



z/VM Maintenance, Service, and Upgrades

2nd Edition

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Topics

— Maintenance

— Service

— Upgrades

Maintenance

Terms and Ideas

— Maintenance

- Is a process that ensures your system is as reliable as you can make it
- Is predictable
 - Even though sometimes you don't know it's broken until something falls off or it stops

— Service

- The way you obtain and apply fixes to z/VM and related products

— Upgrade

- How you move z/VM software to a new release

Maintenance – Ensuring you are ready to run production

— Proactively check the health of the system

- Doing ok on page space?
- Any I/O bottlenecks?
- Are guests performing well?
- Any security issues?
- System monitors doing their job?
- “Only you can prevent forest fires”

— Perform regular housekeeping

- Spool files
- Accounting data
- EREP data
- Logs and archives
- Dust and clean
- A full spool is a Bad Thing

Maintenance – Ensuring you are ready to run production

— You need a test LPAR

- If you're using SSI in production, you need at least two members in your test SSI cluster.

— Apply available fixes

— Test your workload and your procedures

- Not the fixes!

Maintenance – Ensuring you are ready to run production

- Maintenance on a regular basis lets you practice your procedures
 - You'll know how to do things in an emergency
 - Discover any changes required before emergency arises

- Keeps you out of trouble
 - “What?!? There was a fix for that problem and you didn't install it?!?”

Service

Service

- This is how you obtain and apply the fixes that are needed to maintain your system in good working order
 - Corrective: Fixes for a specific problem (COR)
 - Preventive: Fixes for problems you don't know about (RSU)
 - New Function

- You have a new vocabulary to learn

- It's more than just defect repair or avoidance
 - Good housekeeping
 - Validation
 - Practice

Service: Vocabulary

— Case / Ticket / PMR

- Your defect report via the IBM Support Portal
- PMR = Problem Management Record
 - Deprecated term, but you still hear people say it

— APAR

- Authorized Program Analysis Report (who cares?)
- Created when IBM decides the report is a defect of some sort **or** when introducing new function
- Assigned a unique id
 - VMnnnnn, PHnnnnn
 - The prefixes change over time
- APARs are created in the context of a specific release, but the problem may be present in multiple releases
 - “Base code” problems

— PTF

- Program Temporary Fix
- They aren't temporary
- They aren't always fixes ☹️
- Fixes a problem or introduces a new function described in an APAR
- Assigned a unique id
 - UMnnnnn, UInnnnn
 - The prefixes change over time
- PTFs are specific to a particular release
 - One APAR can yield more than one PTF
- A PTF fixes only the problem(s) or add function described in the associated APAR
 - Unless.....

Service: Vocabulary

— Super-PTF

- A PTF that is really a bundle of other PTFs
- Simplifies ordering
- Simplifies documentation
- Content of Super PTF may change over time

— RSU

- Recommended Service Upgrade
- One per release
- A subset of all available PTFs
- Similar to a Super-PTF, but it also changes the **service level** of the system
- Content changes over time
- Special numbers remain the same
 - UM97710 RSU for z/VM 7.1
 - UM97720 RSU for z/VM 7.2
 - UM97730 RSU for z/VM 7.3

— PE

- PTF in Error
- A PTF with a bug in it
 - Didn't fix the problem
 - Fixed the problem, but introduced a new one

— HIPER

- Highly Pervasive
- An APAR/PTF that are expected to affect a large percentage of the user base **or** that will have a large impact

— Pre-req chain

- Previous PTFs that are required by *this* PTF and all of the PTFs that *they* require

Service: Vocabulary

— ESO

- Expanded Support Offering
- Similar to an RSU, but it crosses product boundaries
 - Multiple products in a single package
 - Often includes fixes for old releases of z/VM – that's ok
- A subset of z/VM-related products are serviced this way

— PSP Bucket

- Product Service Planning bucket
- A list of corrective actions or PTFs that IBM recommends
 - PE fixes
 - HIPERs

Service: Ordering

— Fix package types

- PTF
- RSU
- ESO
 - DFSMS
 - IBM Tape Manager, Backup and Restore Manager, Operations Manager, Archive Manager
 - IBM zSecure, TDMF agent

— Where do you order it?

- IBM Shopz
- IBM ServiceLink
- Both provide value

Service: Staying current

- Recommended = Latest RSU + PSP bucket + Red Alert + Security Portal
- Current = All available PTFs
- **There is no pre-packaged offering that has all available PTFs**
 - Open a case with IBM to find out
- IBM Support “My Notifications” allows you to subscribe to notices about z/VM APARs and PTFs
 - Enter “z/VM” in the search bar
 - CP, CMS, and TCP/IP only
 - APAR opened, APAR closed, PTF available
 - Also available for other products

Service: PSP Bucket

- Designed to communicate important service information from IBM to you
- Covers hardware and software
- A particular bucket is identified by an **upgrade** name and a **subset id**
 - Multiple subsets per upgrade
 - Find in an announcement or in a *Program Directory*
 - Things that have a Program Directory will have their own PSP bucket
 - The upgrade name will be related to the processor type, storage type, or software release
- Servers: Upgrade **3931DEVICE** Subset **3931/ZVM**
- z/VM: Use the table to the right (I'm sorry)
- PSP may refer to other sources of information

Upgrade	Subset
ZVM730	CP
	DVF
ZVM730	GCS
ZVM730	CMS
ZVM730	TSAF
ZVM730	VMSES
ZVM730	REXX
ZVM730	AVS
ZVM730	LE
ZVM730	yynnRSU
TCPIP730	VM730
TCPIP730	yynnRSU
ZVMHCD730	ZVMHCD/720
ZVMHCD730	yynnRSU
VMPTK730	PTK/730
VMPTK730	yynnRSU
DIRM730	DIRM/730
DIRM730	yynnRSU
RACFVM730	RACF730
RACFVM730	yynnRSU
RSCS730	RSCS/730
RSCS730	yynnRSU
DFSMSVM221	SMS221
ICKDSF017	CMS0H14
VMSDO	SDO730

Service: PSP Bucket

- Go to ibm.com/support
- Search for “upgrade uuuuuuu subset ssssssss”
 - Or just “upgrade uuuuuuu” to get the top-level PSP (it lists the subsets)
- Can contain pre-reqs, co-reqs, cross-product requirements, or manual procedures
- The most important ones are
 - Upgrade ZVM730 Subset CP
 - Upgrade ZVM730 Subset yynnRSU

ZVM730	CP
ZVM730	DVF
ZVM730	GCS
ZVM730	CMS
ZVM730	TSAF
ZVM730	VMSES
ZVM730	REXX
ZVM730	AVS
ZVM730	LE
ZVM730	yyynnRSU
TCPIP730	VM730
TCPIP730	yyynnRSU
ZVMHCD730	ZVMHCD/720
ZVMHCD730	yyynnRSU
VMPTK730	PTK/730
VMPTK730	yyynnRSU
DIRM730	DIRM/730
DIRM730	yyynnRSU
RACFVM730	RACF730
RACFVM730	yyynnRSU
RSCS730	RSCS/730
RSCS730	yyynnRSU
DFSMSVM221	SMS221
ICKDSF017	CMS0H14
VMSDO	SDO730

Example: Upgrade ZVM720 Subset 2201RSU

SUBSET STATUS : Mar. 25, 2022 12:00:00 EST
PRODUCT ID : 5741A09
PRODUCT NAME : Z/VM RELEASE 7.2.0
SERVICE LEVEL : 2201
LEVEL CREATED : Mar. 25, 2201 12:00:00 EST SUBSET CREATED

Change Summary

DATE LAST CHANGED	SECTION	
1. YY/MM/DD	INSTALLATION INFORMATION	NO ENTRIES
2. YY/MM/DD	DOCUMENTATION CHANGES	NO ENTRIES
3. 22/04/15	GENERAL INFORMATION	
4. 22/08/18	SERVICE RECOMMENDATIONS	
5. YY/MM/DD	CROSS PRODUCT DEPENDENCIES	NO ENTRIES

Example: Upgrade ZVM720 Subset 2201RSU (cont'd)

General Information

This section contains general information, i.e. SYSGEN hints/tips.

22/04/15 Before installing RSU 7204 you should increase the size of the 7VMHCD20 29D minidisk. The current size is 12 cylinders (17,280 512-KB blocks). You should increase the disk to 30 cylinders (43,200 512-KB blocks) using your normal directory management procedures. If this is not done you will get an error when installing RSU 7204.

1. 22/04/15 RACF users installing RSU 7204 may encounter VMSES/E errors. See the Red Alert dated 22 March 2021 (with update June 2021) for information on resolving these errors. The Red Alert can be found at:
<https://www.vm.ibm.com/service/redalert/#RACF1>

Example: Upgrade ZVM720 Subset 2201RSU (cont'd)

Service Recommendations

*
* IMPORTANT NOTE THESE PTFs SHOULD BE APPLIED AFTER APPLYING THE RSU *
*

	PTF IN		SOLVING		
DATE	ERROR	APAR	PTF	COMP	ABSTRACT
=====	=====	=====	=====	=====	=====
2. 22/08/18		VM66378	UM35939	CP	HIPER QUERY TAPE CAN CAUSE ABENDHTT001 HCPQTA+170E
1. 22/04/01		VM66370	UM35907	CP	HIPER ABENDHTT001 HCPERM+56A WHILE ISSUING HCP6525E

PTF / APAR Reference Lists

PTF Include List

[UM35907](#) [UM35939](#)

PTF Exclude List

PE APAR List

[VM66370](#) [VM66378](#)

Service: IBM ServiceLink

- How to get a list of all available PTFs?
- SIS: Service Information Search
 - Use the COMPID and release number to search
 - From the release (not SDO!) Program Directory
 - Examine result
 - Remove any that shouldn't be there
 - Order
- Tedious and error-prone for large numbers
- Instead, open a Case with z/VM
- Request a list of available PTFs since *mm/dd/yy*
 - Remember the date you make the request for next time
 - Order in ServiceLink SRD application or via IBM Shopz

Figure 7. Component IDs and Field Engineering Numbers

Retain		
COMPID	Release	Component Name
568411201	720	CMS
568411202	720	CP
568411204	720	AVS
568411205	720	REXX™
568411206	720	TSAF
568411208	720	DVF
568411209	720	VMSES/E
568411211	720	GCS
568411220	620	LE
568819802	620	LE COBOL RTL
568819803	620	LE PL/I RTL

For your convenience, Figure 8 identifies the component IDs Engineering Service Numbers (FESN) for the features and pr deliverable.

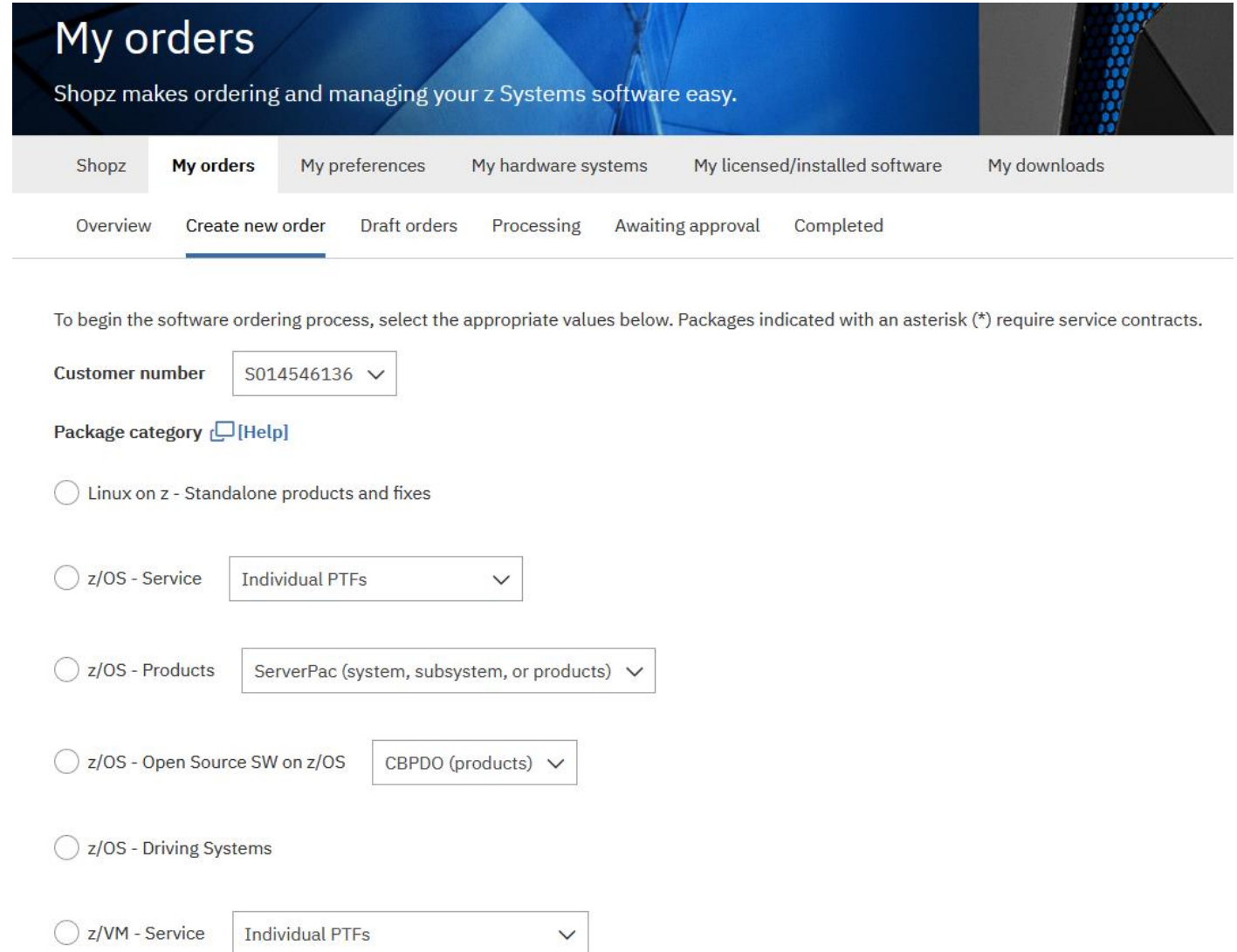
Figure 8. Component IDs and Field Engineering Numbers

Retain		
COMPID	Release	Component Name
568411219	720	HCD/HCM for z/VM
5735FAL00	720	TCP/IP for z/VM
568411218	720	Performance Toolkit for VM
5749DVH00	720	DirMaint™
576700201	720	RACF
568409601	720	RSCS
565899201	H14	ICKDSF

Ordering fixes using IBM Shopz – A Guided Tour

— Login to IBM Shopz with your IBM ID

— Create New Order



The screenshot shows the 'My orders' page in IBM Shopz. The page has a blue header with the text 'My orders' and 'Shopz makes ordering and managing your z Systems software easy.' Below the header is a navigation bar with tabs: 'Shopz', 'My orders' (selected), 'My preferences', 'My hardware systems', 'My licensed/installed software', and 'My downloads'. Underneath the navigation bar is a sub-navigation bar with tabs: 'Overview', 'Create new order' (selected), 'Draft orders', 'Processing', 'Awaiting approval', and 'Completed'. The main content area contains the following text: 'To begin the software ordering process, select the appropriate values below. Packages indicated with an asterisk (*) require service contracts.' Below this text are several form fields: 'Customer number' with a dropdown menu showing 'S014546136'; 'Package category' with a help icon and a list of radio button options: 'Linux on z - Standalone products and fixes', 'z/OS - Service' (selected) with a dropdown menu showing 'Individual PTFs', 'z/OS - Products' with a dropdown menu showing 'ServerPac (system, subsystem, or products)', 'z/OS - Open Source SW on z/OS' with a dropdown menu showing 'CBPDO (products)', 'z/OS - Driving Systems', and 'z/VM - Service' with a dropdown menu showing 'Individual PTFs'.

Ordering fixes using IBM Shopz

— Select z/VM Service

- It's easy to forget to select the radio button
- Don't forget
- But you will still forget
- It's ok

— Select the type of service you want

- In this example, we're ordering the RSU

— Continue

z/VM - Service

z/VM - Products

z/VSE - Service

Individual PTFs	^
Individual PTFs	
PSP critical service	
RSU Recommended Service Upgrade	
ESO service	

Ordering fixes using IBM Shopz

- Change the name to something you'll recognize later
- Select "V7 or above"
- Continue

RED ALERT!

- Use "V6 or below"
- <https://www.vm.ibm.com/service/redalert/>

Review and specify the basic details of your order.

Order name

z/VM 7.2 RSU

Customer

S014546136 - IBM CORP (US)

Operating environment

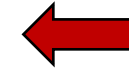
z/VM

Running version*

 [Help]

V7 or above

V6 or below



Package category

Service

Package type  [Help]

RSU Recommended Service Upgrade

Ordering fixes using IBM Shopz


— Do not use a report

- For now
- Generated by SERVICE ... BITMAP

— If you use a report, any PTFs you already have will not be shipped

— Continue

Select an installed software option.

 **Do not use a report for this order**

Use an existing report for this order

Report name

Replace an existing report for this order

Report name

File name

Upload a new report for this order

Report name

File name

Ordering fixes using IBM Shopz

- Select the RSU
- Scroll to the bottom and select PSP option
- Continue

Available RSUs

Select	Description	RSU level
<input checked="" type="checkbox"/>	z/VM Version 7.2.0 Stacked 7204RSU (PTF UM97720)	
	DirMaint	2201
	HCD/HCM for z/VM	2201
	Performance Toolkit for z/VM	2201
	RACF Feature z/VM	2102
	TCP/IP	2201
	z/VM Version 7.2.0	2201

Create additional order for PSP critical service for selected RSUs.

Ordering fixes using IBM Shopz

- Order via Internet
- Scroll to the bottom and select “I am placing this order for myself.”
- Continue
- Review
- Submit

Ordering fixes using IBM Shopz

— Order is in process



- You will receive “submitted” email from ShopzOS@us.ibm.com

Order Information

Country: United States
Customer number: S014546136
ShopzSeries order id: **U02376953**
Order name: z/VM 7.2 RSU 7204
Operating environment: z/VM
Package category: Service
Package type: RSU Recommended Service Upgrade

Country: United States
Customer number: S014546136
ShopzSeries order id: **U02376954**
Order name: VM PSP service 2022-08-22 17.49.46
Operating environment: z/VM
Package category: Service
Package type: PSP critical service

In process orders

Select	Order reference number - Order name	Status	
	U02376953 - z/VM 7.2 RSU 7204 Customer number: S014546136	Submitted	 History
	U02376954 - VM PSP service 2022-08-22 17.49.46 Customer number: S014546136	Submitted	 History

Ordering fixes using IBM Shopz

- Await email from efactory@us.ibm.com
- Note that your order name isn't in these emails
 - The reference number is the correlator with the Order ID in the “submitted” email

ORDER REFERENCE INFORMATION

IBM customer number: S014546136
SERVICE: IBM order number: B7555410
ShopzSeries reference number: **U02376953**
Hash Value : F5E0C8683E6A1CD19189A12C05C8CB215BFE1E09

Refer to the IBM order number when contacting IBM support:
<http://www.ibm.com/support>

Your order will be available for download on the IBM software delivery server through **"5 Sep 2022"**.

To access your order directly, go to:
https://www.ibm.com/software/shopzseries/ShopzSeries_public.wss?action=download&orderId=U02376953

Ordering fixes using IBM Shopz

- When you select the URL, your order name is shown
- Select HTTPS option



Download U02376953-z/VM 7.2 RSU 7204

Download expires on 5 Sep 2022

Packing list for Order# B7555410

 [View Now \(0.019 MB\)](#)

Installation instructions

 [View now](#)

RSU Materials for Service Order# B7555410

[→ Download to your workstation using IBM Download Director](#)



[→ Download to your workstation using HTTPS](#)

Ordering fixes using IBM Shopz

- Find the largest one
 - It has the code you're looking for
- Copy the link
 - Don't *click* on it!

Download U02376953-z/VM 7.2 RSU 7204

Download expires on 5 Sep 2022

RSU Materials for Service Order# B7555410 (1 of 4)
↓ Download to your workstation (0.031 MB)

RSU Materials for Service Order# B7555410 (2 of 4)
↓ Download to your workstation (96.6 MB)

RSU Materials for Service Order# B7555410 (3 of 4)
↓ Download to your workstation (0.005 MB)

RSU Materials for Service Order# B7555410 (4 of 4)
↓ Download to your workstation (0.003 MB)

← Return to main download page.

- Open Link in New Tab
- Open Link in New Window
- Open Link in New Private Window
- Bookmark Link
- Save Link As...
- Save Link to Pocket
- Copy Link**

Ordering fixes using IBM Shopz

- Install needed certificates
- Logon to MAINTvrm
- Access 500 C
- Access 193 Z
- Getshopz run (disk c port 9999)
- Use your emulator's URL hotspot capability to launch the web page

GETSHOPZ v1.0

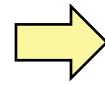
Web Interface:

<http://MYVM.COMPANY.COM:9999/>

Use PF3 to stop the web interface

—Use your emulator URL hotspot capability to launch web page

— Paste URL and submit



Complete instructions at <https://www.vm.ibm.com/service/getshopz.html>

z/VM Service Transfer

Direct to Host Transfer

Workstation Upload

Help

Transfer files by URL

This option facilitates the transfer of z/VM service files directly from IBM ShopZ to your z/VM System.

Paste the URLs below, or select file with URLs to transfer:

Browse

Or paste the URLs below:

```
https://deliverycb-bld.dhe.ibm.com/sdfdl/v2/edelivery/S014546136/S1908u72/2022082255410/PROD/Xa.2/Xb.2M6bqctC_QYMLFmuNTer1XA/Xc.S014546136/S1908u72/2022082255410/PROD/S0002.SHOPZ.S7555410.SHIPRSU1.pax.Z/Xd./Xf.LpR.F1AZ/Xg.11909895/Xi./XY.shopz/XZ.fv81qC8X91R7NBXG5p0NL_bz6IW006b6/S0002.SHOPZ.S7555410.SHIPRSU1.pax.Z
```

Submit

Applying fixes

— SERVICE ALL *envelope*

- *envelope SERVLINK* created by you or GETSHOPZ on the 500 disk

— PUT2PROD

— SHUTDOWN REIPL

— The hardest part is ordering

Upgrade

Upgrade

- The Upgrade Installation method isn't hard
 - I like it
 - It is somewhat tedious
 - More “declunkification” needed
- You must **read**
- You must **obey**
- You must **fill out the worksheets**
- I've done a lot of these
- #1 problem is a failure to read

Upgrade

— Common problems

- Not using minimum 32x80 screen size
- Trying to do it in a hurry
- When it says “consult xxxxxx”, not consulting xxxxxx
- Some of the instructions require adaptation to security policy
- Mucking with the IBM-defined virtual machine definitions
 - They need to be there
 - They need to have all their minidisks
 - You can change other stuff, but not that

Thank you for your attention!

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