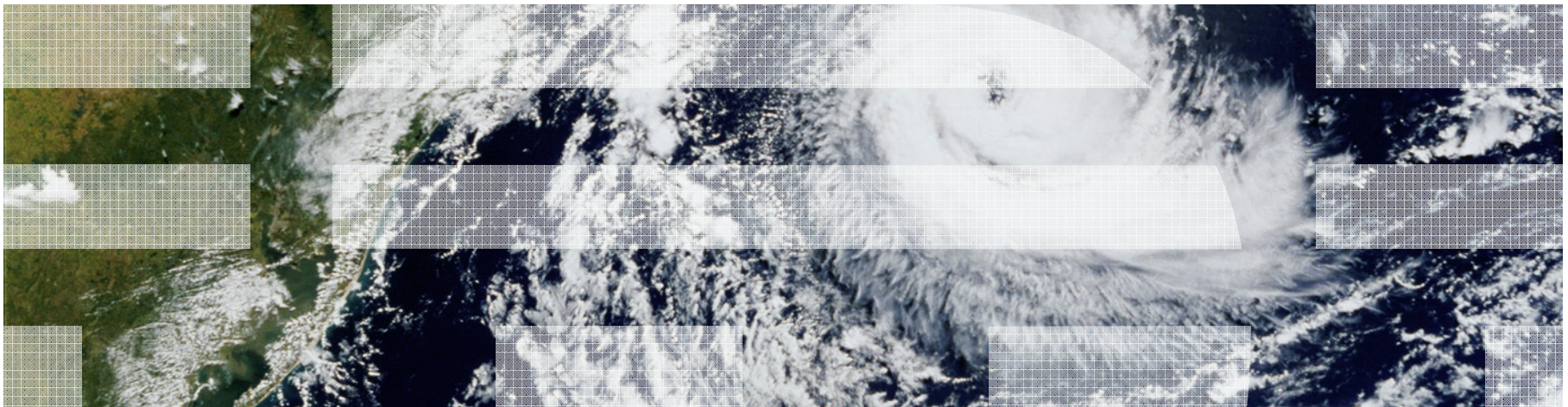


# z/VSE Base Installation

## Step by Step



Ingo Franzki



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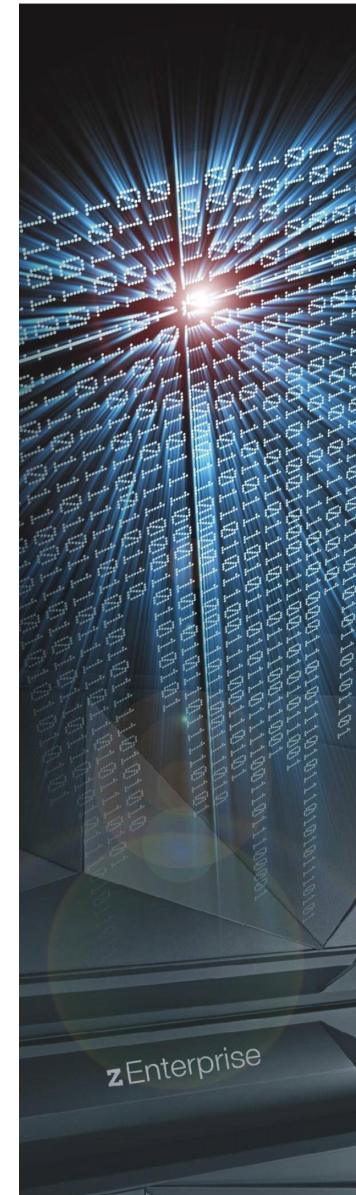
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- No other workload processing is authorized for execution on an SE.
- IBM offers SEs at a lower price than General Processors/Central Processors because customers are authorized to use SEs only to process certain types and/or amounts of workloads as specified by IBM in the AUT.

## Agenda

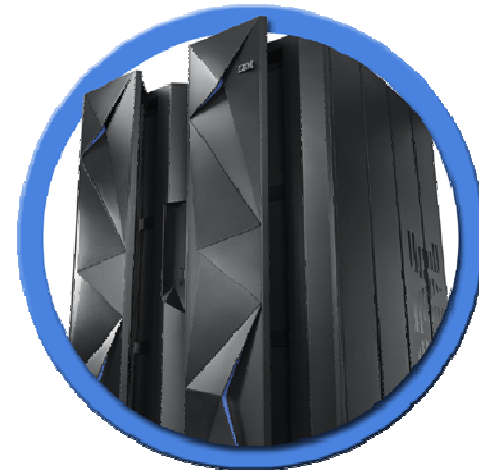
- **Overview**
- **Status information**
  - z/VSE, z/VM
  - Server & storage support
- **Ordering products and service**
  - How to apply electronic PTFs
- **Migration tasks**
  - Planning
  - Fast Service Upgrade (FSU)
  - Initial Installation
  - Post migration tasks
- **Data migration after upgrade**
- **Service recommendation**



## Overview

### ▪ Hardware Migration

- New System z box
- Add more capacity (processors, capacity setting)  
IBM = Install Bigger Machine ☺
- New disks, tapes, cards, etc
- Move to a new datacenter



### ▪ Software Migration

- New z/VSE release or version
- New z/VM release or version
- New (homegrown or purchased) Application
- Add new or additional workload
- Update the service level (apply PTFs)





## z/VSE & z/VM Release Status

→z/VSE: <http://www.ibm.com/systems/z/os/zvse/about/status.html#vse>

### Supported z/VSE releases

Version.Release	Date available	Withdrawal from Marketing effective (1)	Withdrawal from Service effective	Minimum z/VM level (2)
→ <a href="#">z/VSE V6.2</a>	4Q2017 <a href="#">Preview</a>	TBD	TBD	z/VM V5.4
→ <a href="#">z/VSE V6.1</a>	11/27/2015 <a href="#">Announcement</a>	TBD	TBD	z/VM V5.4
→ <a href="#">z/VSE V5.2</a>	04/25/2014 <a href="#">Announcement</a>	03/13/2017 <a href="#">Announcement</a>	10/31/2018 <a href="#">Announcement</a>	z/VM V5.4



**Note:** z/VSE V6.1 requires an initial installation. To ease the migration to z/VSE V6.1, z/VSE V5.2 will still be orderable after general availability of z/VSE V6.1 for a transition period.

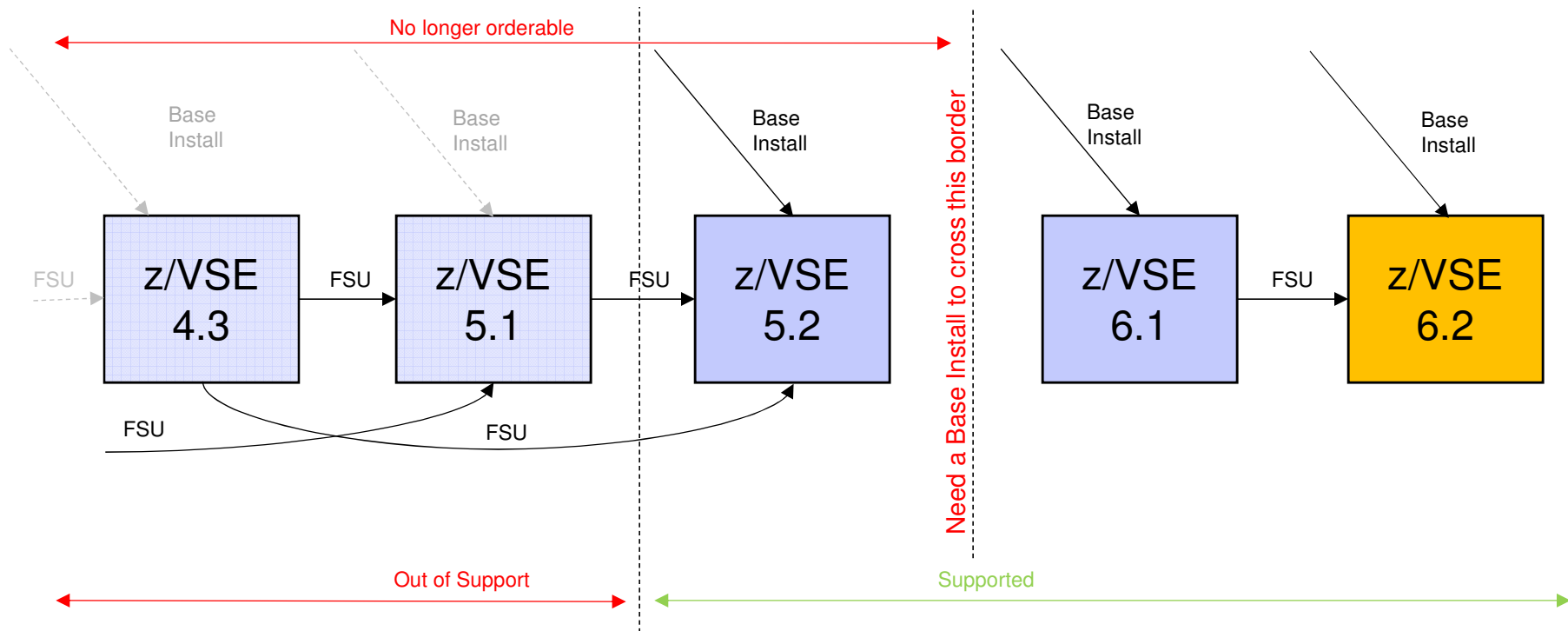
→z/VM: <http://www.vm.ibm.com/techinfo/lpmigr/vmleos.html>

VM End of Service Effective Dates (mm/dd/yyyy)				
z/VM Product	Release	EOS (mm/dd/yyyy)	GA Date	EOS Announced (mm/yyyy)
z/VM (5741-A07)	V6.4.0	TBD	11/11/2016	TBD
z/VM (5741-A07)	V6.3.0	12/31/2017	07/26/2013	02/03/2015
z/VM (5741-A07)	V6.2.0	06/30/2017	12/02/2011	Revised on February 2, 2016
z/VM (5741-A05)	V5.4.0	12/31/2017 (no longer tied to the EOS for the IBM z9)	09/12/2008	Revised on August 2, 2016. (Prior to this announcement EOS was 12/31/2016, or until the z9 EC and z9 BC were withdrawn from support, whichever was later.



# Migrating to a supported z/VSE Release

- z/VSE 6.1 requires a Base Install
  - No Fast Service Upgrade (FSU) possible
- FSU from z/VSE 6.1 to z/VSE 6.2 is possible
  - No FSU possible from z/VSE V5 or earlier
- FSU usually allows to 'jump' 2 releases



# z/VSE Server Support

→ <http://www.ibm.com/systems/z/os/zvse/about/status.html#server>

z/VSE server support		
IBM z Systems, IBM System z, zSeries and S/390 Server	z/VSE V6.1	z/VSE V5.2
IBM z13s (1,4)	Yes	Yes
IBM z13 (1,4)	Yes	Yes
IBM zEnterprise BC12 (1)	Yes	Yes
IBM zEnterprise EC12 (1)	Yes	Yes
IBM zEnterprise 114	Yes	Yes
IBM zEnterprise 196	Yes	Yes
IBM zEnterprise BladeCenter Extension (zBX) - IEDN Support	Yes (2,3)	Yes (2,3)
IBM System z10 BC		
IBM System z10 EC		
IBM System z9 EC (formerly z9 BC)		
IBM System z9 BC		
zSeries 990, 890		
zSeries 900, 800	No	No
S/390 Parallel Enterprise Server G5/G6	No	No
S/390 Multiprise 3000	No	No

**z/VSE 6.2:**  
 Requires IBM z196, z114 or newer  
 → z10 is not supported!

For older and unsupported release,  
 please see here:  
<http://www.ibm.com/systems/z/os/zvse/about/statusold.html#server>

**Note (1):** The z13s, z13, zEC12 and zBC12 allow to configure OSA-Express4S and later with **OSA/SF in HMC**. Starting with the zEC12, ESCON channels are no longer supported.

**Note (2):** z/VSE V6.1, V5.1 and V5.2 can participate in an IEDN through OSA-Express for zBX devices (LPAR or z/VM guests).

**Note (3):** z/VSE V6.1, V5.1 and V5.2 can transparently participate in an IEDN through a z/VM VSWITCH. This requires z/VM V6.1 or later.

**Note (4):** The Crypto Express5s is the only crypto adapter that can be used on a z13 or z13s.

**Note:** Before migrating your z/VSE system to a newer server, please order the corresponding [PSP bucket](#).

**Note:** Server names shown in red are no longer supported by IBM, or a end of support date has been announced.





# z/VSE Storage Support



→ <http://www.ibm.com/systems/z/os/zvse/about/status.html#storage>

## z/VSE storage support

→ [IBM System Storage Interoperation Center \(SSIC\)](#)

IBM Disk Storage Systems	Attachment	z/VSE V6.1	z/VSE V5.2
IBM TotalStorage Enterprise Storage Server model 750, 800 and 800 Turbo	ECKD	Yes	Yes
	SCSI (FCP)	Yes	Yes
IBM System Storage DS6000 series	ECKD (1)	Yes	Yes
	SCSI (FCP)	Yes	Yes
IBM System Storage DS8000 series. This includes the DS8880 family (models DS8884, DS8886 and DS8888) (2,3)	ECKD	Yes	Yes
	SCSI (FCP)	Yes	Yes
IBM System Storage SAN Volume Controller (SVC), IBM Storwize V7000, IBM Storwize V5000, IBM Storwize V3500, IBM Storwize V3700, IBM FlashSystem V840, IBM FlashSystem V9000	SCSI (FCP)	Yes	Yes
IBM XIV Storage System	SCSI (FCP)	Yes	Yes
Parallel Access Volume Feature (PAV)	ECKD	Yes	Yes

**Note (1):** IBM System Storage DS6000 does not offer ESCON connectivity.

**Note (2):** Full Disk Encryption is supported by z/VSE 4.1 and later.

**Note (3):** SSD (Solid State Disk) is supported by z/VSE 4.1 and later. For performance considerations refer to the [IBM Storage](#) home page.

## z/VSE support for adapters and crypto

Adapter	z/VSE V6.1	z/VSE V5.2
OSA-Express, OSA-Express2, OSA-Express3, OSA-Express4S (1), OSA-Express5S (1)	Yes	Yes
FICON Express, FICON Express2, FICON Express4, FICON Express8, FICON Express8S, FICON Express16S	Yes	Yes
Crypto Express2, Crypto Express3, Crypto Express4S, Crypto Express5S (2)	Yes	Yes
CP Assist for Cryptographic Function (CPACF)	Yes	Yes

**Note (1):** The z13s, z13, zEC12 and zBC12 allow to configure OSA-Express4S and later with OSA/SF in HMC.

**Note (2):** The Crypto Express5s is the only crypto adapter that can be used on a z13 or z13s.

**Note:** z/VSE supports selected functions or modes. For details please refer to the [z/VSE Planning](#) manual or to the related [announcement letters](#). Additional PTFs might be required.

## IBM Tape Storage Systems

IBM Tape Storage Systems	Controllers	z/VSE V6.1	z/VSE V5.2
TS1140 (3592 Model E07) Encryption capable	C07, C06	Yes	Yes
TS1130 (3592 Model E06) Encryption capable	C07, C06	Yes	Yes
TS1120 (3592 Model E05) Encryption capable	C07, C06, J70	Yes	Yes
3592 Model J1A	C06, J70	Yes	Yes
TS3400 Tape Library (Autoloader) containing up to two TS1120 tape drives	C06	Yes	Yes
3590 Model H, E and B	A50, A60	Yes	Yes
3490E	A10, A20	Yes	Yes
3490	A01, A02	Yes	Yes
3480	A22	Yes	Yes

**Note (4):** Additional PTFs are required.

## IBM Tape Library Systems

IBM Tape Library Systems	Controllers	z/VSE V6.1	z/VSE V5.2
TS7680 ProtecTIER Deduplication Gateway	C06, tape drives: virtual 3592 J1A	Yes	Yes
TS7700 Virtualization Engine (5)	See info for tape drives.	Yes	Yes
Copy Export Function		Yes	Yes
Multi-Cluster Grid Support		Yes	Yes
3494 Virtual Tape Server (VTS)	See info for tape drives.	Yes	Yes
TS3500/3584 UltraScalable Tape Library	J70, C06	Yes	Yes
3494 TotalStorage Tape Library	J70, C06, A60	Yes	Yes

**Note (5):** When using the TS7700 tape library with z/VM's VGS (VSE Guest Support) you need to install z/VM APAR [VM64657](#)/PTF UM32727 (DFSMS/VM).

**Note:** For more information about supported devices please see the [z/VSE Planning](#) manual.

## Hardware Upgrades & Migrations

- **Order related PSP (Preventive Service Package) before migrating to the new hardware**

→ <http://www.ibm.com/systems/z/os/zvse/support/preventive.html#psp>

– e.g. search for “2965DEVICE” (2965 = z13s):

1.	<a href="#">Upgrade 2965DEVICE, Subset 2965/ZVM</a> DEVICE 2964	2017-02-16						
2.	<a href="#">Upgrade 2965DEVICE</a> Upgrade 2965DEVICE	2017-02-16						
3.	<a href="#">Upgrade 2965DEVICE, Subset 2965/ZOS</a> DEVICE 2965	2016-10-27						
4.	<a href="#">Upgrade 2965DEVICE, Subset 2965/ZVSE</a> DEVICE 2965	2016-06-29						
5.	<a href="#">Upgrade 2965DEVICE, Subset 2965/ZKVM</a> DEVICE 2965	2016-03-20						

	DATE	APAR	PTF	VOLID	COMMENTS
5	16/06/29	DY47665	UD54192	1000	NEW FUNCTION
4	16/06/28	DY47664	UD54191	1000	NEW FUNCTION
3	16/03/04	DY47646	UD54167	1000	QVS ENHANCEMENT D/T2964 AND D/T2
2	16/03/02	DY47645	UD54166	1000	QVS ENHANCEMENT D/T2964 AND D/T2
1	16/03/02	DY47647	UD54168	1000	QVS ENHANCEMENT D/T2964 AND D/T2

- **Concurrent microcode upgrade for IBM System Storage**

- **ECKD disks:** z/VSE recommends to shutdown the z/VSE system prior to the microcode upgrade.
- **FCP-attached SCSI disks:** z/VSE does not support concurrent microcode upgrade for FCP-attached SCSI disks.

- **Recommendation for IBM Tape Storage:**

- z/VSE with the latest service level supports concurrent microcode upgrade for IBM Tape Storage
- z/VSE recommends to take the tape units offline (z/VSE OFFLINE command) prior to the microcode upgrade or use the next maintenance window
- Once the upgrade completed, take the tape units online again (z/VSE ONLINE command)
- Please check with your software vendors (e.g. tape management systems), if they support concurrent microcode upgrade.

## Hardware Upgrades & Migrations

### ▪ New processor

– At first IPL on new processor, you will see ‘**OVERLAP ON UNEXPIRED FILE**’ messages

- Page dataset
- Label area (old systems only, newer systems use VDISK)

→ Enter **DELETE** to let it reformat the page dataset

– For a shared system

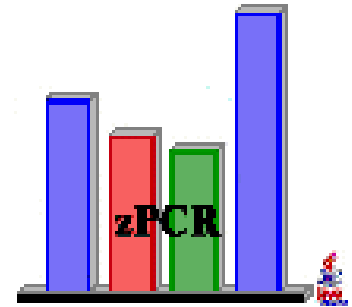
- Make sure **CPUID** is changed in **ASIPROC**
- Check **DLF NCPU** parameter is still sufficient

### ▪ OSA/SF for SNA configuration

Adapter	OSA/SF in HMC	OSA/SF (latest PTFs)
OSA Express 3	No	Yes
OSA Express 4S	Yes	Yes
OSA Express 5S	Yes	No

## Hardware Sizing and Capacity Planning

- **Sizing a system for z/VSE is different from sizing a system for z/OS**
  - In general, a faster single CPU is better than multiple smaller CPUs
- **IBM Processor Capacity Reference for System z (zPCR)**
  - It is designed to provide capacity planning insight for IBM System z processors running various workload environments
  - Capacity results are based on IBM's LSPR data supporting all IBM System z processors
  - Large System Performance Reference:  
<http://www.ibm.com/systems/z/advantages/management/lspr/>
  - For VSE use z/VSE workloads Batch, Online or Mixed
  - <http://www.ibm.com/support/techdocs/atmastr.nsf/WebIndex/PRS1381>
  - 'As is', no official support, e-mail to [zpcr@us.ibm.com](mailto:zpcr@us.ibm.com)
- **A z/VSE Capacity Planning Offering is now available**
  - Available for Business Partners and Customers
  - Performance data collection is based on a new version of the CPUMON Tool
  - Analysis is done using zCP3000
  - Contact your business partner and ask for
  - Capacity Planning support for z/VSE



## Some Terms and Definitions

### ▪ **Version / Release / Modification Level**

- z/VSE 5.1.2 = Version 5, Release 1, Modification Level 2
- Version and Release start counting at 1
- Modification Level starts counting at 0
  - At GA of a new Version or Release, the Modification Level is zero
  - z/VSE 5.2 GA = z/VSE 5.2.0

### ▪ **Refresh or Refresh Level**

- Same as a new Modification Level
  - e.g. z/VSE 5.1.1 is a Refresh of z/VSE 5.1(.0)
- When you order z/VSE you always get the newest Refresh Level
- SPE = Small Programming Enhancement (usually as part of a Refresh)

### ▪ **GA Version (GA = Globally Available)**

- The service level at the time the Version or Release becomes available
- Usually no PTFs applied (vanilla system)

### ▪ **PTF-1**

- A set of PTFs that are already available at the time of GA
- Fixes problems that have been found between shipment to the distribution centers, and GA
- It is strongly recommended to order and apply those PTFs right after or during migration!



## Some Terms and Definitions - continued

- **HIPER = High Impact or Pervasive APAR**
  - An APAR that was flagged as especially important
    - Data loss, integrity
    - Device or hardware specific
  
- **PSP bucket = Preventive Service Planning**
  - PSP buckets contain [all HIPER PTFs](#)
    - For a specific set of products or components
    - On a given z/VSE refresh level
  - <http://www14.software.ibm.com/webapp/set2/psearch/search?domain=psp>
  
- **RSL = Recommended Service Level**
  - Fills the gap between z/VSE refresh levels and the HIPER service (PSP buckets)
  - An RSL consists of a list of ALL APAR/PTF numbers, not only the HIPER service.
    - which are available at specific cutoff dates
  - RSLs are updated more frequently than refreshes
  - <http://www-03.ibm.com/systems/z/os/zvse/support/preventive.html#rsl>
  
- **Installed Software Report Tool (ISR Tool)**
  - To be used with Shopz service orders
  - Report contains a list of products and PTFs that are already installed on your system
    - MSHP RETRACE PRODUCT and RETRACE PTFS
    - Allows Shopz to ship only those PTFs that are not applied

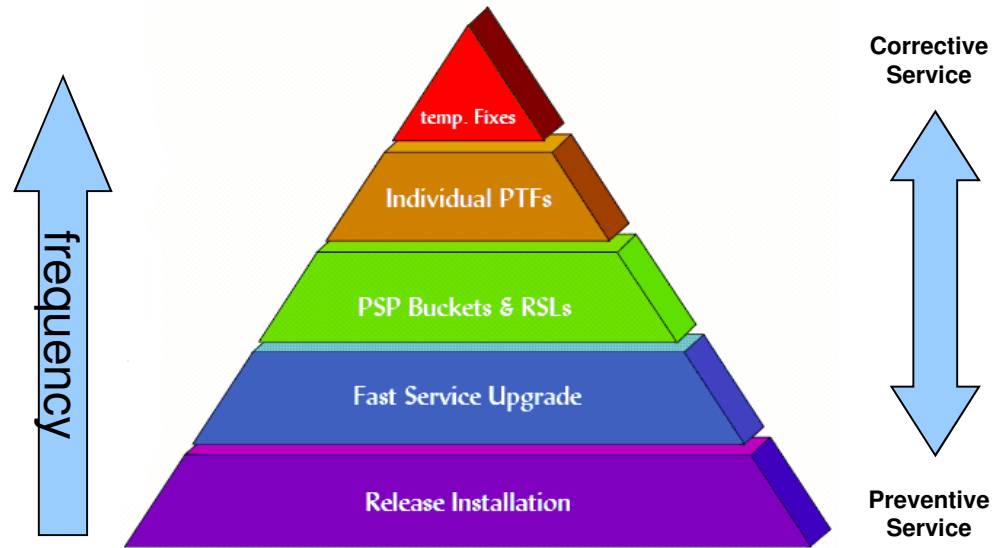




## z/VSE Service Deliverables

### Priority 1: Stay on a supported level

- Make sure that your system is always on a **supported level** to get help and support from IBM when you need it
- Plan ahead sufficient time for release or version upgrade and for PTF installation
- Consult your **software vendors** for upgrades and specific information



	Refresh	RSL	PSP	PTF
What is it	Complete Product (includes all PTFs)	List of ALL PTFs at a cut off day	List of selected PTFs (HIPER)	Official Fix for a code problem (APAR)
When is it available	Every 6-12 Month, usually for the newest release	Every 2-3 Month	Is constantly kept up to date	Will be created when a fix is available
When should it be installed	For base install or Fast Service Upgrade (FSU)	Preventive to stay on an current level	After a refresh installation and preventive to avoid HIPER problems	To fix a certain problem



## Ordering Products and Service

### ▪ Order a new z/VSE System or a Refresh

- You get 2 (or 3) tapes (as AWS images)
  - z/VSE Base Tape
  - z/VSE Extended Base Tape
  - (DB2 Help Texts)
- For Base Install
- Or Fast Service Upgrade (FSU)

### ▪ Order Optional Products

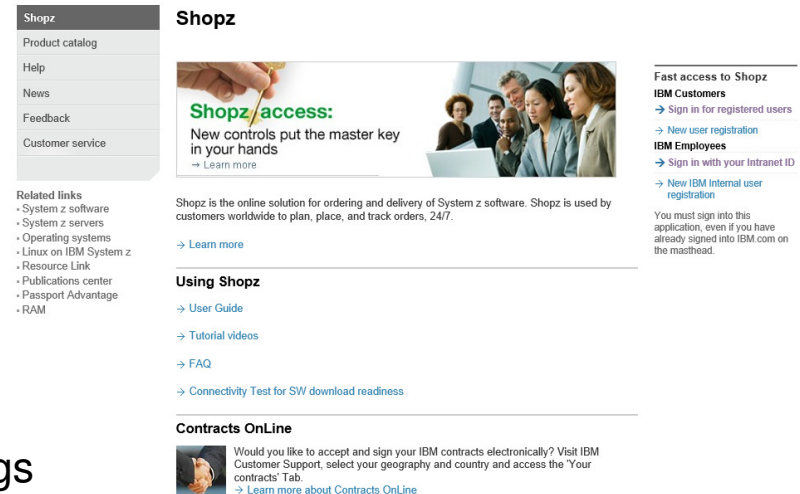
- You get 1 to N stacked tapes (as AWS images)
- To be installed through Interactive Interface dialogs

### ▪ Order APARs, PTFs, RSLs, PSPs

- You get a set of PTFs
- As binary file with LRECL 80 (most likely zipped to save download time)
- Apply via Interactive Interface dialogs
  - Through PTF.FILE (IJSYSPF)
  - Or VTAPE

### IBM Shopz:

<http://www.ibm.com/software/shopzseries>



The screenshot shows the IBM Shopz website. On the left is a navigation menu with links for Shopz, Product catalog, Help, News, Feedback, and Customer service. Below the menu are 'Related links' for System z software, servers, systems, Linux on IBM System z, Resource Link, Publications center, Passport Advantage, and RAM. The main content area features a 'Shopz access' banner with the text 'New controls put the master key in your hands' and a 'Learn more' link. Below the banner is a section titled 'Using Shopz' with links for User Guide, Tutorial videos, FAQ, and a Connectivity Test for SW download readiness. At the bottom is a 'Contracts OnLine' section with a small image and text asking if the user wants to accept and sign their IBM contracts electronically, with a 'Learn more about Contracts OnLine' link.

# Information about APARs and PTFs



→ <http://www.ibm.com/systems/z/os/zvse/support/corrective.html>

## Service and support

Introduction | Preventive service | **Corrective service** | Problem Manage

**z/VSE V6.1** | z/VSE V5.2 | Unsupported releases

- General
- **Advanced functions (AF)**
- VSAM
- POWER
- Interactive interface & ICCF
- Language Environment (LE)
- z/VSE Connectors
- CICS Transaction Server
- TCP/IP for z/VSE
- IPv6/VSE
- DL/I
- REXX
- z/VSE VTAPE

### Latest VSE/AF 9.3 APARs for z/VSE V6.1

Last update: April 10, 2017

APAR Date	PTF	Contents
<a href="#">DY47708</a> 2017/04/04	UD54226-61C	Abend of VSE Connector Server when accessing a library
<a href="#">DY47706</a> 2017/03/17	UD54224-61S	Security fixes for OpenSSL (CVE-2016-2182, CVE-2016-6306)
<a href="#">DY47697</a> 2016/11/15	UD54216-61C	DOSVSDMP program check when printing SDAID buffer
<a href="#">DY47691</a> 2016/10/06	UD54212-61C	Miscellaneous SDAID fixes: <ol style="list-style-type: none"> <li>1. SDAID OUTPUT operand SYSCOM dumps storage location ooooooooo</li> <li>2. SDAID OUTPUT operand IOTAB returns CHANNEL QUEUE NOT ADDRESSABLE</li> <li>3. SDAID internal program check on SCSI trace due to overlay</li> <li>4. SDAID hang on STOPSD command when IDAL2 are printed</li> <li>5. SDAID OUTPUT operand IOTAB prints more than PUB</li> <li>6. SDAID Branch address not printed for new branch relative instructions</li> </ol>

<http://www14.software.ibm.com/webapp/set2/psearch/search?domain=sysz>

## Technical help database

for System z

### Search

Search for:

Sort by:  Hits per doc type:

→ [Search tips](#)

→ [Start a new search](#)

### Document types

- All
- APARs
- FAQs
- Product information
- Education
- Technotes
- Flashes
- Preventive service planning
- Redbook abstracts
- Solutions
- White papers

# Recommended Service Levels and PSP Buckets



## PSP Buckets

- <http://www.ibm.com/systems/z/os/zvse/support/preventive.html#psp>
- e.g. search for “ZVSE520” or “ZVSE610”

1-10 of 37 results | [Next](#) →

	Modified		DATE	APAR	PTF	VOLID	COMMENTS
1. <a href="#">Upgrade ZVSE520, Subset ZVSE/52C</a> VSE Central Functions Version 9, Release 2, Modification 0	2016-07-14	8	16/07/14	DY47633	UD54147	1000	HIPER 0S23I DUMP ROUTINE
		7	15/11/23	DY47623	UD54135	1000	HIPER AFTER VSAM RESTORE TO
2. <a href="#">Upgrade ZVSE520, Subset DB2/5NN</a> DB2/VSE, Version 7, Release 5, Modification 0	2014-12-17	6	15/07/09	DY47612	UD54121	1000	HIPER MANDATORY FIXES FOR SCSI
		5	15/04/13	DY47595	UD54097	1000	HIPER HARDWAIT FFF DUE TO AN
3. <a href="#">Upgrade ZVSE520, Subset IBMLANG/52K</a> LE/VSE BASE Version 1, Release 4, Modification 9	2014-08-14	4	15/04/13	DY47595	UD54098	1000	HIPER HARDWAIT FFF DUE TO AN
		3	15/03/23	PI35643	UI25399	1000	HIPER DATA SEQUENCE ERROR WHEN
4. <a href="#">Upgrade ZVSE520, Subset CICS/TS/B0P</a> CICS/TS Version 1, Release 1, Modification 1	2014-07-30	2	15/01/27	DY47588	UD54085	1000	HIPER POWER RETURNS RC/FDBK
		1	14/05/12	DY47537	UD54029	1000	HIPER MSG4228I RC X'22' VOLSER

## Recommended Service Levels (RSLs)

- <http://www.ibm.com/systems/z/os/zvse/support/preventive.html#rsl>

Service recommended for		PTF Order List	Cutoff Date
z/VSE 6.1.0	<a href="#">Base Products</a>	→ <a href="#">PTFs 610B</a>	Dec 31, 2016
	<a href="#">Optional Prod.</a>	→ <a href="#">PTFs 610O</a>	
z/VSE 5.2.0	<a href="#">Base Products</a>	→ <a href="#">PTFs 520B</a>	Dec 31, 2016
	<a href="#">Optional Prod.</a>	→ <a href="#">PTFs 520O</a>	
<b>Out of Service releases</b>			
z/VSE 5.1.2	<a href="#">Base Products</a>	→ <a href="#">PTFs 512B</a>	Jun 30, 2016
	<a href="#">Optional Prod.</a>	→ <a href="#">PTFs 512O</a>	
z/VSE 5.1.1	<a href="#">Base Products</a>	→ <a href="#">PTFs 511B</a>	April 9, 2013

- Copy & Paste the entire PTF order list into ShopZ
  - Don't worry about the text around, ShopZ will filter out anything that's not a PTF number

### Recommended Service Levels

PTF numbers 31/12/16

#### z/VSE base Products - 6.1.0

#### CICS Transaction Server for z/VSE 2.1

none

#### DITTO/ESA VERSION 1.3.0

UI29161 UI32441 UI34954 UI41196

#### EREP 3.5.0

UD54169

#### ICKDSF 1.17.0

UI39443 UI41332

# IBM Subscription Services

→ Get notified when APARs are closed

<https://www-947.ibm.com/systems/support/myview/subscription/css.wss/>



## Subscribe to notifications

Product lookup:

Browse for a product

## Product subscriptions

Search

▲ Product	Notifications	RSS/Atom feed	Document types	Unsubscribe
z/VSE family	View	Links	Edit	Unsubscribe

Showing 1 to 1 of 1 entries

## Applying electronic PTFs using VTAPE

- Extract Shiptfs.bin from ZIF file downloaded from ShopZ
- Change file extension, e.g. shiptfs.bin → shiptfs.ptf
- Apply service using IUI dialog, Fastpath 1423
  - Service Medium is Tape
  - VIRTUAL TAPE = 1 (yes) → prompts for parameters for VTAPE on next panel



```

SRV$PH19          APPLY PTF
Enter the required data and press ENTER.
SERVICE MEDIUM..... 1          Is the service file on tape?
                                   (Enter 2 if on disk)
VIRTUAL TAPE..... 1             Enter 1 if service tape is a
                                   remote virtual tape.
TAPE UNIT ADDRESS..... 181      UTL$VTA3          VIRTUAL TAPE: SPECIFY THE DATA SET
TAPE QUANTITY..... 1
TYPE..... 1
Enter 2 for NO and 1 for YES
BACKUP..... 1
FORCE INDIRECT..... 2
ADD INFO TO THE LIST..... 1
PF1=HELP          2=REDISPLAY  3=END

Service application from remote virtual tape.
Specify the following residence values of the service tape:
Hostname          my.vtape.server.ibm.com_____
or
IP Address: _____
...
...
PORT..... _____          TCP/IP port number
DATA SET NAME :  d:/VSE/shiptfs.ptf_____
...
...
...
PF1=HELP          2=REDISPLAY  3=END
    
```



## Applying electronic PTFs using PTF.FILE (IJSYSPF)

- Define the PTF.FILE (IJSYSPF) to TCP/IP
  - For CSI: `DEFINE FILE,TYPE=ESDS,DLBL=IJSYSPF,PUBLIC=' IJSYSPF '`
- Transfer the PTF file directly to disk into the VSAM file IJSYSPF:
 

```
ftp> quote site unix off
ftp> bin
ftp> quote site recfm fb
ftp> quote site lrecl 80
ftp> quote site blksize 10320
ftp> put ptffile.bin IJSYSPF or put ptffile.bin PTF.FILE
```
- Apply service using IUI dialog, service medium is **disk**. Fastpath 1423



```

SRV$PH19                                APPLY PTF
Enter the required data and press ENTER.
SERVICE MEDIUM..... 2                 Is the service file on tape?
                                         (Enter 2 if on disk)
VIRTUAL TAPE..... 2                     Enter 1 if service tape is a
                                         remote virtual tape.
TAPE UNIT ADDRESS..... _____      For list of valid addresses see HELP.
TAPE QUANTITY..... 1                    Enter the number of service tapes
TYPE..... 1                              Enter the type of mass-application
                                         1=ALL 2=INCLUDE 3=EXCLUDE
Enter 2 for NO and 1 for YES
BACKUP..... 1                            Do you want to backup all affected
                                         libraries?
FORCE INDIRECT..... 2                    Do you want to apply all PTFs indi-
                                         rectly?
ADD INFO TO THE LIST..... 1              Do you want to add this info to the
                                         list of your processed service units?
                                         For tapes only one tape is possible.

PF1=HELP      2=REDISPLAY  3=END

```

## Applying electronic PTFs

→ <http://www.ibm.com/systems/z/os/zvse/documentation/edelivery.html#eptf>



### Attention:

→ **PTF files should NOT be transferred directly to the z/VSE system (POWER reader) !**

- PRE- and CO-requirements may not be fulfilled due to wrong order of PTFs, CO-requirements will not work at all
- POWER JECL included in the data part of the PTFs will be processed while running the job
  - This leads to modified contents of the PTF and also might cause the code to be incomplete
- Missing POWER JECL in the PTF file causes POWER to extract VSE JOB cards, this also leads to modified contents of the PTF and may also be incomplete due to job termination
- No indirect application possible

## Migration tasks

### ▪ Planning for a migration

- Order latest updates, Products, PTFs, RSLs, PSPs, etc.
- Order latest Vendor products and updates
- Consider system layout changes (if needed)
- **Performance**
  - Activate a performance monitor
  - Keep monitor data from old and new system for an extended time frame
- **Testing**
  - Make sure test systems are available to test the migration first
  - Plan for an extended testing phase
  - Test your applications, your data, performance
  - Test with high load, with lots of users, lots of data, etc
- **Plan for final cutover**
  - Data migration (reorganization, reformat, etc)
  - Keep an old system just in case (as backup or live)
- **Plan for fallback**
  - Make sure you have a proper backup available
  - Migrating data back might be tricky, if new features have been used on new system



## Fast Service Upgrade (FSU) or Base Installation ?

### ▪ **Fast service Upgrade (FSU)**

- FSU will update IBM provided parts like
  - System Libraries
  - ICCF members
  - System Files (e.g. Online Message Explanation (OME))
- But keep all user data, applications and products installed



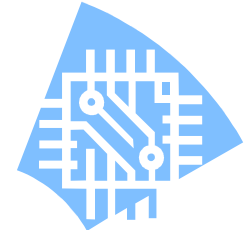
### ▪ **Initial Installation**

- Initial Installation will just establish the z/VSE system
- User data, applications and additional products need to be reestablished
- Usually Initial Installation is done on a test system (LPAR or VM guest)

### ▪ **Situations when an Initial Installation is required:**

- Previous system is too old, In general FSU allows to upgrade only two releases/versions.
- No FSU from VSE/ESA 2.3 and earlier.
- No FSU to z/VSE 6.1
- Change of system disk architecture, like switching from ECKD to FBA SCSI.
- Change of environment like change to C (big). However this can be switched manually after FSU.

## Performing a Fast Service Upgrade (FSU)



- **FSU requires a z/VSE base tape**

- On physical cartridge
- As VSAM VTAPE (use FTP to upload AWS file into a VSAM ESDS cluster)

- **Checklist for FSU**

- PRD2.SAVE contains all current startup procedures, label procedures, current DTSECTAB
  - especially procedures with same name as shipped procedures
- PRD2.CONFIG contains all configurable files like CICS tables, TCPIP configuration, VTAM startup
- Check if own POWER phase and allocation
  - specify accordingly in FSU dialog. DTRPOWR.PROC refers to all POWER files? Run POWER generation at the end of Stage 1
- Consider to establish startup with separate JCL procedures without activating vendor software, especially with external security manager

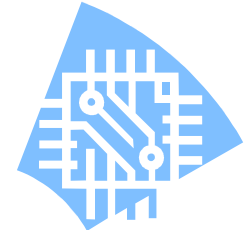
- **Downlevel Check**

- This is an installation check showing service to be re-installed after FSU
- Does not change the system
- Makes no sense in case of a release/version upgrade, but important for installing a refresh

- **FSU Preparation**

- This step is very important!
- Establishes the new FSU code and enables it on the old system
- **AFTER Preparation has been completed, generate the FSU job stream**
  - If you generate it before, then it will not work

## Performing a Fast Service Upgrade (FSU) - continued



### ▪ FSU Installation

#### – Stage 1:

- IJSYSRS onto SYSWK1 including NLS parts
- PRD1.MACLIB
- PRD2.GEN1 (optional will be cleared if not selected)
- Prepare JCL for Stage 2
- At the end of Stage1 generate POWER phase

#### – Re-IPL from SYSWK1

- Using a special FSU JCL and normal IPL procedure
- OEM products are not started

#### – Stage 2:

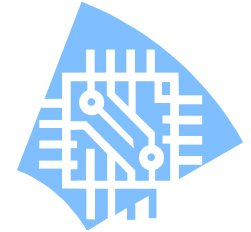
- Restore ICCF parts, base and NLS (IBM libraries only)
- Install of PRD2.SCEEBASE (LE) and PRD1.BASE (CICS, VTAM, etc)
- Refresh OME
- Refresh Text Repository File, upgrade CSD
- Clear local and global catalog for a so called ice-cold start of CICS
- Install DB2 (optional)
- Reorganize DTSFILE (optional)
- Copy back IJSYSR1

#### – Stage 2 runs without CICS, TCPIP, VTAM

- at the end basic CICS and VTAM are started



## Performing a Fast Service Upgrade (FSU) - continued



### ▪ **Post FSU tasks**

- Update your default selection panels and your default application profiles
- Shutdown the system and re-IPL from DOSRES
- Re-catalog or recompile your modified configuration members using the new skeletons
  - Startup procedures
  - VTAM books
  - CICS tables
  - LE/VSE runtime options CEEDOPT and CEEWCOPT
  - Node error and auto install programs
  - etc.
- Re-install optional and extended base products
- Re-install vendor products or install service
- Install RSL and PSP
- Generate SA Dump disk or tape
- Migrate to the new Security concept (if not already done)

### ▪ **For additional information please see**

- System Upgrade and Service manual
- Program Directory

## Performing an Initial Installation

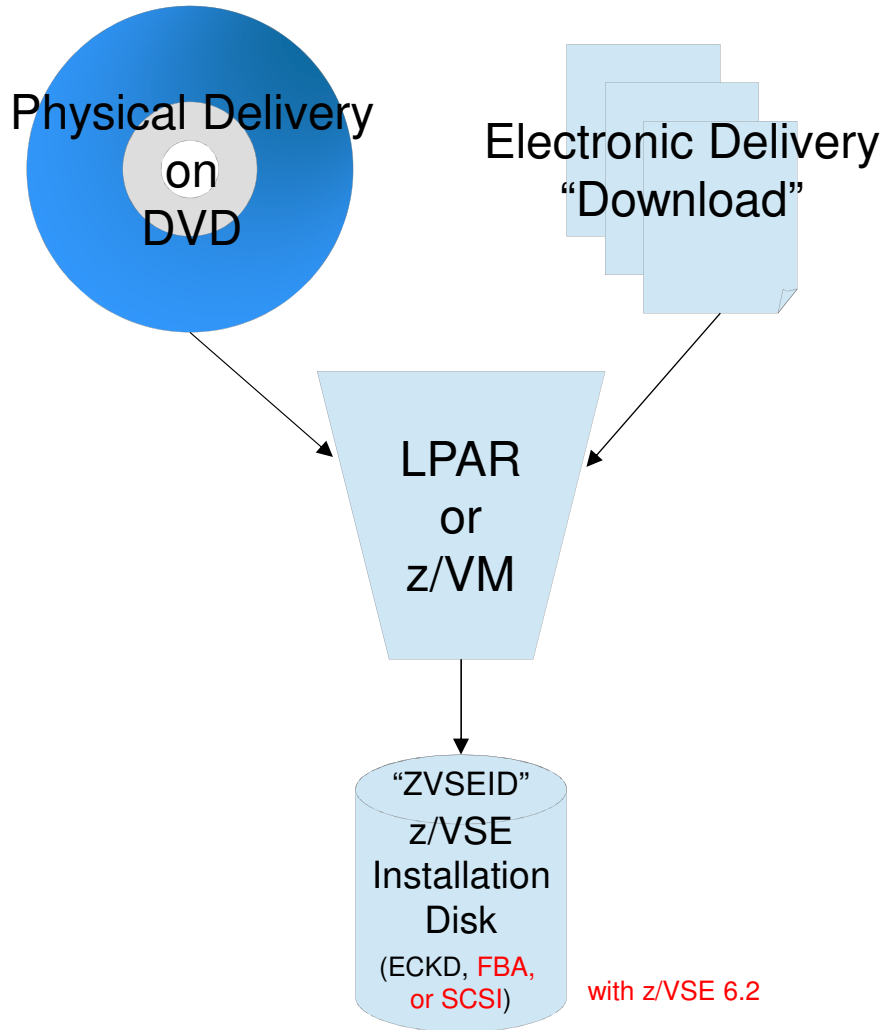


- **Initial Installation requires a physical z/VSE base tape on cartridge (IPL'able) or an installation disk**
  - VTAPE is not supported
  - You may need to copy the base tape from AWS (VTAPE) onto a physical tape
  - **z/VSE 5.2 or later:** Tape-less installation using installation disk (ECKD)
  - **z/VSE 6.2:** Support for tape-less initial installation using SCSI and emulated FBA installation disks
  
- **IPL the z/VSE base tape or installation disk**
  - Initial Installation will start
  - Choose automatic install and enter required information
  - Remaining process runs mainly automatic
  
- **After Initial Installation, optional and vendor products must be installed**
  - Startup procedures and hardware must be configured
  - VSAM catalogs and data must be established
  - POWER Files must be loaded
  - CSD File needs to be updated
  - DTSFILE (ICCF) user libraries restore
  - DB2 and DLI data if available, install and restore database
  - Security setup (IESCNTL and BSTCNTL)
  - Other data must be restored or imported
  - Generate SA Dump disk or tape

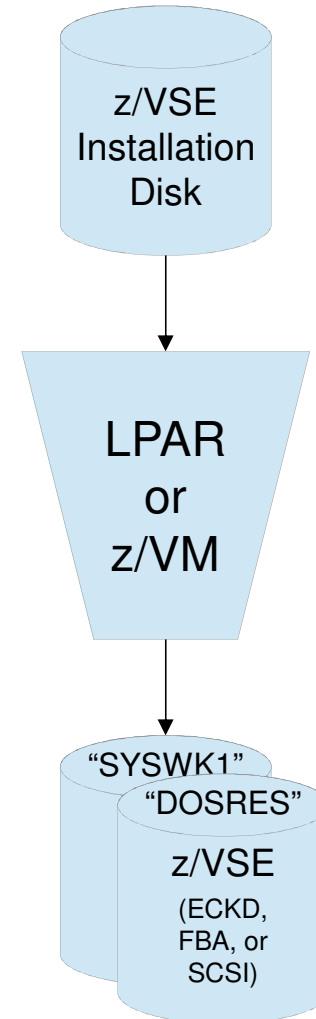
# Tape-less Initial Installation - Overview



## Step 1: Create a z/VSE Installation Disk



## Step 2: Install from Disk



# Creation of z/VSE Installation Disk in LPAR - Requirements



- **LPAR with at least 512 MB of central storage**

- At least one CP
- CD/DVD with the following files in one directory (can be the root)
  - Or
- FTP server that is reachable by both the Hardware Management Console (HMC) and Service Element (SE) that has the following files in one directory (can be the root)

- **Files:**

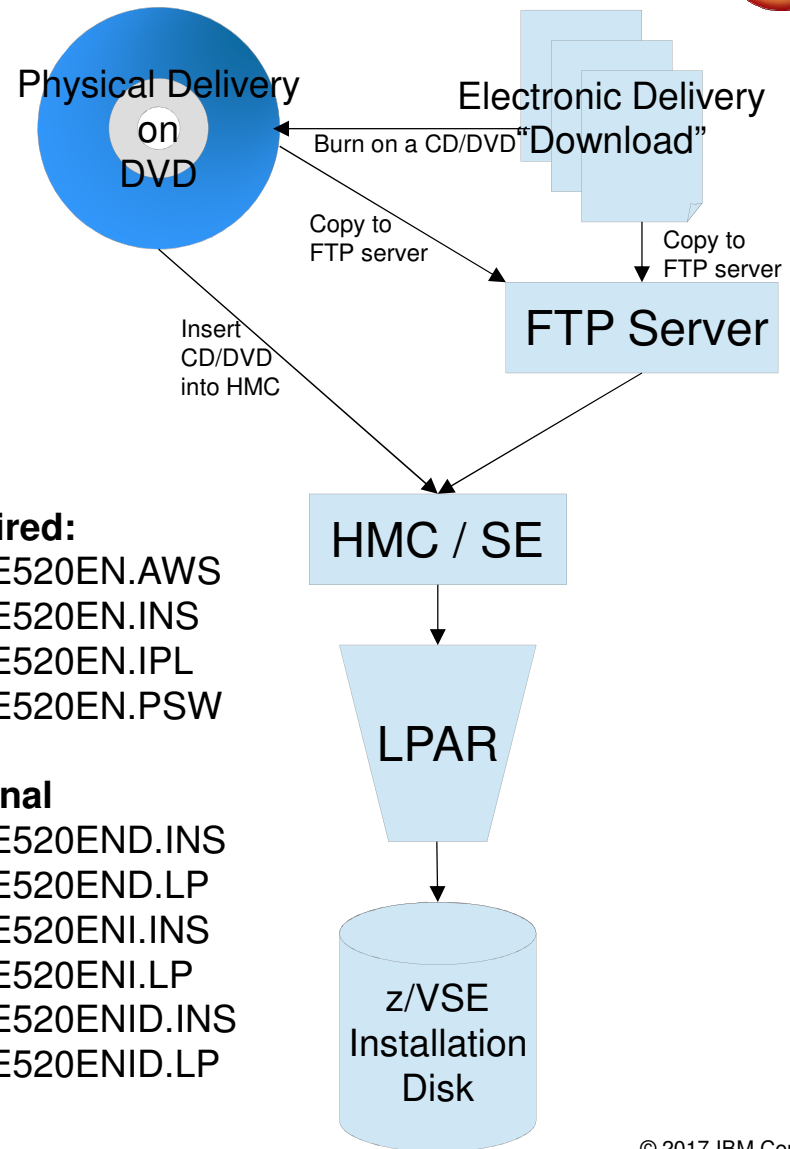
- VSE520EN.INS  
Load configurations (specify which of the following files to load into central storage)
- VSE520EN.LP  
Load parameters
- VSE520EN.AWS  
z/VSE installation tape image
- VSE520EN.IPL  
z/VSE SA boot program
- VSE520EN.PSW  
Initial PSW for SA boot program

**Required:**

- VSE520EN.AWS
- VSE520EN.INS
- VSE520EN.IPL
- VSE520EN.PSW

**Optional**

- VSE520END.INS
- VSE520END.LP
- VSE520ENI.INS
- VSE520ENI.LP
- VSE520ENID.INS
- VSE520ENID.LP



## Creation of z/VSE Installation Disk in LPAR Using Removable Media (CD/DVD)



- Insert the CD/DVD into the HMC/SE optical media drive.
- Use the HMC/SE task “Load from Removable Media or Server” (on old HMC/SE: “Load from CD-ROM, DVD, or Server”) and select “Hardware Management Console CD / DVD-ROM”.
- Optionally specify the path to the files if they are not located in the root directory.  
**Note:** Use Linux/Mac path delimiters (i.e. slash /) and not Windows ones (i.e. backslash \). The path is case-sensitive!

hmctrx: Load from Removable Media or Server - Mozilla Firefox: IBM Editi...

https://hmctrx.boeblingen.de.ibm.com/hmc/content?taskId=1123&refresh=2282

**Load from Removable Media, or Server - POL1:POLLP04**

Use this task to load operating system software or utility programs from a CD / DVD-ROM or a server that can be accessed using FTP.

Select the source of the software:

Hardware Management Console CD / DVD-ROM

FTP Source

Host computer:

User ID:

Password:

Account (optional):

File location (optional):

OK Cancel Help

## Creation of z/VSE Installation Disk in LPAR Using FTP Server



- Use the HMC/SE task “Load from Removable Media or Server” (on old HMC/SE: “Load from CD-ROM, DVD, or Server”) and select “FTP Source”
- Specify
  - Hostname or IP address of the FTP server
  - User name and password
  - Optionally the account (deprecated)
- Optionally the path to the files if they are not located in the root directory.

**Note:** Use Linux/Mac path delimiters (i.e. slash /) and not Windows ones (i.e. backslash \). The path is case-sensitive!

hmcctx: Load from Removable Media or Server - Mozilla Firefox: IBM Editi...

https://hmcctx.boeblingen.de.ibm.com/hmc/content?taskId=1123&refresh=2282

**Load from Removable Media, or Server - POL1:POLL04**

Use this task to load operating system software or utility programs from a CD / DVD-ROM or a server that can be accessed using FTP.

Select the source of the software:

Hardware Management Console CD / DVD-ROM

**FTP Source**

Host computer: vsdevftp.boeblingen.de.ibm.com

User ID: jremus

Password: ●●●●●●●●

Account (optional):

File location (optional): /vse520en

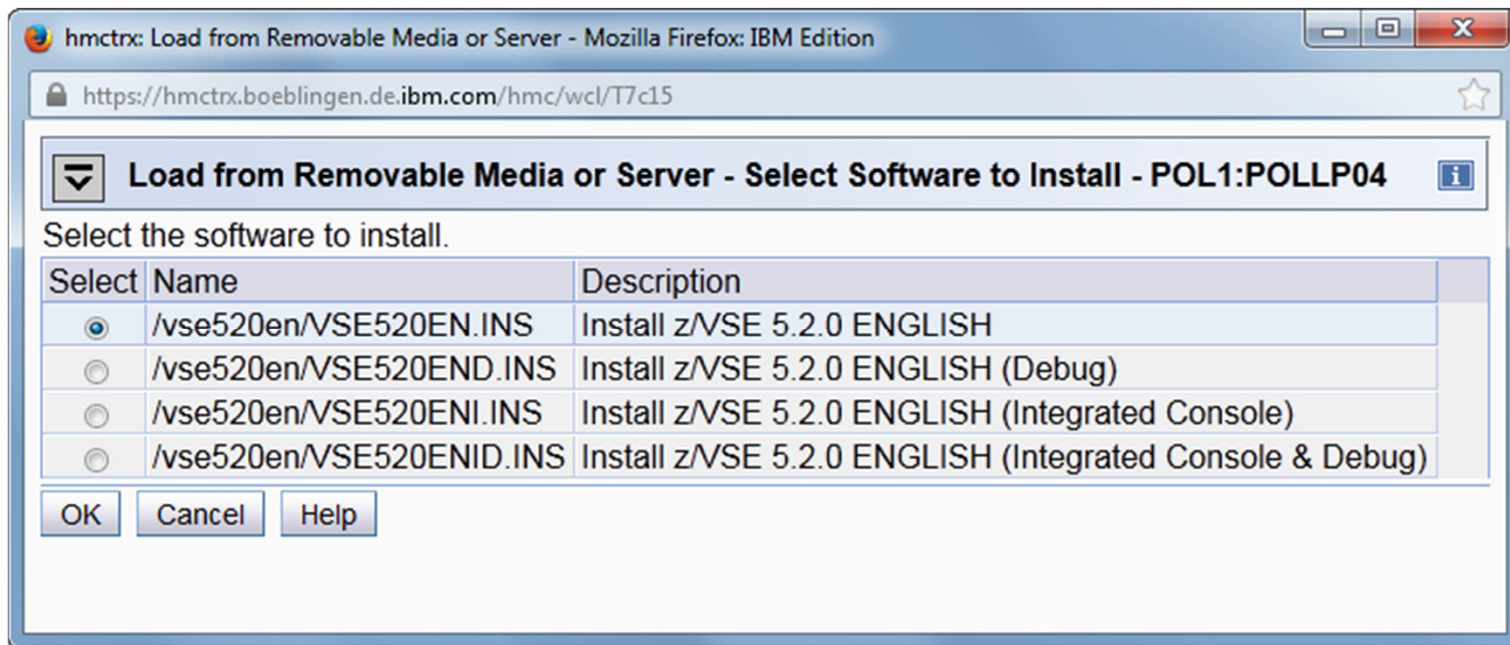
OK Cancel Help



## Creation of z/VSE Installation Disk in LPAR Using Removable Media (CD/DVD) or FTP Server (Cont.)



- **Select the installation type to perform:**
  - **“Default”** (VSEvrmxx.INS)
  - **Debug** (VSEvrmxxD.INS)  
Enables additional debug messages on the console for problem analysis
  - **Integrated Console** (VSEvrmxxI.INS)  
Use the Integrated Console (i.e. HMC/SE “Operating System Messages”)
  - **Integrated Console & Debug** (VSEvrmxxID.INS)



## Creation of z/VSE Installation Disk in LPAR Using Removable Media (CD/DVD) or FTP Server



- Continue the creation of z/VSE installation disk on the z/VSE system console:

```
BG-0000 SI40D ENTER VOLID OF THE INSTALLATION DISK. DEFAULT IS 'ZVSEID'
```

```
0 zvse52
```

```
BG-0000 SI41D ENTER PCUU OF ZVSE52
```

```
0 431
```

Starting with z/VSE 6.2, you will be asked if you want to create a z/VSE installation disk on SCSI. If yes, you are prompted for the SCSI path (FCP, WWPN, etc)

```
BG-0000 SI45D DO YOU WANT TO CONTINUE WITH CREATION OF INSTALLATION DISK  
PCUU=0431, CURRENT VOLID=MYWORK (YES/NO) ?
```

```
0 yes
```

```
BG 0000 SI20I FORMATTING OF ZVSE52 IN PROGRESS
```

```
BG 0000 IDSK000I Z/VSE INSTALLATION DISK TOOL 5.2.0
```

```
BG 0000 IDSK009I VALIDATING TAPE IMAGE VERSION AND RELEASE ...
```

```
BG 0000 IDSK009I EXTRACTING BOOT PHASE AND WRITING IT TO DISK ...
```

```
BG 0000 IDSK009I GENERATING BOOT RECORDS AND WRITING THEM TO DISK ...
```

```
BG 0000 IDSK009I WRITING TAPE IMAGE TO DISK ...
```

```
BG 0000 IDSK009I Z/VSE INSTALLATION DISK CREATED SUCCESSFULLY
```

```
BG 0000 SA17W ***** END OF STAND ALONE PROCESSING *****
```

## Creation of z/VSE Installation Disk **under z/VM** - Overview



- Utility to create z/VSE installation disk from z/VSE installation tape image under z/VM CMS: z/VSE Installation Disk Utility (VSEIDISK)
  - **VSEIDISK.EXEC**  
REXX script to control ICKDSF and VSEIDISK. ICKDSF is used to format/initialize the disk prior to creating the z/VSE installation disk
  - **VSEIDISK.HELPCMS**  
Help file in standard z/VM CMS help format. Provides short information on the parameters and options. To view enter HELP VSEIDISK or VSEIDISK HELP in CMS
  - **VSEIDISK.MODULE**  
Binary module that creates the z/VSE installation disk from the z/VSE installation tape image.  
**Note:** Should not be executed directly, only through VSEIDISK.EXEC





## Creation of z/VSE Installation Disk **under z/VM** - Example



```
vseidisk vse520en aws a 600 (volid=zvse52
IDSK151D REPLY 'CONTINUE' TO ALTER DASD 600, ELSE 'CANCEL'
continue
IDSK141I FORMATTING Z/VSE INSTALLATION DISK ...
[...]
ICK03091I EXISTING VOLUME SERIAL READ = MYWORK
[...]
ICK00002I ICKDSF PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
IDSK143I CREATING Z/VSE INSTALLATION DISK ...
IDSK000I Z/VSE INSTALLATION DISK TOOL 5.2.0
IDSK009I VALIDATING TAPE IMAGE VERSION AND RELEASE ...
IDSK009I EXTRACTING BOOT PHASE AND WRITING IT TO DISK ...
IDSK009I GENERATING BOOT RECORDS AND WRITING THEM TO DISK ...
IDSK009I WRITING TAPE IMAGE TO DISK ...
IDSK009I Z/VSE INSTALLATION DISK CREATED SUCCESSFULLY
Ready; T=0.08/0.18 14:37:49
```

## Post Migration Tasks



### ▪ SA Dump

- Generate SA dump to disk (recommended) or tape
  - **z/VSE 6.2** will support stand-alone dump to SCSI disk
- IUI dialog fast path 461 or 462

### ▪ Dump Library

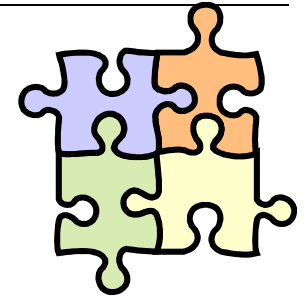
- Dump library is now a VSAM library (since z/VSE 5.1), which is more flexible in space
- Space is allocated in master catalog
- Space allocation is dependent on environment selected
- FSU will not move, if wished, moving to VSAM can be done using skeleton SKDMPEXT

### ▪ Install latest PTFs, RSLs, PSPs, Vendor product updates, etc

### ▪ Verification and Test

- Check your security setup
- User Profiles
- Check VSAM catalogs using the catalog checker
- Test applications

## Data Migration after Upgrade



- **VSAM (not required for FSU, but recommended)**

- VSAM Backup/Restore
- VSAM catalogs with EXPORT-DISCONNECT and IMPORT-CONNECT
- Please carefully check definition of models used for workfiles on other disks than DOSRES or SYSWK1
- Entire catalogs can also be copied using Flashcopy
  - For each catalog, all disks where it owns space has to be flashed
  - Be aware that disks have to have same model type, e.g. 3390-3.

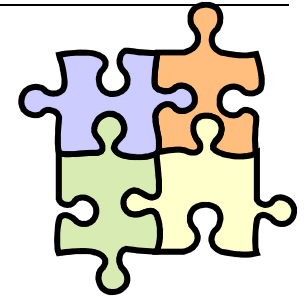
- **Other data**

- Entire disks can be copied using:
  - FCOPY
  - IXFP Flashcopy
  - DDR

- **Copy of system disks**

- For the two system disk, make sure in case of DDR that the system is down
- For FCOPY standalone-FCOPY is recommended for the system packs
- If the master catalog or VSESPUC catalog have storage on disks other than DOSRES or SYSWK1, these volumes also have to be saved

## Data Migration after Upgrade - continued



### ▪ **POWER**

- Migration with POFFLOAD on a tape (VTAPE)
- Shared Spool
  - Conversion of POWER files is not recommended, POFFLOAD and cold start from the master system is recommended

### ▪ **CICS CSD File**

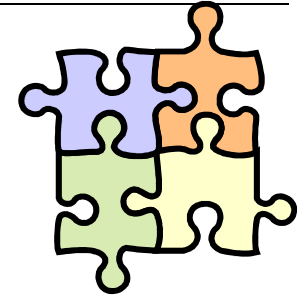
- FSU and Initial Installation will update/establish IBM provided groups
- User definitions might have to be migrated

### ▪ **Databases**

- DLI
  - Take data base backups
  - Data base can also be migrated
  - Be aware of different releases, DLI 1.10 on CICS/VSE and DL/I 1.11 are no longer supported (z/VSE 4.3.x and higher). Migration to DL/I 1.12 is required.
  - Do not use disk copies (DDR or FCOPY) while data base is in use
- DB2
  - Use DB2 Data Restore feature



## Data Migration after Upgrade - continued



### ▪ **ICCF and DTSFILE**

- FSU will update IBM libraries only (1, 2, 50-69)
  - User libraries are untouched
- After Initial Installation user libraries need to be restored
  - Do not migrate IBM libraries !

### ▪ **User profiles**

- No change to VSE Control File (IESCNTL) during FSU
- Migration with IESBLDUP utility after Initial Installation
  - All user profiles, user defined selections and application definitions will be migrated
  - The VSE Control File of the original System and a Backup of the ICCF DTSFILE is needed
  - After IESBLDUP job, use PF6=GROUPS in dialog „Maintain User Profiles” to update BSTCNTL with user definition

### ▪ **Security Files (BSM Control File and DTSECTAB)**

- FSU Stage 2 will run without batch security
  - original DTSECTAB phase if saved in PRD2.SAVE is re-established.
  - BSTCNTL is updated (transaction security) by FSU
- Initial installation will establish a fresh BSM Control File
  - all user specific security settings must be migrated using skeleton SKBSTSAV
  - Don't copy this file using VSAM REPRO or similar
  - DTSECTAB has to be re-established

## Things that should NOT be changed

- Don't change library structure – IJSYSRS, PRD1, PRD2, SYSDUMP
- Don't change catalog layout, especially storage for master and user catalog VSESP.USER.CATALOG (VSESPUC)
- Control files IESCNTL and BSTCNTL must be unique in the system and accessible by BSM (FB partition) and each CICS with IUI (DBDCCICS and PRODCICS)
  - These files should not be shared between VSE systems
  - Especially BSTCNTL do not copy via VSAM REPRO services, use logical backup/restore via SKBSTSAV in ICCF 59
- It is not recommended to change allocation of IJSYSRS and IJSYSR1
- Use STDLABEL procedure to implement your DLBLs (BAM), STDLABUP and IESVCLUP program for VSAM DLBLs, STDLABUS for user labels
- Do not change volids DOSRES and SYSWK1
- History file, work history file, job manager file, text repository file, text repository work file and PTF file
  - If changed, reflect change in dialog 141 - Verify Location of Involved Serviced Files



## Service Recommendations

→ It is essential to have a **preventive maintenance strategy**

- **Install the latest refresh**

- About every 12 Month

- **If you are on a current refresh level**

- Install the newest RSL
  - About every 6-12 Month
- Install the newest PSP Bucket
  - About every 3-6 Month
  - Also order the hardware bucket when you install new hardware

- **When migrating to a new z/VSE release or version:**

- Order and install the **latest refresh level**
  - Don't use a tape that you already have on the shelf for a long time
- Order and install the **newest RSLs and PSP buckets** for this refresh
- **Optional Products** should be **re-ordered and re-installed** after upgrade
- Products on the **Extended Base tape** should be **re-installed**
- Also consult your **Software Vendors** for their corresponding service levels
- Check **Release Guide** and **Planning** manuals as well as the z/VSE web page for additional considerations
- Have a testing period to make sure everything runs well as it did before
- Order and install the **newest PSP bucket again 2-3 weeks before production** cutover
- Before production cutover **have a fallback plan** in place



**z/VSE Release and Hardware Upgrade:**

[ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/zVSE\\_Release\\_and\\_Hardware\\_Upgrade.pdf](ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/zVSE_Release_and_Hardware_Upgrade.pdf)

## Questions ?



THANK YOU