IBM Installation Manager for z/OS System Programmers: Web-based Installs, Fix Packs, and How iFixes Really Work
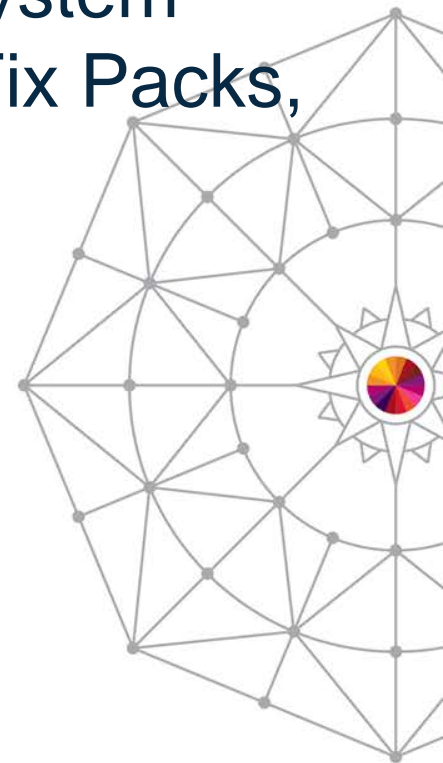
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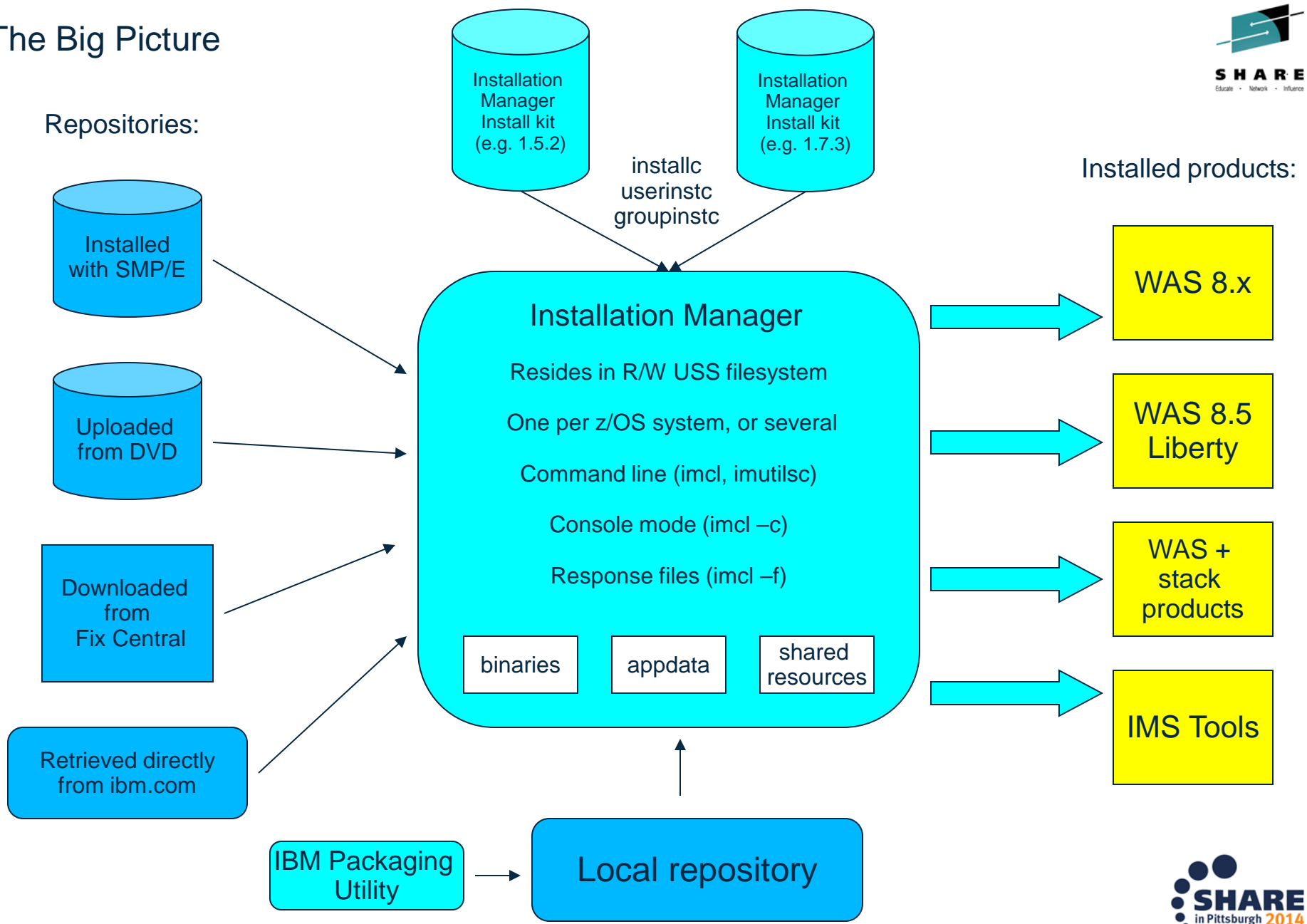
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Why IBM Installation Manager?

- Allows efficient delivery of large products and inter-mixed products into a Unix-style filesystem

- Supports multiple platforms from a single object repository

- In use since 2006

- Available on z/OS since 2010 (WAS V8)

The Big Picture

Repositories:

installc
userinstc
groupinstc

Installed products:

Installed with SMP/E

Uploaded from DVD

Downloaded from Fix Central

Retrieved directly from ibm.com

Installation Manager

Resides in R/W USS filesystem

One per z/OS system, or several

Command line (imcl, imutilsc)

Console mode (imcl –c)

Response files (imcl –f)

| binaries | appdata | shared resources |

WAS 8.x

WAS 8.5 Liberty

WAS + stack products

IMS Tools

IBM Packaging Utility → Local repository

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in Pittsburgh 2014

The basics: the imcl install command

imcl install *product_to_be_installed*

      -repositories *list_of_repositories*

      -installationDirectory *where_the_product_should_be_installed*

      -acceptLicense

- The imcl (IM command line) binary is in <IM binaries>/eclipse/tools

- Must be run under the Installation Manager user ID

The basics: packages

IM-installable products are defined by an offering name or package name:

    com.ibm.websphere.zOS.v85

The release and a build timestamp make this package name unique for each product level:

    com.ibm.websphere.zOS.v85_8.5.5001.20131018_2325

Version format: v.r.m.f → v.r.(m*1000 + f)
                       8.5.5.1 → 8.5.5001

8.5.0.2014… is 8.5.0.0,
not 8.5.0.2!

Timestamp format: yyyyddmm_hhmm

If the underscore and version/timestamp are omitted, Installation Manager will install the latest level available in the repositor(ies).

To see all installed products: imcl listInstalledPackages
                                 imcl listInstalledPackages -verbose

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The basics: repositories

Collections of metadata and "parts"

Can be: in a local file system
             accessed through an HTTP or FTP server

Two flavors:

Network repository	**ESD repository**
repository.config	disktag.inf
repository.xml	ad/
Offerings/	md/
atoc/	toc/
native/	
plugins/	*Intended for media distribution only*

-repositories /path/to/repository   ← *must include complete path!*
-repositories http://hostname:port/path
-repositories <repository>,<repository>,<repository> *etc.*

To see the contents of repository:
         imcl listAvailablePackages –repositories <repository list>

The basics: installation directories

Installed products are identified to Installation Manager by their installation directories – so these can't be changed.

New (empty) installation directory: Installation Manager performs a new product install

Existing installation directory: Installation Manager performs a product upgrade to the new/specified level

Some products can only be installed with ("on top of") other products; Installation Manager checks the product dependencies in each case.

Installation Manager provides a script to create product filesystems:

```
zCreateFileSystem.sh –name WAS.V8551.SBBOHFS –type ZFS
        -cylinders 3000 300 –mountpoint /prod/WAS/V8551
        -owner IMADMIN  -group IMGROUP
```

To see all directories in use: imcl listInstallationDirectories

Where do product repositories come from?

Installed with SMP/E:

For example, WAS 8.5 ships FMID HBBO850, which installs the WAS 8.5 product repository into target data set SBBOIMR.

-repositories /usr/lpp/InstallationManagerRepository/HBBO850

With service, this repository usually contains the base (GA) level of the product, plus one fix pack level (corresponding to the PTFs installed). This repository can be used to install at the GA or the installed fix pack level, or upgrade any previous level of WAS 8.5 to the fix pack level in the repository.

FMID HBJA700 installs the WAS Java 7.0 product repository into target data set HBJAIMR.

-repositories /usr/lpp/InstallationManagerRepository/HBJA700

Again, when service is applied, the base level of Java 7 is available, together with one fix pack level, which can be used for both initial installs and upgrades.

Where do product repositories comes from?

Uploaded from product media:

WAS 8.5.5 includes the following DVD or DVD image (.iso file):

Compressed repositories for WebSphere Application Server for z/OS

Name	Date modified	Type	Size
▲ Files Currently on the Disc (9)			
📁 lafiles	5/14/2013 7:43 PM	File folder	
📁 readme	5/14/2013 7:43 PM	File folder	
was.repo.1104.w2mtk.zip	5/14/2013 7:43 PM	Compressed (zipp...	82,967 KB
was.repo.7501.adapters.zip	5/14/2013 7:43 PM	Compressed (zipp...	18,361 KB
was.repo.8550.ihs.zOS.zip	5/14/2013 7:43 PM	Compressed (zipp...	33,904 KB
was.repo.8550.liberty.zOS.zip	5/14/2013 7:43 PM	Compressed (zipp...	110,278 KB
was.repo.8550.plugins.zOS.zip	5/14/2013 7:43 PM	Compressed (zipp...	35,595 KB
was.repo.8550.zOS.zip	5/14/2013 7:43 PM	Compressed (zipp...	1,752,787 ...
📄 Copyright.txt	5/14/2013 4:56 PM	TXT File	1 KB

And a second DVD or .iso for JDK 7.0

Each zip file contains a base product repository. Upload the desired repository in binary to z/OS, and point to it:

-repositories /prod/WAS855/repositories/was.repo.8550.zOS.zip

Unzipping the repository (and pointing –repositories to the unzip directory) improves performance at the cost of additional disk space.

Where do product repositories comes from?

Downloaded from Fix Central:

Fix Central (http://www.ibm.com/support/fixcentral) allows you to search for and download product refreshes (fix packs) and corrective service (iFixes):

Find product	**Select product**

Select the product below.

When using the keyboard to navigate the page, use the **Alt** and **down arrow** keys to navigate the selection lists.

Product Group*

| WebSphere | ▼ |

Select from WebSphere*

| WebSphere Application Server | ▼ |

Installed Version*

| 8.5.5.1 | ▼ |

Platform*

| z/OS | ▼ |

Select Continue,
then Browse for Fixes…

Continue

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Where do product repositories comes from?

And you will get a list of all service that can be applied to the specific product level (in this case, WAS for z/OS 8.5.5.1):

10. **interim fix:** 8.5.5.0-WS-WASProd-IFPI16082 ➡
    8.5.5.0-WS-WASProd-IFPI16082
    More Information

11. **interim fix:** 8.5.5.0-WS-WASProd-IFPI12648 ➡
    8.5.5.0-WS-WASProd-IFPI12648
    More Information

12. **fix pack:** 8.5.5-WS-LIBERTYPROFILE-FP0000002 ➡
    WebSphere Application Server Liberty Profile V8.5.5 Fix Pack 2
    More Information

13. **fix pack:** 8.5.5-WS-WAS-OS390-FP0000002 ➡
    IBM WebSphere Application Server Version 8.5.5 Fix Pack 2 for zOS platform.
    More Information

Use the links to decide what service you want, then download it to your workstation and upload it in binary to z/OS. Point Installation Manager to the downloaded service:

    -repositories /path/to/downloaded/file/filename.zip

Where do product repositories comes from?

But if your z/OS system has access to the Internet – possibly through a proxy server – you can have Installation Manager access Fix Central directly, through the **service repository:**

http://www.ibm.com/software/repositorymanager/<package>

For example:

http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v85

(This URL is meant to be used by Installation Manager only, but you can point a browser at it by adding /repository.config to the end.)

This repository provides access to all product fix packs and all published corrective service (iFixes) for com.ibm.websphere.zOS.v85.

All you need is an IBM ID – get one at http://www.ibm.com/account/profile

Installation Manager will pull down only the required parts to apply service.
All transactions are encrypted (HTTPS).

Complete your session evaluations online at www.SHARE.org/Pittsburgh-Eval

Where do product repositories comes from?

Once you have an IBM ID and password, create a credentials file for
Installation Manager to use:

        imutilsc saveCredential
            -userName IBM_userid
            -userPassword IBM_password
            -url http://www.ibm.com/software/repositorymanager/
                com.ibm.websphere.zOS.v85/repository.config
            -secureStorageFile /path/im.ssf

The imutilsc binary is in the same location as imcl: <IMbin>/eclipse/tools

Additional options can be used to provide proxy credentials, and to specify a master
password that is used to provide better encryption for the credentials file.

*If you installed the WAS 8.5 repository (HBBO850) at fix pack level 8.5.5.2 or above,
see sample member BBO1CRED in SBBOJCL.*

Making your life easier

Since many installs will require a number of repositories – base product, fix packs, iFixes, and so on – you may want to create a composite repository. This is a single repository.config file that points to a number of other repositories:

LayoutPolicy=Composite LayoutPolicyVersion=0.0.0.1
repository.url.01=*location_repository_A*
repository.url.02=*location_repository_B*
repository.url.03=*location_repository_C*
repository.url.04=*location_repository_D*

The file must be in ASCII!

Pointing the imcl parameter **–repositories** to the directory containing this repository.config file will cause Installation Manager to search all the repositories named in the file – which can be any mix of local and web-accessible repositories.

See the following article for more about composite repositories:

http://pic.dhe.ibm.com/infocenter/install/v1r7/topic/com.ibm.silentinstall12.doc/topics/t_repository_composite.html

You can also use **IBM Package Utility** (free; see links at the end) to create and manage a local repository containing multiple products and service.

Installing products and service

Suppose you have installed the WAS 8.5 product repository with SMP/E (FMID HBBO850).

Run sample job BBO1CFS to create a file system for a new WAS 8.5 install.

Run sample job BBO1INST to perform the install:

```
//INSTALL  EXEC PGM=IKJEFT01,REGION=0M,MEMLIMIT=NOLIMIT
//SYSTSPRT DD  SYSOUT=*
//BPXOUT   DD  SYSOUT=*
//STDOUT   DD  SYSOUT=*
//SYSTSIN  DD  *
 BPXBATCH SH +
  /InstallationManager/bin/eclipse/tools/imcl                         +
    install com.ibm.websphere.zOS.v85                                 +
    -installationDirectory /usr/lpp/zWebSphere/V8R5                    +
    -sharedResourcesDirectory /InstallationManager/sharedResources +
    -repositories /usr/lpp/InstallationManagerRepository/HBBO850   +
    -preferences com.ibm.cic.common.core.preferences.preserveDownlo+
     adedArtifacts=false                                              +
    -acceptLicense
/*
```

The WAS level in the product repository will be installed.

Installing products and service

Perhaps, instead of using SMP/E, you uploaded the WAS 8.5.5 compressed repository file from the product DVD.

Create a filesystem to install the product into:

```
zCreateFileSystem.sh –name WAS.V8550.SBBOHFS –type ZFS -cylinders 3000 300
        –mountpoint /prod/WAS/V8550 -owner IMADMIN  -group IMGROUP
```

Perform the install:

```
imcl install com.ibm.websphere.zOS.v85
        -repositories /prod/WAS855/repositories/was.repo.8550.zOS.zip
        -installationDirectory /prod/WAS/V8550
        -sharedResourcesDirectory /InstallationManager/sharedResources
        -preferences com.ibm.cic.common.core.preferences.preserveDownloadedArtifacts=false
        -acceptLicense
```

The WAS level in the compressed product repository will be installed – namely, WAS 8.5.5.0.

Installing products and service

To install an iFix that you have downloaded as a zip file:

imcl install 8.5.5.0-WS-WAS-IFPM89206
    -repositories /path/to/ifix/8.5.5.0-WS-WAS-IFPM89206
    -installationDirectory /prod/WAS/V8550
    -acceptLicense

To install the same iFix directly from Fix Central:

imcl install 8.5.5.0-WS-WAS-IFPM89206
    -repositories http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v85
    -installationDirectory /prod/WAS/V8550
    -secureStorageFile /u/jdoe/fix.central.ssf
    -acceptLicense

Installing products and service

To install the latest fix pack and all recommended iFixes from Fix Central:

imcl install com.ibm.websphere.zOS.v85
    -repositories
        http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v85
    -installationDirectory /prod/WAS/V8552
    -preferences com.ibm.cic.common.core.preferences.preserveDownloadedArtifacts=false
    -installFixes recommended
    -secureStorageFile /u/jdoe/fix.central.ssf
    -acceptLicense

imcl install com.ibm.websphere.liberty.zOS.v85
    -repositories
        http://www.ibm.com/software/repositorymanager/com.ibm.websphere.liberty.zOS.v85
    -installationDirectory /prod/WASLiberty/V8552
    -preferences com.ibm.cic.common.core.preferences.preserveDownloadedArtifacts=false
    -installFixes recommended
    -secureStorageFile /u/jdoe/fix.central.ssf
    -acceptLicense

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New in 2014:

If you link your IBM ID with an IBM customer number that is associated with a current license for the WAS 8.5 product, you no longer need to get the base product repository via SMP/E or from the product media.

Follow the instructions in http://www-01.ibm.com/support/docview.wss?uid=swg21659636

and you can install the entire WAS 8.5 product from ibm.com with one cmd:

```
imcl install com.ibm.websphere.zOS.v85
      -repositories http://www.ibm.com/software/repositorymanager/com.ibm.websphere.zOS.v85
      -installationDirectory /prod/WAS/V8552
      -preferences com.ibm.cic.common.core.preferences.preserveDownloadedArtifacts=false
      -installFixes recommended
      -secureStorageFile /u/jdoe/fix.central.ssf
      -acceptLicense
```

This will install the latest level of WAS, plus all recommended service, without any additional space requirements on z/OS besides the disk space for Installation Manager, and for the installed WAS product.

Where does Installation Manager come from?

Install with SMP/E as FMID HGIN140 – shipped with all products that require IBM Installation Manager

+ one PTF to give you a current level of the install kit – IM 1.7.3 = UI18566

= product data set SGINHFS containing the IBM Installation Manager install kit:

/usr/lpp/InstallationManager/V1R4   *yes, even if it is no longer 1.4…*

```
# ls -al /usr/lpp/InstallationManager/V1R4
total 304840
drwxr-xr-x   12 G0MARK    SYS1          8192 Jun  5 16:59 .
drwxr-xr-x    3 G0MARK    SYS1          8192 Mar 26 11:51 ..
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:58 IBM
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:58 Offerings
drwxr-xr-x    3 G0MARK    SYS1          8192 Jun  5 16:58 configuration
-rwxr-xr-x    1 G0MARK    SYS1          2225 Jun  5 16:58 consoleinst.sh
drwxr-xr-x   13 G0MARK    SYS1          8192 Jun  5 16:58 documentation
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:58 features
-rwxr-xr-x    1 G0MARK    SYS1        118784 Jun  5 16:58 groupinstc
-rwxr-xr-x    1 G0MARK    SYS1           305 Jun  5 16:58 groupinstc.ini
-rwxr-xr-x    1 G0MARK    SYS1           265 Jun  5 16:58 install.xml
-rwxr-xr-x    1 G0MARK    SYS1        118784 Jun  5 16:58 installc
-rwxr-xr-x    1 G0MARK    SYS1           303 Jun  5 16:58 installc.ini
drwxr-xr-x    3 G0MARK    SYS1          8192 Jun  5 16:58 jre_6.0.0.sr9_20110303_01
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:58 license
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:58 native
drwxr-xr-x   10 G0MARK    SYS1         73728 Jun  5 16:59 plugins
-rwxr-xr-x    1 G0MARK    SYS1         10770 Jun  5 16:59 readme.html
-rwxr-xr-x    1 G0MARK    SYS1           201 Jun  5 16:59 repository.config
-rwxr-xr-x    1 G0MARK    SYS1         10746 Jun  5 16:59 repository.xml
-rwxr-xr-x    1 G0MARK    SYS1          2253 Jun  5 16:59 set-ext-attr.sh
-rwxr-xr-x    2 G0MARK    SYS1          4113 Jun  5 16:57 toolkit.unzip.sh
-rwxr-xr-x    2 G0MARK    SYS1     155495977 Jun  5 16:58 toolkit.zip
drwxr-xr-x    2 G0MARK    SYS1          8192 Jun  5 16:59 tools
-rwxr-xr-x    1 G0MARK    SYS1        118784 Jun  5 16:59 userinstc
-rwxr-xr-x    1 G0MARK    SYS1           307 Jun  5 16:59 userinstc.ini
#
===> _
```

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Where does Installation Manager come from?

OR
Download a current copy of the install kit from

http://www-01.ibm.com/support/docview.wss?uid=swg27025142

2. **refresh pack:** 1.7.3.0-IBMIM-LINUX-X86_64-20140521_1925 →
   IBM Installation Manager 1.7.3 Install Kit for Linux x86_64

→ 3. **refresh pack:** 1.7.3.0-IBMIM-ZOS-20140521_1925 →
   IBM Installation Manager 1.7.3 Install Kit for Z/OS

4. **refresh pack:** 1.7.3.0-IBMIM-WIN64-20140521_1925 →
   IBM Installation Manager 1.7.3 Install Kit for Windows x86_64

refresh pack: 1.7.3.0-IBMIM-ZOS-20140521_1925

IBM Installation Manager 1.7.3 Install Kit for Z/OS

The following files implement this fix.

→ ⬇ agent.installer.zos.motif.s390_1.7.3000.20140521_1925.zip (148.29 MB)

Upload the zip file in binary to z/OS and unzip it* Into an empty directory. Then run the set-ext-attr.sh script to set some extended attributes. Voila – an Installation Manager install kit.

* You can get an unzip for x/OS from
www.ibm.com/systems/z/os/zos/features/unix/bpxa1ty1.html
or just use any Java JDK: jar –xvf <zipfile>

Setting up Installation Manager

1. Set up filesystem(s) to hold the IM binaries, appdata, and shared resources – at least 37,000 tracks for a large product like WAS for z/OS.
    (See sample job GIN2CFS in SGINJCL)

2. Create a user ID with a r/w USS home directory and READ access to
    FACILITY profiles   BPX.FILEATTR.APF
                                   BPX.FILEATTR.PROGCTL
                                   BPX.FILEATTR.SHARELIB
    UNIXPRIV profiles   SUPERUSER.FILESYS.CHOWN
                                   SUPERUSER.FILESYS.CHANGEPERMS *(or equivalent)*

3. **From this ID**, run the installc, userinstc, or groupinstc commands to create an Installation Manager in admin, user, or group mode:

    installc   -installationDirectory /InstallationManager/bin
                    -dataLocation /InstallationManager/appdata
                    -acceptLicense

This will copy the Installation Manager binaries to /InstallationManager/bin, and initialize Installation Manager runtime data (installed products) in /InstallationManager/appdata.

Now just invoke the Installation Manager under the ID you created in step 2.

Updating an Installation Manager

The Installation Manager you created will continue to run at the same level until you update its binaries:

Install a new PTF for HGIN140, or download an unzip a new level of the install kit.

From the updated install kit, re-issue the original command you used to create the Installation Manager (installc, userinstc, or groupinstc, with the same arguments. (Be sure to use the same Installation Manager user ID!)

This will copy the updated Installation Manager binaries from the install kit into the Installation Manager binaries directory, and update the IM run-time data.

Installation Manager has fairly strict requirements for upward compatibility – there is very little risk in upgrading to a new IM level.

And here's why you might want to upgrade:

Why update Installation Manager?

IM 1.5.2 enhancements:
> Group mode should handle file permissions and ownership better
> Addition of -useServiceRepository parameter

IM 1.7.0 enhancements:
> Ability to view product licenses from the imcl command line

IM 1.7.2 enhancements:
> Uninstall prevented if offering is required by other installed pkgs
> The imutilsc saveCredential command no longer requires repository.config on end of URL
> Installation Manager now checks for required free space before performing install or
>   upgrade

IM 1.7.3 enhancements:
> ciclogs files no longer left in /tmp to cause problems

Under consideration:
> Abbreviations for all parameter options (-installationDirectory, etc.)
> Full support for SMS options in the zCreateFileSystem.sh script
> Web interface to Installation Manager
> Integration with z/OSMF

Avoiding problems with Installation Manager:

Home directories

Installation Manager assumes that a writeable home directory is available. If you see errors about specifying the –configuration option, check your OMVS(USERHOME) setting!

File permissions

When uploading fixes for Installation Manager to consume, always make sure they are readable by the Installation Manager user ID!

Group mode allows several user IDs (all in the same SAF group) to share a common set of IM binaries and run-time data. With some products, you may need to chmod –R g+w the product filesystem being maintained when you switch to a different user ID in the group. Also, if the IM group is not your default group, you may need to use the newgrp command, or GROUP= on the JOB statement, to force the correct group to be used.

Special characters   SWG21612945

Installation Manager can be fussy about special characters such as % # < > "
Avoid these characters in path names that Installation Manager will use!

Avoiding problems with Installation Manager:

Symbolic links SWG21628092

Installation Manager stores some path names in canonical form – for example, /tmp may be stored as /SYSA/tmp or /SYSTEM/tmp.   This can cause problems if an IPL causes the saved path to point to the wrong location!

Where possible, avoid symlinks in the paths to the Installation Manager binaries, appdata, shared resources, or installed products. If these change, you may need to find a way to mount the affected filesystems at the original locations in order to run Installation Manager.

Space requirements

If Installation Manager is interrupted in mid-flight – for example, due to an out-of-space-on-volume error – installed products can be left in an inconsistent state, and must be uninstalled (usually with ignorable errors) then reinstalled.

To avoid these problems, Installation Manager 1.7.2 and above check the filesystem containing the product directory before any install or upgrade operation, to verify that sufficient space is available. The operation will not start if space is not available; use the confighfs or zfsadmin commands to add the required space.

Avoiding problems with Installation Manager:

If you try to to upgrade WebSphere Application Server and forget to mount the WAS product filesystem:

CRIMA1075E ERROR: Error during "pre-install configure" phase:

CRIMA1075E ERROR: Unable to find custom install operation
com.ibm.ws.exec.command.Exec

A package has an issue that cannot be resolved by Installation Manager.

java.lang.ClassNotFoundException: com.ibm.ws.exec.command.Exec

Recheck your filesystems!

Useful links

Installation Manager online documentation (all versions):

    https://www.ibm.com/support/knowledgecenter/SSDV2W/im_family_welcome.html

Installation Manager install kit downloads (all versions):

    http://www.ibm.com/support/docview.wss?uid=swg27025142

Washington System Center Cookbook for WAS install with IBM Installation Manager

    http://www-01.ibm.com/support/docview.wss?uid=tss1wp102014

Announcement of Web-based install for WebSphere Application Server

    http://www.ibm.com/support/docview.wss?uid=swg21659636

What Level 2 Needs

Initial Doc

- Provide joblog that contains imcl command and output

- provide output of installed packages:
  - imcl listInstalledPackages -long

- provide output of available packages:
  - imcl listAvailablePackages -repositories list_of_repository_locations

- Mustgather:
  - http://www.ibm.com/support/docview.wss?uid=swg21497417#show-hide

Common Questions L2 will ask

Questions you can ask yourself

- Is installation directory already in use ?
    - this is a product upgrade
    - ensure it contains the binary code for that product level that is currently installed
    - If the wrong level, or directory is empty, this will cause problems
- If installation directory is not in use
    - this is a new install
    - ensure the base repository is specified on the repository command (not just fix pack repository)

More things…..

- installation directory cannot be shared between WAS, NDDMZ, IHS, Plugins

  – Needs to be unique installation directory

- installing Liberty on 8.5.5.0 or higher (versus upgrade)

  – need access to base repository

  – not just 8.5.5.0 fix pack level as this is a new offering

  – Needed for licensing purposes

Problem accessing IIM for WebSphere on z/OS

- Problems accessing IIM (IBM Installation Manager) repository for WebSphere z/OS
  - **CRIMC1011W WARNING**: The following repositories are not connected:
  - WARNING: Failed to connect repository 'https://www.ibm.
  - com/software/repositorymanager/**com.ibm.websphere.zOS.v80**/repository.config' either because the repository does not exist, the repository is closed or the repository server can not be reached.
  - WARNING: Some reasons why a repository connection fails are:
  - WARNING: Is the Repository location mistyped?
  - WARNING: Is the local network down?
  - WARNING: If you use a firewall, does it allow the Installation Manager to access the server?
  - WARNING: If your computer uses a proxy server, are the proxy settings for the Installation Manager set correctly?

- Successful:
  - BPXBATCH SH /opt/InstallationManager/bin/eclipse/tools/imcl **listAvailablePackages** -long -repositories /usr/lpp/InstallationManagerRepository,https://www.ibm.com/software/repositorymanager/com.ibm.**websphere.PLG.zOS**.v80/repository.config -preferences.....
- Fails:
  - BPXBATCH SH /opt/InstallationManager/bin/eclipse/tools/imcl **listAvailablePackages** -long -repositories /usr/lpp/InstallationManagerRepository,https://www.ibm.com/software/repositorymanager/com.ibm.**websphere.zOS**.v80/repository.config -preferences .....

- Actions taken this past weekend should address the issue

- Workaround
  - Download from FixCentral
  - http://www.ibm.com/support/fixcentral/

- Doc to gather
  - Command(s) that were run
  - Failure messages
  - Mustgather:
    - http://www.ibm.com/support/docview.wss?uid=swg21497417#show-hide

??? QUESTIONS ???