2)**

    - `ADDUSER` defaults to `PROTECTED` when no password or phrase is specified.

    - `ADDUSER`, `ALTUSER`, and `PASSWORD` no longer set a default password for the target user ID. In previous releases, these commands used the user's default group name as the password by default.

    - All RACF commands and related mechanisms that previously generated a default password are now ignored.

Infoprint Server Migration Actions for z/OS V2R2

<u>Migration Actions Before First IPL:</u>

- **Discontinue use of some daemons (Required-IF, as of V2R2)**

    - As of V2.2, the following daemons are no longer provided: **aophinvd** (historical inventory), **aoplogd** (common message log), **aopsdbd** (search database).
    - All these functions are now provided by the aopd daemon.
    - No steps to update your Infoprint Server, however automation products that monitor the removed daemons might need updating.

# z/OS OpenSSH Migration Actions for z/OS V2R2

Migration Actions After First IPL:

- **Accommodate the OpenSSH ported level (Required-IF, as of V2R2)**

  - If you were a previous Ported Tools OpenSSH user (5.0p1), use the z/OS OpenSSH level (6.4p1).

  - Several differences in the ported levels, which may cause migration actions. Some are:

    - `ssh-rand-helper` command: not supported. OpenSSH requires a working `/dev/random` device, which requires that ICSF is configured to support `/dev/random/`.

    - `sftp -P` option: previously it specified a path, now it specifies a port. Use `-D` to specify the `sftp_server_path`.

    - `sftp ln` and `symlink` subcommands: previously, they created a symbolic link from *oldpath* to *newpath* on the remote host. Now, if `-s` is specified, it is a symbolic link. Otherwise it is a hard link.

    - `sshd_config` file `RhostsAuthentication` keyword: Previously supported for protocol Version 1. Now, not supported for protocol Version 1. Update the application.

   - Read of all changes in the *z/OS V2.2 Migration* book.

z/OS UNIX Migration Actions for z/OS V2R2
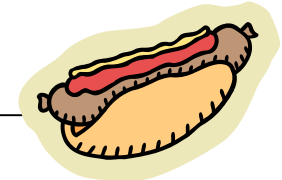
Migration Actions Pre-First IPL:

- **Remove files and directories in /var/man (Required-IF, as of V2R2)**

  - Before V2R2, /var/man was used by the `man` command.

  - As of V2R2, `man` no longer uses this directory. Instead, it uses /tmp on a per-user basis.

  - Remove /var/man and all subdirectories and files from your V2R2 system.

  - Because /tmp is used for caching man pages for each user, it might increase the size of your /tmp directory depending on the `man` command usage on the system.

    - Monitor the /tmp space usage to ensure adequate space for users.

33

z/OS UNIX Migration Actions for z/OS V2R2
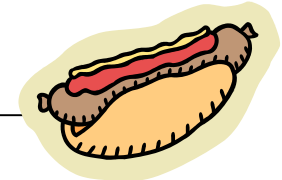
Migration Actions You Can Do Now:

Accommodate the new Shell and Utilities version of the zlsof utility (Required-IF, as of V2R1)

- As of V2R1, the z/OS UNIX Tools and Toy utility zlsof is incorporated. It differs from the Tools and Toy version in several ways. (zlsof lists users or processes using files or files systems, and lists files or file systems in use by users or processes.)
- If you use the Tools and Toy version, then decide if you want to continue to use it.
- z/OS' zlsof installs into /bin. Make sure that does not interfere if you wish to continue to keep your Tools and Toy zlsof.

Migration Actions Pre-First IPL:

Update applications that use SMF type 92 subtype 11 close records (Required-IF, as of V2R1)

- Before V2R1, SMF type 92, subtype 11 close records were written when sockets or char special records were closed. They have a very high close rate and do not provide useful information to determine how often files and directories are used.
- As of V2R1, they are written as subtype 16 close records instead, and will not appear in type 92 subtype 11.
- If you want to process this information, you need to include type 92 subtype 16 records in SMFPRMxx to collect them.

34

Marna's "Big Migs" for Migrating from V2R1 to V2R2
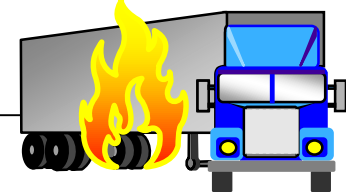
Migration actions as of V2R2 you should not overlook:

1. **HTTP Server: Move from Domino to Apache**

2. **BCP: Format the ARM Couple Data Set for long symbol name support**

3. **DFS SMB: Add `_BPX_UNUSEDTASKS=KEEP` to the DFSCNTL environment file**

4. **JES2: Activate z11 mode**

5. **z/OS OpenSSH: Accommodate the OpenSSH ported level**

6. **JES3: Be aware JES3 honors the DSI setting in SCHEDxx**

35

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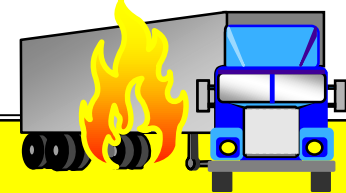
Migration actions from the prior slide, plus…

Migration actions in V2R1 you should not overlook:

1. **RACF: Remove BPX.DEFAULT.USER**

2. **HTTP Server: Move from Domino to Apache (Recommended)**

3. **BCP: Convert your existing IBM Health Checker for z/OS set-up for automatic start-up**

4. **zFS: Determine whether to accept the new default values for certain zFS variables**

5. **FIPS 140 Users: Must use ICSF (5 migration actions)**

6. **DFS: Determine whether to accept the new default values for certain zFS variables in the zFS IOEFSPRM configuration file**

Migrating to z/OS V2.2: Part 2 of 2 Summary

- **General Migration Actions:**
  - New address spaces, new and old data sets, changed checks.

- **BCP Migration Actions:**
  - LOGR CDS at HBB7705, NUMBER(1) default for SMDUPLEX for LOGR CDS, HWIBCPII needs READ authority, PARMDD and REGIONX on JCL EXEC and PROC.

- **Communications Server Migration Actions:**
  - DHGROUP default change, automatic maximum segment size adjustments, new QUEUERTT default, fixed CSM default of 200M, IKE daemon syslogd messages,

- **DFSMS Migration Actions:**
  - REFUCB is enabled, LIST DUMPCLASS output.

- **ICKDSF Migration Actions:**
  - VERIFYOFFLINE default for INIT and REFORMAT.

- **JES2 Migration Actions:**
  - Review applicable JES2 exit changes.

- **z/OSMF Migration Actions:**
  - Migrate configuration, recreate table filters.

- **Security Server:** Removal of generated default passwords

- **Infoprint Server:** Update automation for discontinued daemons

- **z/OS UNIX Migration Actions:**
  - /var/man removals.