

WebSphere Application Server V8.5 for z/OS WBSR85 Unit 5 - Installation Manager



Unit 5 - Installation Manager









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SMP/E is a venerable tool which continues to evolve. But for products such as WebSphere Application Server which run on a wide range of platforms, SMP/E installation provides fewer advantages. This is especially true if the products install entirely into Un*x file systems rather than making use of MVS native data sets.

Why should you care? Because the family of WebSphere branded products (on all platforms) will be using this installer in a consistent fashion.





The first two steps are SMPE steps and everyone that needs to be should already be familiar with that process. At any rate, SMPE education is WAY beyond our scope here.

The Installation Manager Install Kit is used to create a working copy of the Installation Manager.

Regular Unix tools are used to create the filesystem components needed to get a working copy of WebSphere on z/OS. We'll discuss the creation of these at the /Service mountpoint as if we were working on a "real" system.

The Installation Manager we created is then used to "load" the WebSphere on z/OS filesystem from the repository (and/or) the remote IBM based repository.

After it is loaded, we can them maintain it, also using Installation Manager.

Creating an Installation Manager



Installation Manager mode selection.

The Installation Manager may be created in any of three possible modes: admin, user, or group.

Admin mode: You must be in uid=0 to run in admin mode. A file in /etc/.ibm/registry points to the Installation Manager binaries, so there can only be one admin mode Installation Manager per system. Any user ID with uid=0 can invoke this Installation Manager.

User mode: The userid used when creating the Installation Manager is the only userid that may ever use it. A file in the <code>\$HOME/.ibm/registry</code> points to the binaries, so there can only be one user mode Installation Manager per user.

Group mode: A group mode Installation Manager may be invoked by any userid connected to the USS group that owns the Installation Manager files. There can be any number of group mode Installation Managers and there can be any number of userids connected to the group.

Since many (most) installations restrict the assignment of uid=0 to actual z/OS users, admin mode is probably not the mode of choice for most installations.

The restriction to only one user using a user mode Installation Manager makes that mode undesirable for most z/OS installations.

That leaves us with group mode as the probable choice.

(notes continue on the next page)

Setup of the Security System.

The setup of the security system is simple. It involves setting up one userid connected to one new group. The userid, or more likely the group, needs to have access to certain profiles in the RACF FACILITY and UNIXPRIV classes with the stated level of access.

The following JCL fragment (which is available in the GIN.SGINJCL dataset member GIN2ADMN) contains a sample set of commands to accomplish the required setup.

```
EXEC PGM=IKJEFT01, DYNAMNBR=20, REGION=0M
//RACF
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD
              *
ADDGROUP IMGROUP OMVS(GID(gid))
 ADDUSER IMADMIN DFLTGRP(IMGROUP) OMVS(UID(uid) HOME('/u/imadmin') +
    PROGRAM('/bin/sh')) NOPASSWORD
PERMIT BPX.FILEATTR.APF
                         CL(FACILITY) ID(IMADMIN) ACCESS(READ)
PERMIT BPX.FILEATTR.PROGCTL CL(FACILITY) ID(IMADMIN) ACCESS(READ)
 PERMIT BPX.FILEATTR.SHARELIB CL(FACILITY) ID(IMADMIN) ACCESS(READ)
                                     CL(UNIXPRIV) +
PERMIT SUPERUSER.FILESYS.CHOWN
       ID(IMADMIN) ACCESS(READ)
PERMIT SUPERUSER.FILESYS.CHANGEPERMS CL(UNIXPRIV) +
       ID(IMADMIN) ACCESS(READ)
 SETR RACLIST (FACILITY) REFRESH
 SETR RACLIST (UNIXPRIV) REFRESH
/*
```



We need to create a filesystem and mount it before we can create the Installation Manager. The default mountpoint is at /InstallationManager but we will be doing all of our work in the /Service directory so our mountpoint will be /Service/InstallationManager. The JCL fragment (which is available in the GIN.SGINJCL dataset member GIN2CFS) will create the required filesystem, mountpoint, set the permissions and ownership properly, and mount the filesystem at the mountpoint.

Creating an Installation Manager

```
Creating the Installation Manager.
   Command: groupinstc
   installationDirectory: /Service/InstallationManager/bin
   dataLocation: /Service/InstallationManager/appdata
   JOB: GIN.SGINJCL(GIN2INST)
   //SYSTSIN DD
                   *
    BPXBATCH SH +
     /usr/lpp/InstallationManager/V1R5/groupinstc
                                  /Service/InstallationManager/bin
       -installationDirectory
                                                                          +
       -dataLocation
                                  /Service/InstallationManager/appdata +
       -acceptLicense
   /*
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```

Creating the Installation Manager.

We're now ready to create the Installation Manager that we will use for all further tasks involved with creating and maintaining the WebSphere on z/OS V8 binaries. We had previously decided to use group mode, so the sample jcl provided in the GIN.SGINJCL dataset member GIN2INST may require some editing.

The userid created previously should be used to run this job, so the job card will need to be modified appropriately.

The command that will be used determines the mode:

installc Admin mode

userinstc User mode

groupinstc Group mode

So the command will have to be changed from installc to groupinstc.

The paths specified for the *-*installationDirectory and *-*dataLocation arguments will need to be changed to reflect the pathname we created in the previous step.

Installing WebSphere on z/OS V8 using the Installation Manager

Creating the filesystem. Mountpoint: /Service/usr/lpp/zWebSphere/V8R0FP02 Filesystem: WAS800.V8R0FP02.SBBOHFS **JOB:** BBO.SBBOJCL(BBO1CFS) //SYSTSIN DD * BPXBATCH SH + /Service/InstallationManager/bin/eclipse/tools/+ zCreateFileSystem.sh + -name WAS800.V8R0FP02.SBBOHFS + -type ZFS + -volume WASV8A + -cylinders 3360 336 + -mountpoint /Service/usr/lpp/zWebSphere/V8R0FP02 + -owner IMADMIN + -group IMGROUP /* **IBM Americas Advanced Technical Skills** 12 © 2013 IBM Corporation Gaithersburg, MD

We now need to create a filesystem to contain the WebSphere on z/OS V8 binaries at a mountpoint contained within the /Service mountpoint. This process is nearly identical to that which we used to create the filesystem for Installation Manager. The following JCL fragment (which is available in the BB0.SBB0JCL dataset member BB01CFS) will create the required filesystem, mountpoint, set the permissions and ownership properly, and mount the filesystem at the mountpoint.

Note the name of the filesystem, WAS800.V8R0FP02.SBBOHFS. The middle qualifier is used to tie the hfs to the level of WebSphere installed, in this case the base level of the product (keep in mind that all of this is being done in the /Service directory). Also, the last directory in the mountpoint is a match for the middle qualifier of the filesystem dataset name. These names will become more important when we start to apply maintenance to the product.

Installing WebSphere on z/OS V8 using the **Installation Manager**

A side discussion on repositories.

Local Repository: /usr/lpp/InstallationManagerRepository/HBB0800

IBM Hosted Repository:

http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80

Need for a userid/password to access.

Use the saveCredential Installation Manager command to create a "keyring".

Note that you may need to add repository.config to the end of the url and change http to https for the saveCredential command.

:/Service/InstallationManager/bin/eclipse/tools.

/imutilsc saveCredential -keyring /u/mjloos/imkeyring -url https://www.ibm.com/software/repositorymanager/com.ibm.websphere.z OS.v80/repository.config -userName mikeloos@us.ibm.com -userPassword ******* -proxyHost your.proxy.hostname -proxyPort yourproxyportnumber -proxyUsername yourproxyuserid -proxyUserPassword *******

Successfully saved the credential to the keyring. :/Service/InstallationManager/bin/eclipse/tools

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Setup work to Use the IBM Hosted Repository.

Accessing the IBM repository requires that you have an ID and password. This is the same IBM ID that you would use to download things from developerworks, alphaworks, and access other parts of the IBM network. They are freely available and easy to obtain.

You also need the correct URL. The URL can be found in the WebSphere V8 InfoCenter. It is: http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80

Since you probably don't want to specify your IBM ID and password in batch jobs, you'll need to set up a "keyring" for Installation Manager use. This is very easy to do. From a telnet, ssh, or OMVS shell: :/Service/InstallationManager/bin/eclipse/tools.

/imutilsc saveCredential -keyring /u/mjloos/imkeyring -url https://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80/repository.config -userName mikeloos@us.ibm.com -userPassword ********

Successfully saved the credential to the keyring.

:/Service/InstallationManager/bin/eclipse/tools

The imutilsc saveCredential command can be used to create a keyring for use with Installation Manager. The parameters necessary are:

a path to a keyring file,

a url for which it will be used.

a username

and a password.

You'll note that it may be necessary to add /repository.config to the end of the url and to specify https in place of http on the saveCredential command.

If the password and/or the userid gets changed, simply delete the keyring file and recreate it.





Installing WebSphere on z/OS V8 using the Installation Manager

Let's see what's available.

IBM Hosted Repository:

http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80

Keyring: /u/mjloos/imkeyring

Use the listAvailablePackages Installation Manager command to see which fix packs are available.

:/Service/InstallationManager/bin/eclipse/tools -> ./imcl listAvailablePackages -long -repositories /usr/lpp/InstallationManagerRepostitory/HBB0800,+ http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80 -keyring /u/mjloos/imkeyring Fix Pack 1 Partial output: http://www.ibm.co software/repositorymanager/com.ibm.websphere.zOS.v80 : com.ibm.webspher/.zOS.v80_8.0.1.20110829_1901 : IBM WebSphere Application Server for z/OS : 8.0.0.1 Fix Pack 2 http://www.ibm.com Sftware/repositorymanager/com.ibm.websphere.zOS.v80 : com.ibm.websphere Application Server for z/OS : 8.0.0.2 **IBM Americas Advanced Technical Skills** 15 © 2013 IBM Corporation Gaithersburg, MD

Getting a list of available fix packages.

The Installation Manager command "listAvailablePackages" can be used to determine which fix packs are available in a repository (or set of repositiories). The -long option give a more readable name for each package.

The partial output from the command at the time it was issued indicates that the most current fix pack available was fix pack 2 (8.0.0.2).

Installing WebSphere on z/OS V8 using the **Installation Manager**

```
version 8.5 Update.
//SYSTSIN DD *
BPXBATCH SH +
  /Service/InstallationManager/bin/eclipse/tools/imcl
                                                                    +
   listAvailablePackages -long -features
                                                                    +
    -repositories
                                                                    +
    /shared/InstallationManagerRepository/HBB0850,+
   http://www.ibm.com/software/repositorymanager+
    /com.ibm.websphere.zOS.v85
    -keyring /u/mjloos/imkeyring
/*
Output:
```

/shared/InstallationManagerRepository/HBB0850 : com.ibm.websphere.IHS.zOS.v85_8.5.0.20120501_1121 : IBM HTTP Server for WebSphere Application Server for z/OS : 8.5.0.0 : core.feature

/shared/InstallationManagerRepository/HBB0850 : com.ibm.websphere.NDDMZ.zOS.v85_8.5.0.20120501_1118 : DMZ Secure Proxy Server for IBM WebSphere Application Server for z/OS : 8.5.0.0 : core.feature,thinclient

/shared/InstallationManagerRepository/HBB0850 : com.ibm.websphere.PLG.zOS.v85_8.5.0.20120501_1122 : Web Server Plug-ins for IBM WebSphere Application Server for z/OS : 8.5.0.0 : core.feature

/shared/InstallationManagerRepository/HBB0850 : com.ibm.websphere.zOS.v85_8.5.0.20120501_1118 : IBM WebSphere Application Server for z/OS : 8.5.0.0 :

core.feature,ejbdeploy,thinclient,embeddablecontainer,samples,liberty

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Getting a list of available fix packages.

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Finally, let's install.

Local Repository: /usr/lpp/InstallationManagerRepository/HBB0800

IBM Hosted Repository:

http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v80

Keyring: /u/mjloos/imkeyring

Installation Directory: /Service/usr/lpp/zWebSphere/V8R0FP02

JOB: BBO.SBBOJCL(BBO1INST)

Use the install command to cause Installation Manager to populate the target filesystem.

17	IBM Ame	ericas Advanced Technical Skills	G	2013 IBM Corporation
/*				
	-acceptLicense			
	adedArtifacts=false -keyring /u/	mjloos/imkeyring	+	
	-preferences com.ibm.cic.common.c	ore.preferences.preserveDown	10+	
	http://www.ibm.com/software/repos	itorymanager/com.ibm.websphe	ere.zOS.v80	+
	-repositories /usr/lpp/Installati	onManagerRepository/HBB0800,	+	
	/Service/InstallationManager/shar	edResources	+	
	-sharedResourcesDirectory		+	
	-installationDirectory /Service/u	sr/lpp/zWebSphere/V8R0FP02	+	
	install com.ibm.websphere.zOS.v80	_8.0.2.20111202_1716	+	
	/Service/InstallationManager/bin/ec	lipse/tools/imcl	+	
E	PXBATCH SH +			
/ 5	YSTSIN DD *			

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Installation of the Code at the fix pack 2 level.

The package name that we are installing: com.ibm.websphere.zOS.v80_8.0.2.20111202_1716 is the "fully guallified" package name, including the product level. The package name without the product level would have been: com.ibm.websphere.zOS.v80 which would have caused the product to be installed at the most current level available in the repository (in this case the same level, fix pack 2). Since we wanted to demonstrate selection of the fix pack 2 level of the product, we specified the fully gualified package name.

The execution of this job may take quite a while. Since most of the work will be done by USS processes that are "spawned" off of the main task, the main task may be in a wait state for a time which could exceed your installation's SMF JWT value. This suggests that it may be a good idea to include the parameter, TIME=1440 or TIME=NOLIMIT on the job card.

Since the Installation Manager we are using is a group mode Installation Manager, this job must be run either by a userid which is connected to the Installation Manager group (IMGROUP) or by the Installation Manager userid (IMADMIN).

You'll note that we specified both the SMPE installed local repository and the IBMhosted repository. The local repository is specified to "prove" that we are licensed for the product. The IBM hosted repository actually holds all of the code we need for the install.



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Installing WebSphere on z/OS V8 using the Installation Manager

Next step...put it into use.

Currently mounted at /Service.

Unmount and remount at the "standard" location.

/usr/lpp/zWebSphere/V8R0FP02

Or, simply copy the filesystem to a newname, and mount it in the "standard" location.

If this is just the beginning of your use with V8, it would be appropriate to begin configuration processes.

If this is an "upgrade" to a new maintenance level, then it is time to start changing the intermediate symlinks as discussed earlier.



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Maintenance in the form of Fix packs is installed as we have already showed. Basically it is a full replacement of the filesystem, and the steps above can simple be repeated.

Maintenance in the form of an iFix can either be applied directly to any of the existing copies of the filesystem mounted in the /Service directory.

Installation Manager will only apply maintenance to copies about which it already knows. So if it was built in /Service, it must be maintained in /Service.

You can get a list of iFixes available for a particular package version (fix pack level) with the Installation Manager Command: listAvailableFixes.

The output from the command shows one available iFix:

8.0.0.2-WS-WAS-IFPM53930_8.0.2.20120112_0922

Installing the iFix.

• A Sample Job.

```
//SYSTSIN DD
                  *
   BPXBATCH SH +
     /Service/InstallationManager/bin/eclipse/tools/imcl
                                                                         +
       install 8.0.0.2-WS-WAS-IFPM53930_8.0.2.20120112_0922
                                                                         +
       -installDirectory /Service/usr/lpp/zWebSphere/V8R0FP02
                                                                         ^+
       -repositories /usr/lpp/InstalllationManagerRepository/HBB0800,+
      http://www.ibm.com/software/repositorymanager/+
        com.ibm.websphere.zOS.v80
                                                                         +
       -preferences ce.zOS.v80c.common.core.preferences.preserveDownlo+
        adedArtifacts=false,+
        com.ibm.cic.common.core.preferences.http.proxyEnabled=True,+
        com.ibm.cic.common.core.preferences.http.proxyHost=<proxyName>,+
        com.ibm.cic.common.core.preferences.http.proxyPort=<proxyPort> +
       -keyring /u/mjloos/imkeyring
                                                                         +
       -acceptLicense
  /*
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```

This sample job will install the iFix: 8.0.0.2-WS-WAS-IFPM53930_8.0.2.20120112_0922 onto the filesystem mounted at: /Service/usr/lpp/zWebSphere/V8R0FP02 from the IBM hosted repository.

The filesystem would then be ready for remounting or copying and mounting into the testing area.





To Install the WebSphere Customization Toolbox on your Windows machine, you first have to install a copy of Installation Manager.

A good starting point for all of this work is the WebSphere V8 Infocenter. The url is (all on one line)

http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?

topic=/com.ibm.websphere.zseries.doc/info/zseries/ae/welcome_zseries.html

(If using PDF, the link is here.)

Once in the infocenter you should set your "scope" to the z/OS topics only. Then you can search on the string: "installing wct" or something fairly close to that. Next click on the link in the navigation pane for "Installing the WebSphere Customization Toolbox using the GUI".

Now you're ready to start.



Using the link in step one, and your IBM ID and password, you can download and (following the standard instructions) install the IBM Installation manager on your desktop.

Next use the Installation Manager GUI and the link in the gray box to install the WCT.

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Installing Installation Manager for Windows

After starting and opening the Installation Manager on your Desktop...

BM Installation Manager	Preferences	
View Installed Packages Preferences Exit	Image: Specific Spectrum 1. Click (Repositories Appearance Appearance − Files for Rollback ⊕ Help ⊕ Internet − Passport Advantage Updates □	Repositories 2. Click on Add Repository. Location Connection Add Repository Add Repository Edt Repository 3. Enter the repository link you obtained from the InfoCenter. Prove Up force 1. Enter the repository link you obtained from the InfoCenter. Repository 1. Enter the repository link you obtained from the InfoCenter.
	0	http://www.lbm.com/software/repositorymanager/com.lbm.websphere.WCT.v80 Image: Connections 4. Click on OK. self) are stored. OK Cancel
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Once the Installation Manager GUI is started, click on File >> Preferences. On the next panel, select Repositories, and click on Add Repository. On the prompt panel enter the URL from the InfoCenter. Click OK.



The next prompt will be for a user name and password. This is your IBM ID and password which will be used to access the repository.

Installing Installation Manager for Windows							
Source of the statistical stat	all	olbox					
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Once you are back to the main GUI screen, you can click on Install. The Installation Manager will search the repositories for available packages and then prompt you for selection. On the selection screen check the boxes to indicate what you want installed. Click Next, follow the remaining prompts, and the WCT will be installed.

End	of	Unit
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