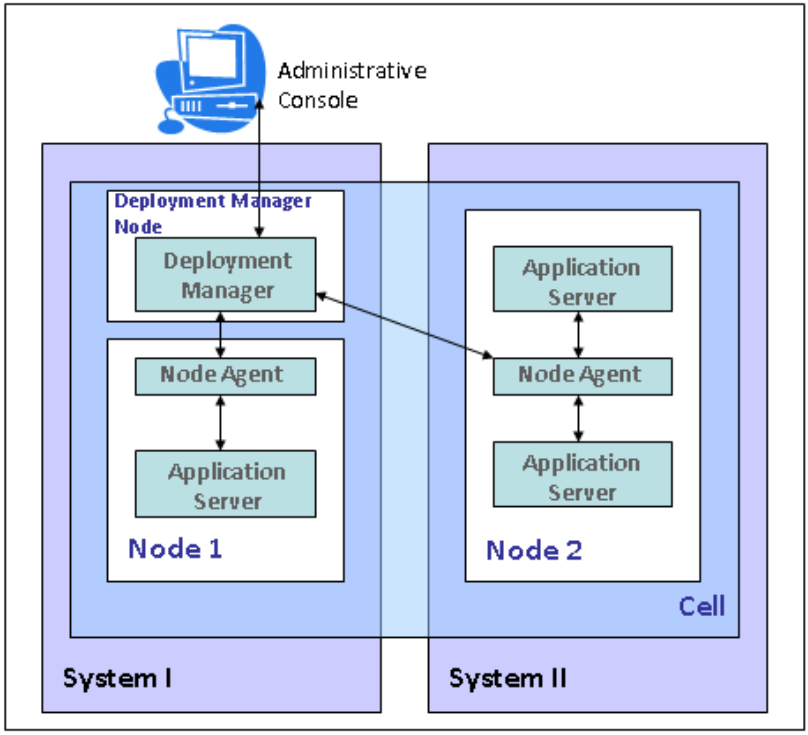
CHAPTER 2: INSTALLATION

Theory

WebSphere Application Server Network

Deployment (ND) has three configuration concepts, which are cells, nodes, and servers. There configuration items are managed by deployment managers, administrative agents, and job managers.



Application server is the core of the WebSphere Application Server where you can run your applications. Each application server has its own JVM where you can deploy one or more applications. Application server provides the platform that your application requires such as database and messaging connectivity.

Node is a grouping of application servers in order to configure and manage them. It is possible to have multiple nodes in Network Deployment installation, but nodes cannot cross the limits of the operating system instance of which they are installed on. Administrative console enables you to manage multiple nodes installed on different operating system instances.

Cell contains multiple nodes that are administered by deployment manager. Deployment manager uses node agents within the cell to manage application servers installed on distributed and multiple nodes. Node agent is the administrative

server running on each node to manage application servers. Each node has its own copy of configuration and they are synchronized with the master repository which resides on deployment manager.

IBM Installation Manager is tool for installation and maintenance of Installation Manager based packages such as WebSphere Application Server. You can install and run Installation Manager in graphical, silent, console and command-line mode.

With Installation Manager you can install, update, modify, roll back and uninstall the packages.

Installation is the primary task for Installation Manager. From version 8 of Websphere Application Server, you can use this tool for installation and maintenance.

Update feature allows you to locate and install the updates for the products that are installed using Installation Manager. You can both install fixpacks and interim fixes available for your application server.

Modify allows you to change features used during installation. You can add/remove features such as language packs for Websphere Application Server.

Roll back gives you the possibility to remove an update and go back to the previous version of you application server. This feature is really handy when you have problems with the newly installed update. Installation manager keeps earlier versions and uses those files to roll back.

Uninstall feature allows you to remove packages that are installed using Installation Manager.

Beside these features, IBM Installation Manager allows you to create response files that can be used in installation of the packages like Websphere Application Server. To do that, use “-skipInstall” option to just simulate installation and “-record target_response_file.xml” option and complete all installation steps. At the end, the output file can be used as response file for further installations in silent mode.

AIM

The aim of the following lab exercise is to install Websphere Application Server both using graphical interface where available and command line interface.

Following steps are required:

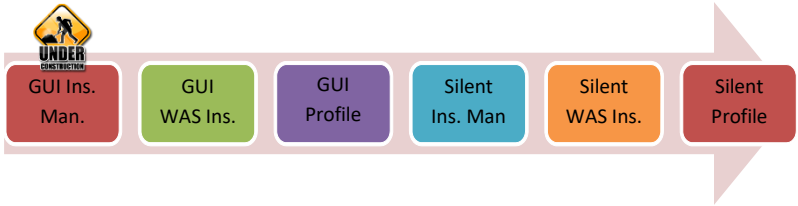
Task 1: Graphical Installation Manager Installation
Task 2: Graphical WebSphere Application Server Installation
Task 3: Adding new Profile via GUI
Task 4: Silent installation of Installation Manager
Task 5: Silent installation of WebSphere Application Server
Task 6: Adding new Profile via command line

We need following packages to perform the lab exercise:

- IBM Installation Manager
  http://www-01.ibm.com/support/docview.wss?uid=swg24033586
- IBM WebSphere Application Server 8.5 Network Deployment Trial
  https://www14.software.ibm.com/webapp/download/preconfig.jsp?id=2012-06-14+12%3A34%3A36.201813R&S_TACT=&S_CMP=

Lab Exercise 2: INSTALLATION

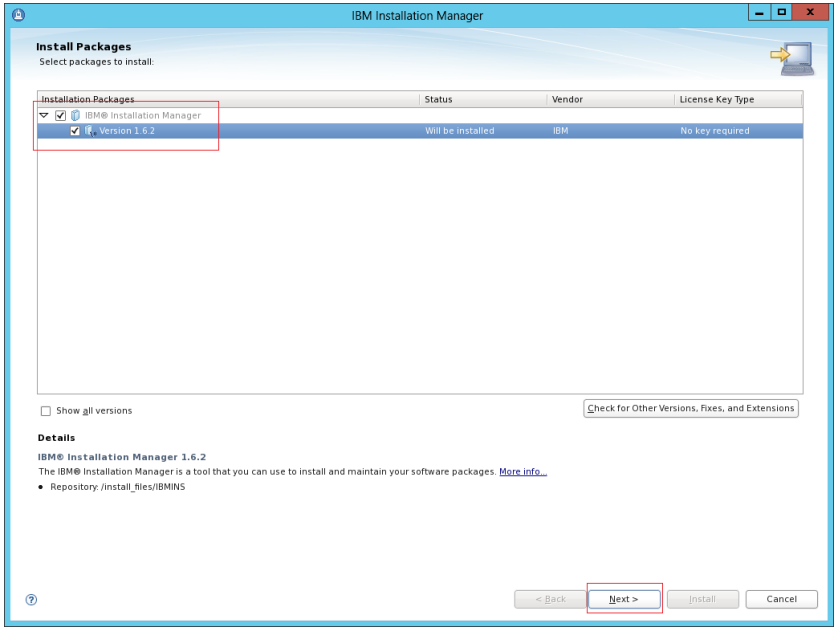
1. **Graphical Installation Manager Installation**
2. **Graphical WebSphere Application Server Installation**
3. **Adding new Profile via GUI**
4. **Silent installation of Installation Manager**
5. **Silent installation of WebSphere Application Server**
6. **Adding new Profile via command line**

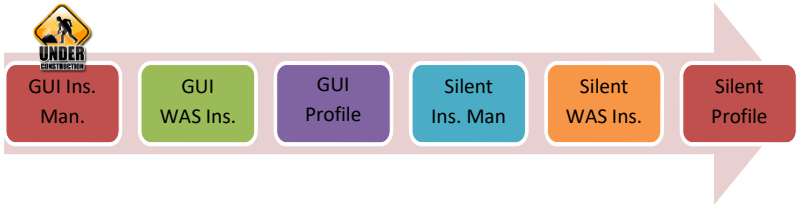


Task 1: Graphical Installation Manager Installation

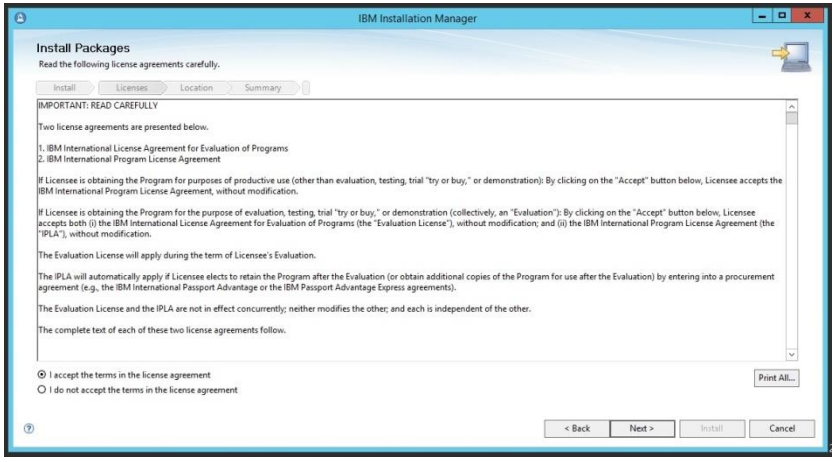
Step 1: Unzip the installation file of IBM Installation Manager and within that directory run "**install**" command.

Step 2: Select the check marks as below and then click on "**Next**".

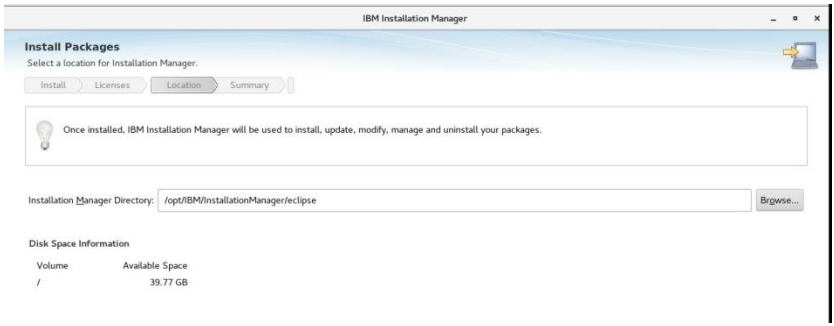


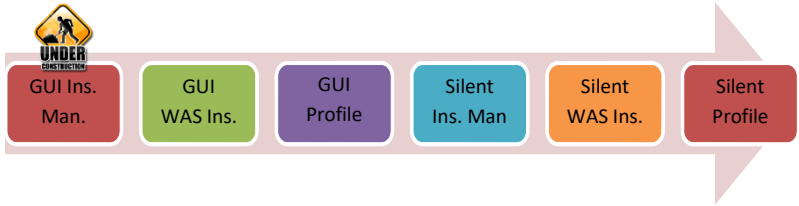


Step 3: Accept the license agreement and then click **"Next"**. You can print the agreement for later use by "**Print All".**

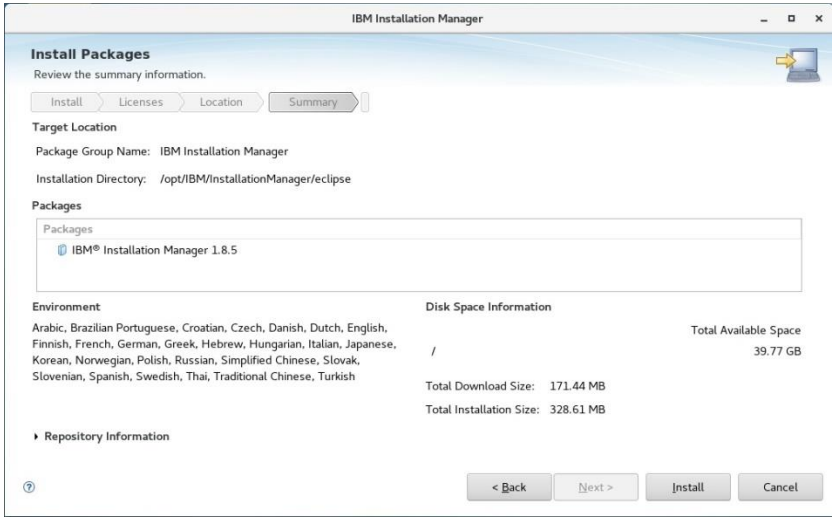


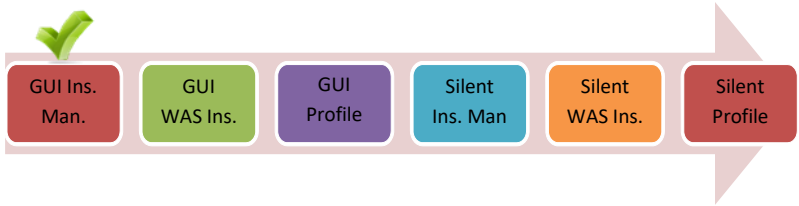
Step 4: Choose the installation directory (/opt/IBM/InstallationManager/eclipse) and then click **"Next"**.



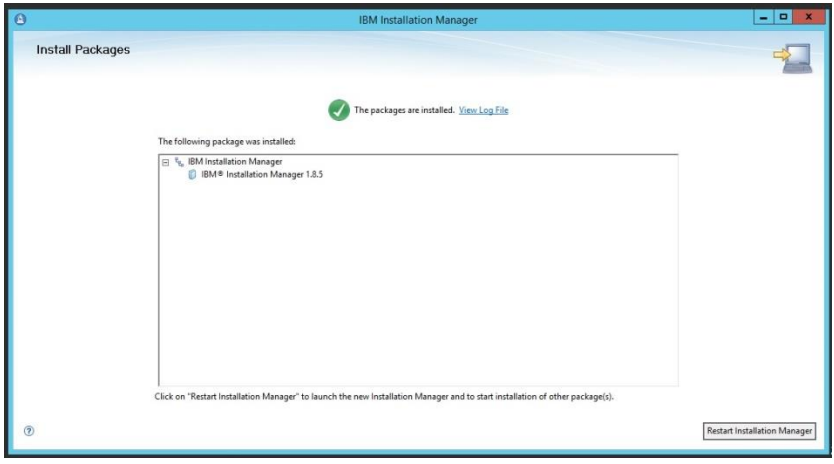


Step 5: View summary and click **"Install"** to start installation.

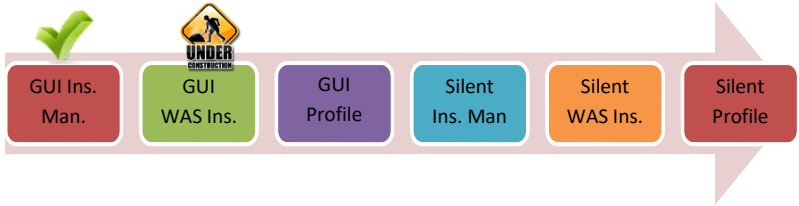




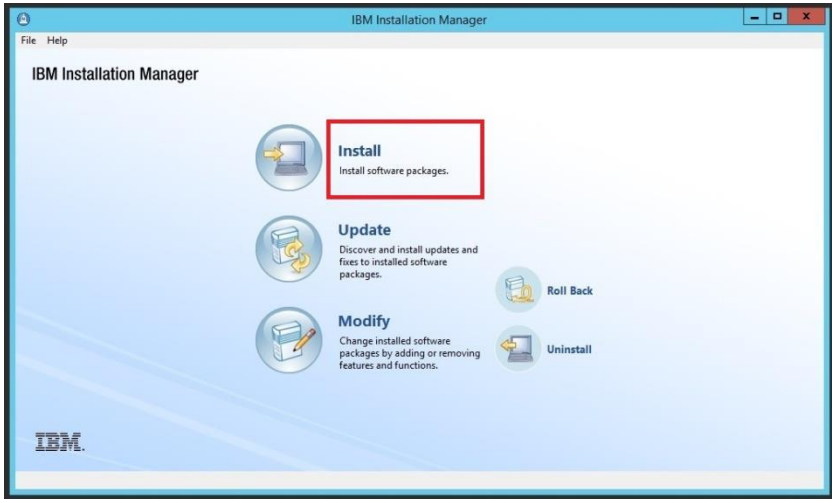
Task 1 is complete!



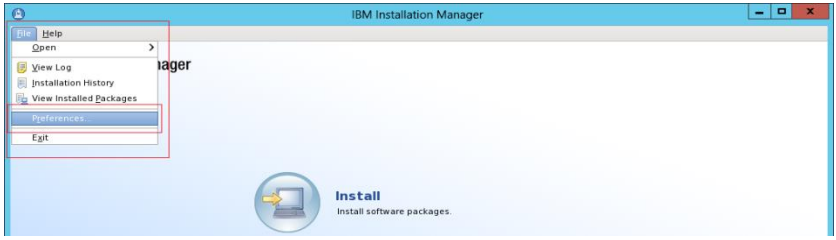
Step 6: Click **"Restart Installation Manager"** to run newly installed Installation Manager.

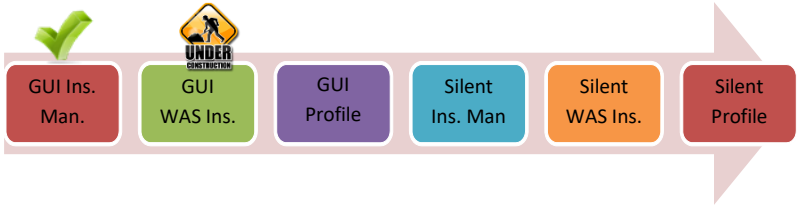


Task 2: Graphical WebSphere Application Server Installation



Step 1: In order to set repositories to install Websphere, click **"File>Preferences"**.



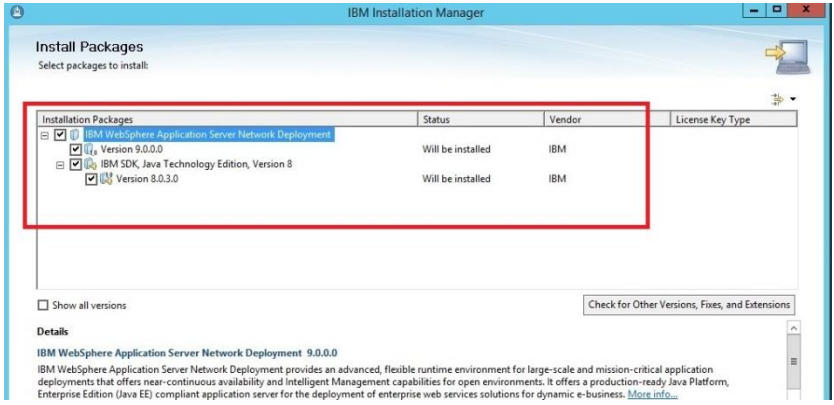


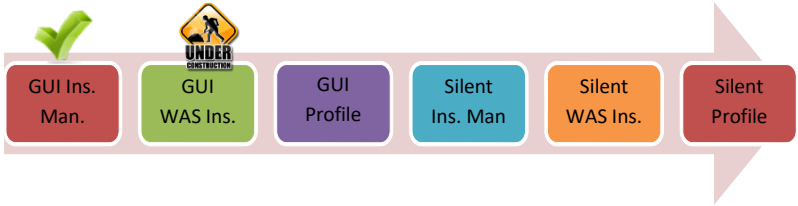
Step 2: Click "**Add Repository"** and change directory to the installation file of Websphere Application Server.

http://www.ibm.com/software/repositorymanager/com.ibm.websphere.ND.v90

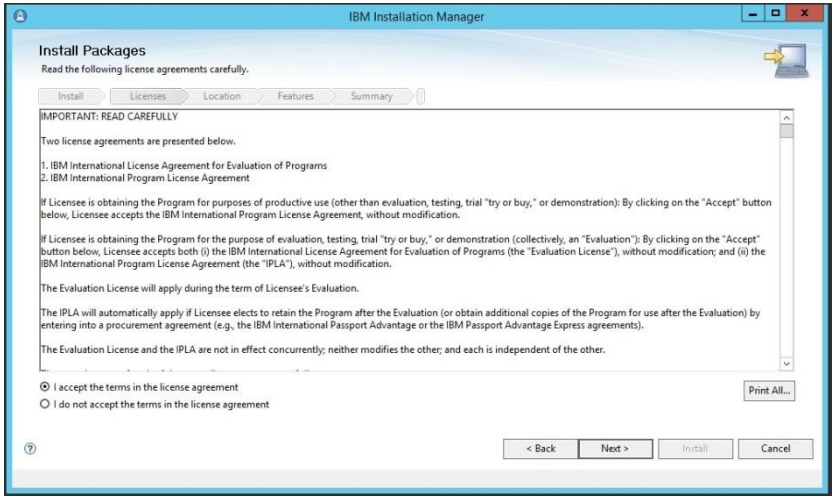
Step 3: Click **"OK"** when you select all the required repositories. For the installation purpose, we will have repositories configured, one for WebSphere and other for IBM SDK required for WebSphere installation.

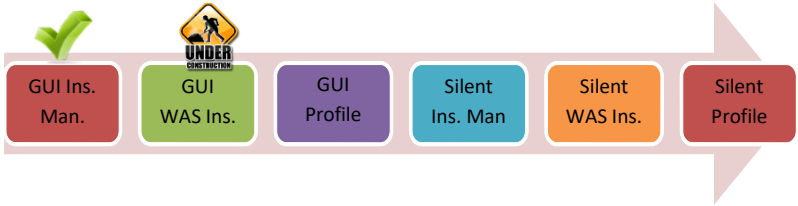
Step 4: Select the packages you want to install and then click "**Next"**.



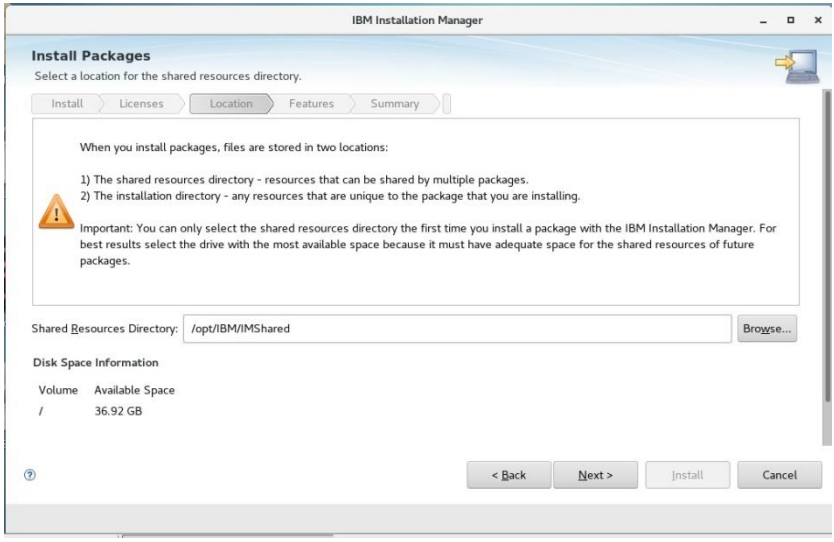


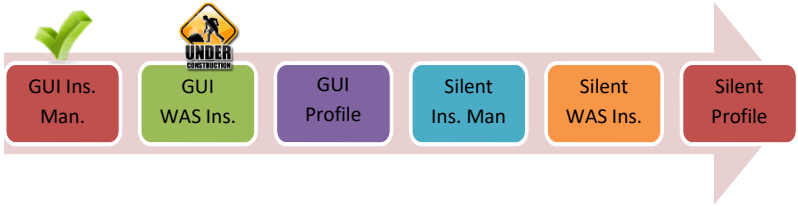
Step 5: Accept the license agreement and then click **"Next"**.



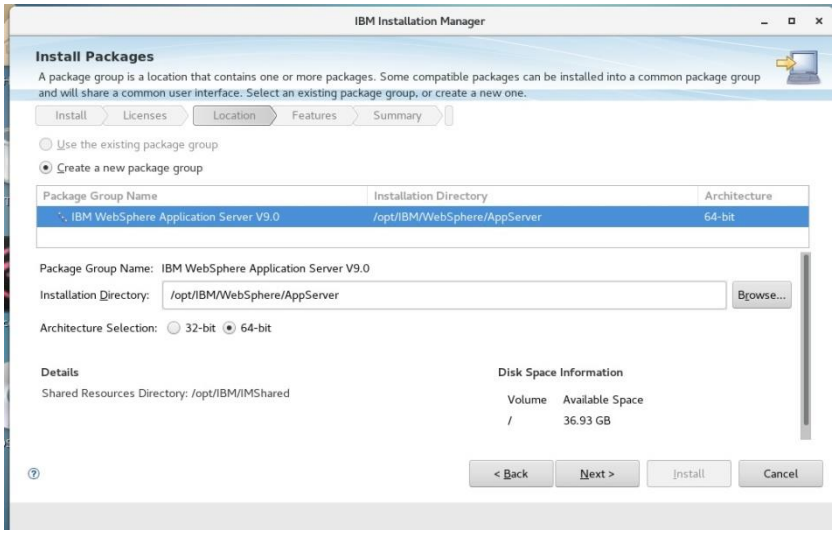


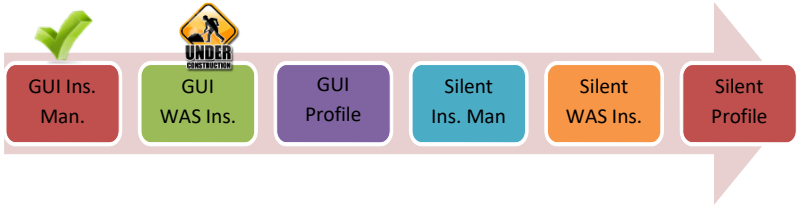
Step 6: Select the shared resources directory and then click **"Next"**. This directory will be shared between different packages that might be installed.



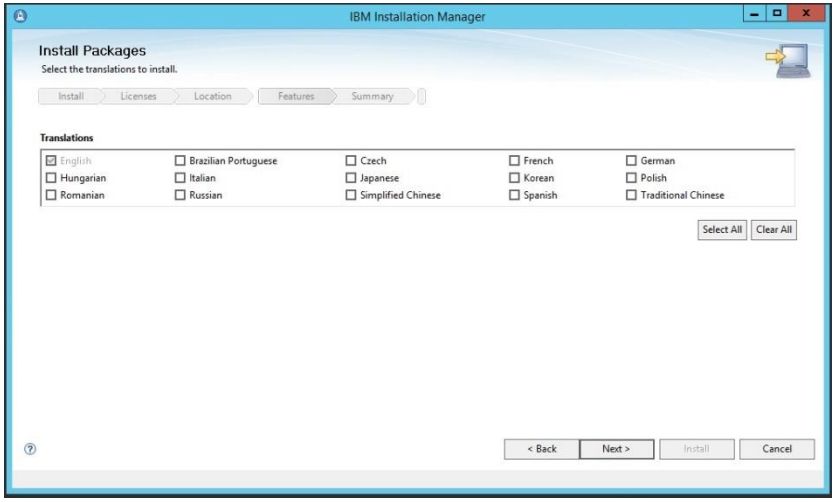


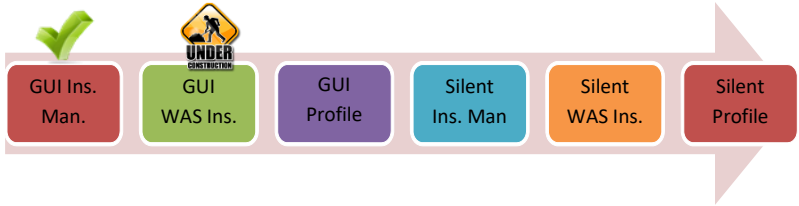
Step 6: Select the installation directory. We accept the default value, "/opt/IBM/WebSphere/AppServer" and then click **"Next"**.



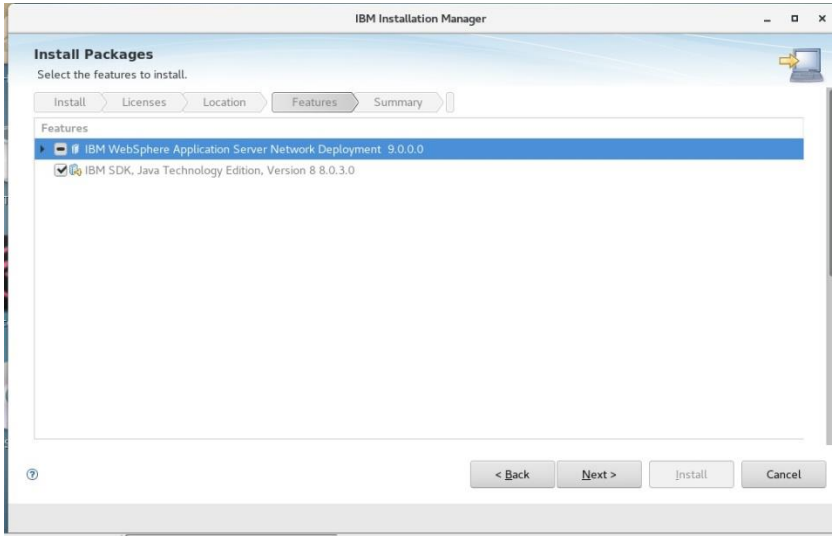


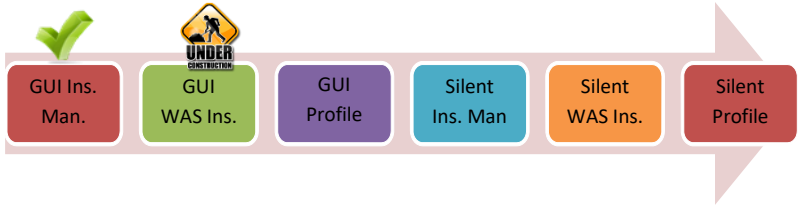
Step 7: Select different language translations and then click **"Next"**.



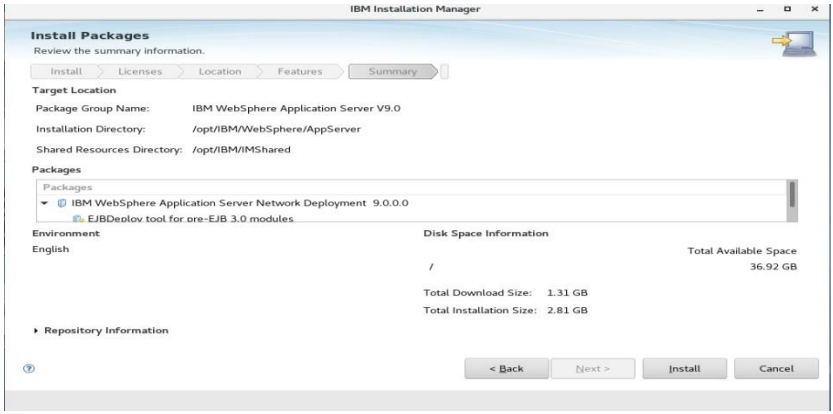


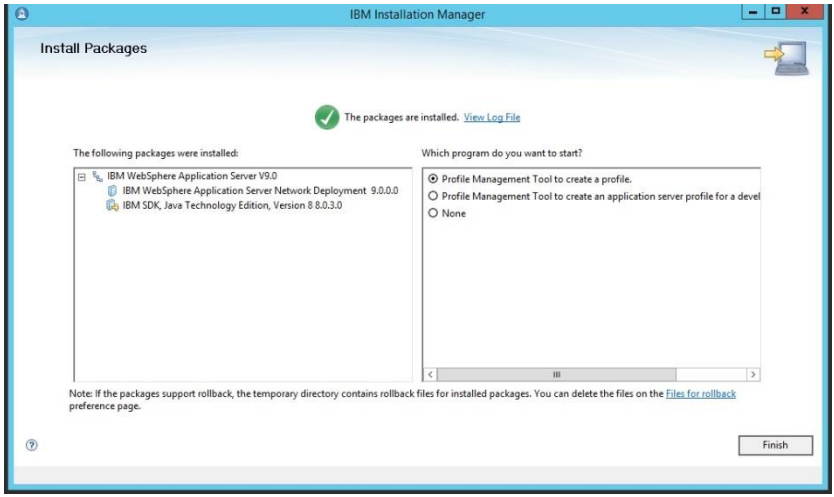
Step 8: Select the features you need to install and then click **"Next"**.





Step 9: Review the summary information, and then click **"Install"** to start installation. If you need to change the options, simply go back and then update.

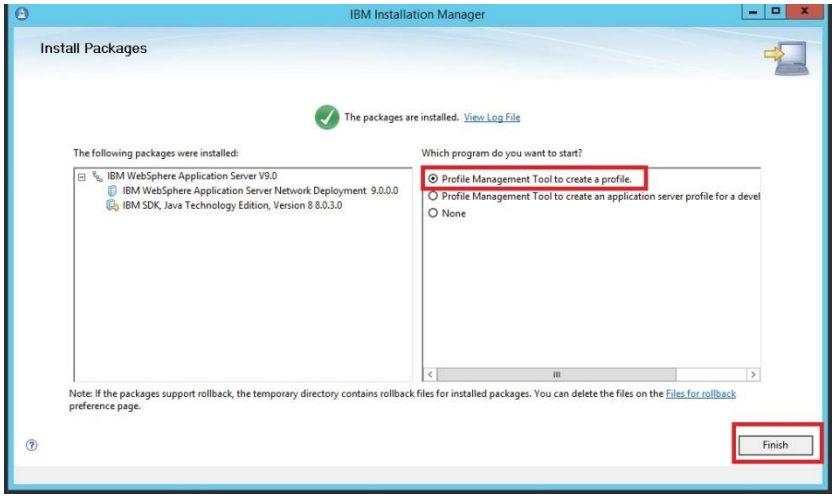




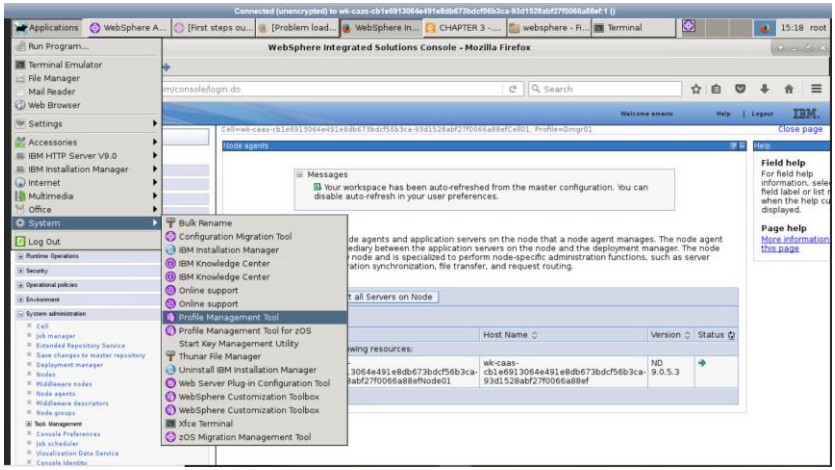
Task 2 is complete!

Task 3: Adding new Profile via GUI

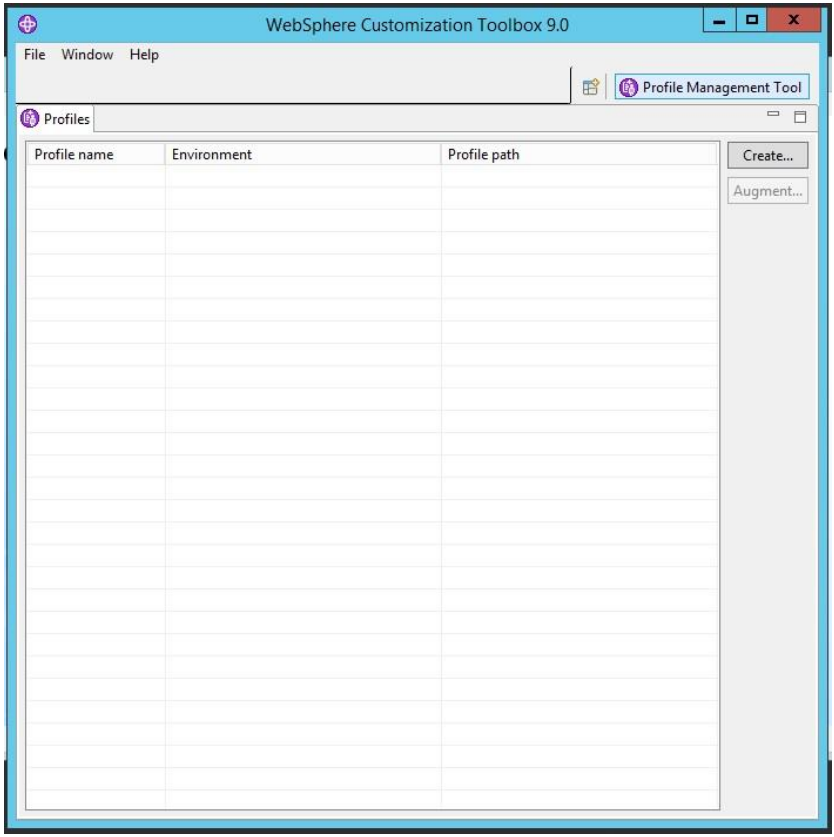
Step 1: Select “Profile Management Tool to create a profile” and then click **“Finish”**.



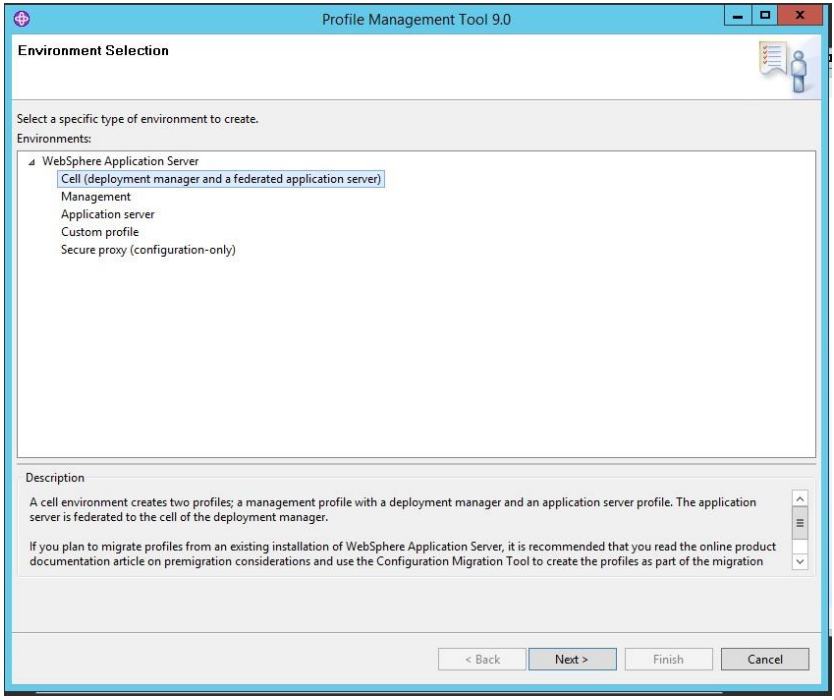
Profile Management Tool can also be opened like this:

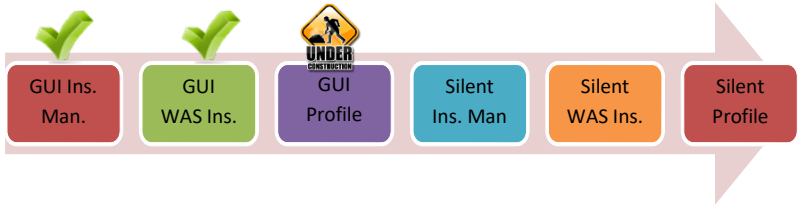


Step 1: Click on **"Create"** to start adding a new profile.

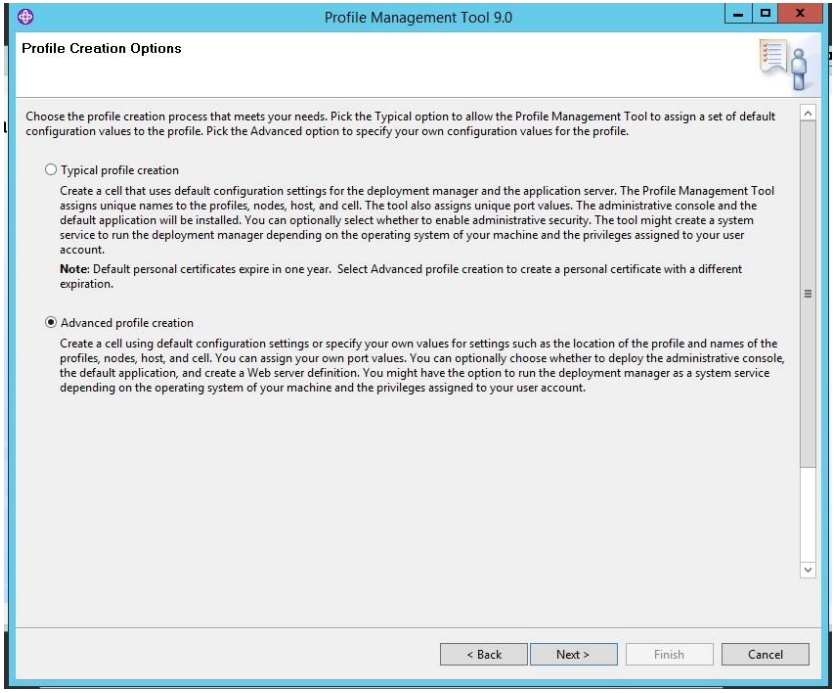


Step 2: Choose **"Cell"** type profile and click **"Next"**. This will add a deployment manager and a federated application server.

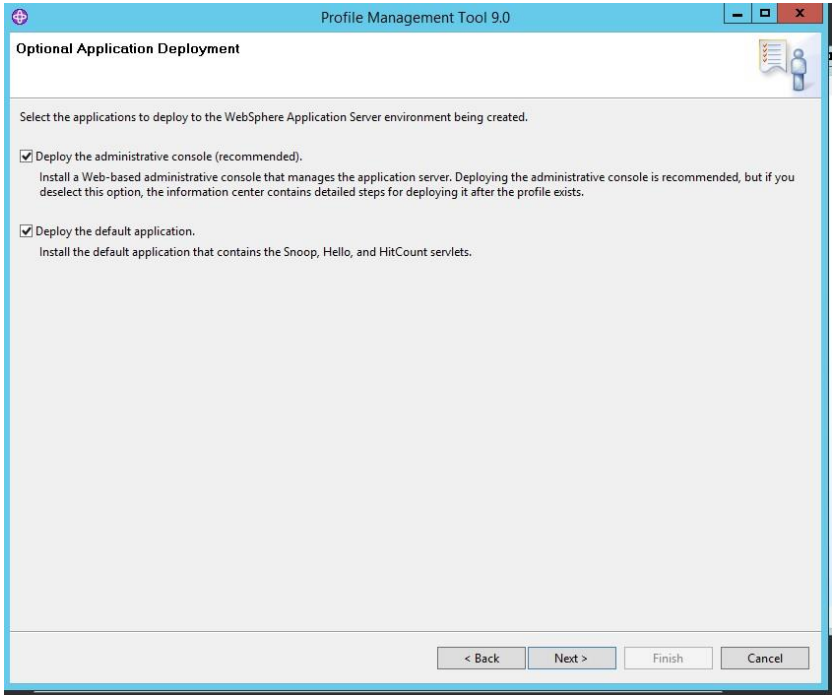




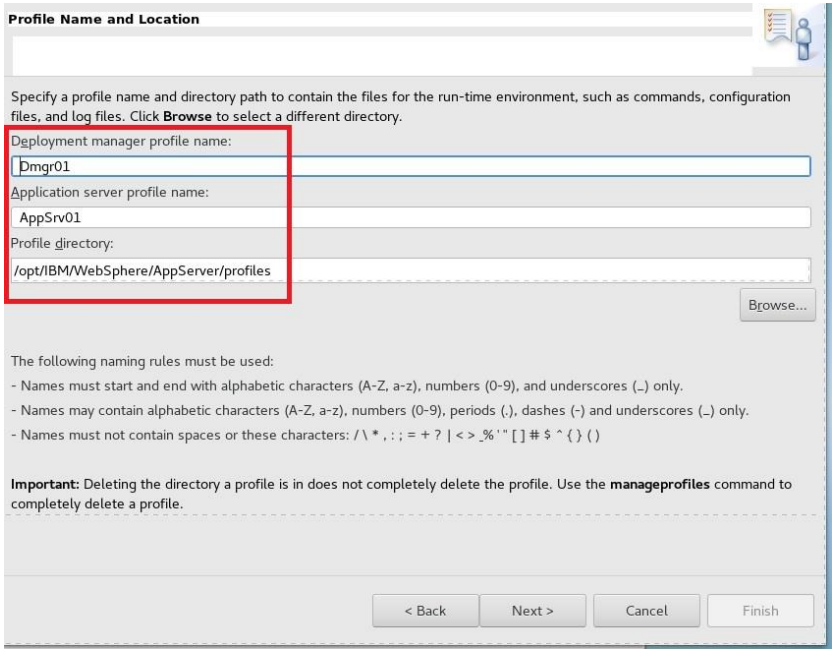
Step 3: Select “Advanced profile creation” to configure details and click **“Next”**.



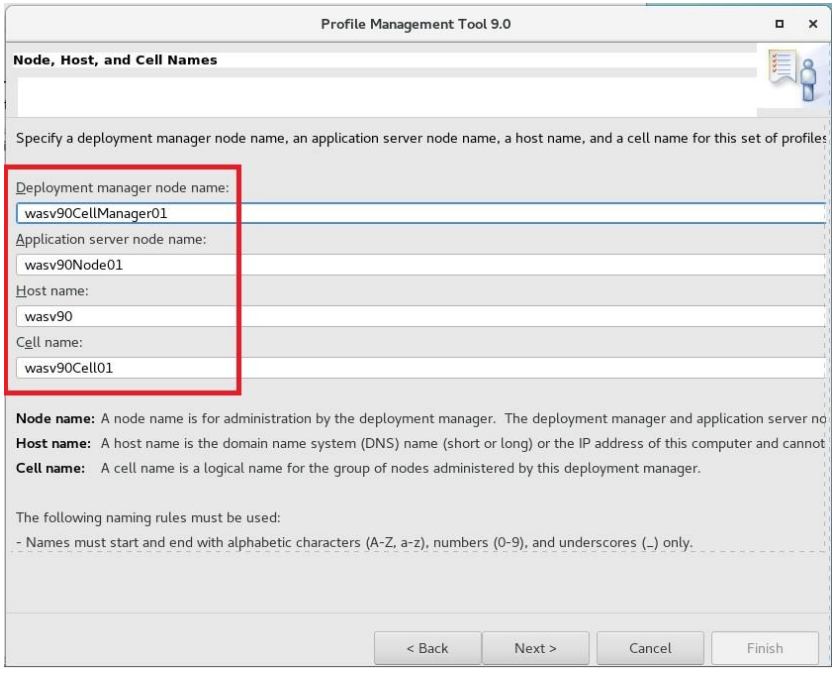
Step 4: Accept the values as below and then click **"Next"**.

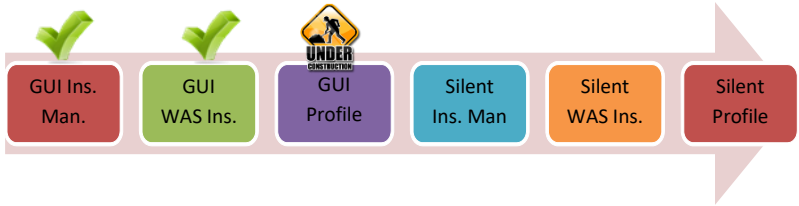


Step 5: You can set the values for names of Deployment manager and application server profile. It is also possible to set profile directory.

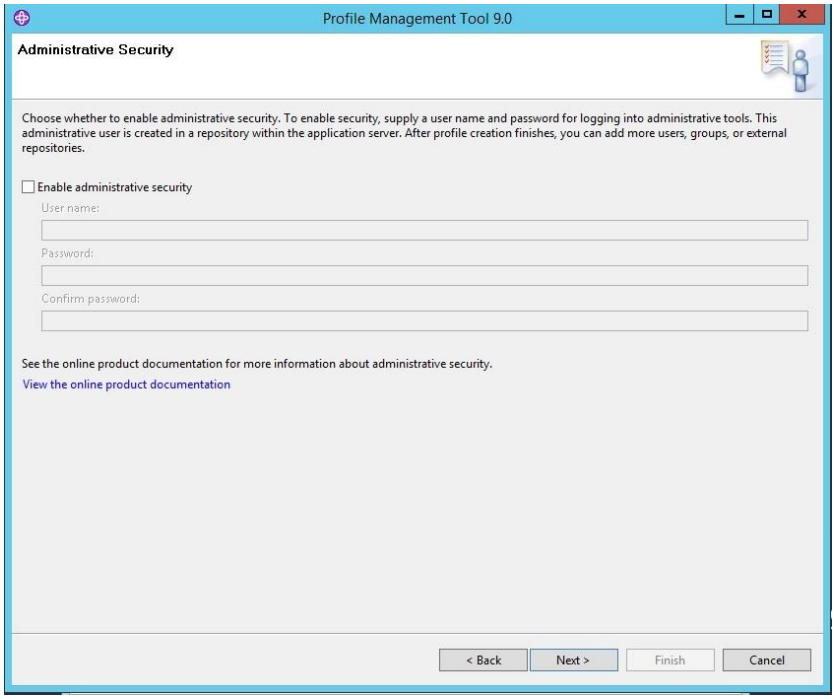


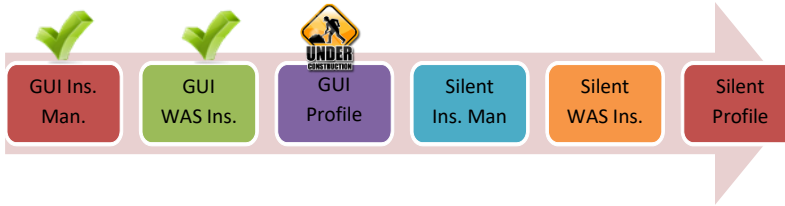
Step 6: In this step, use default set names for node, host and cell, and then click **"Next"**.



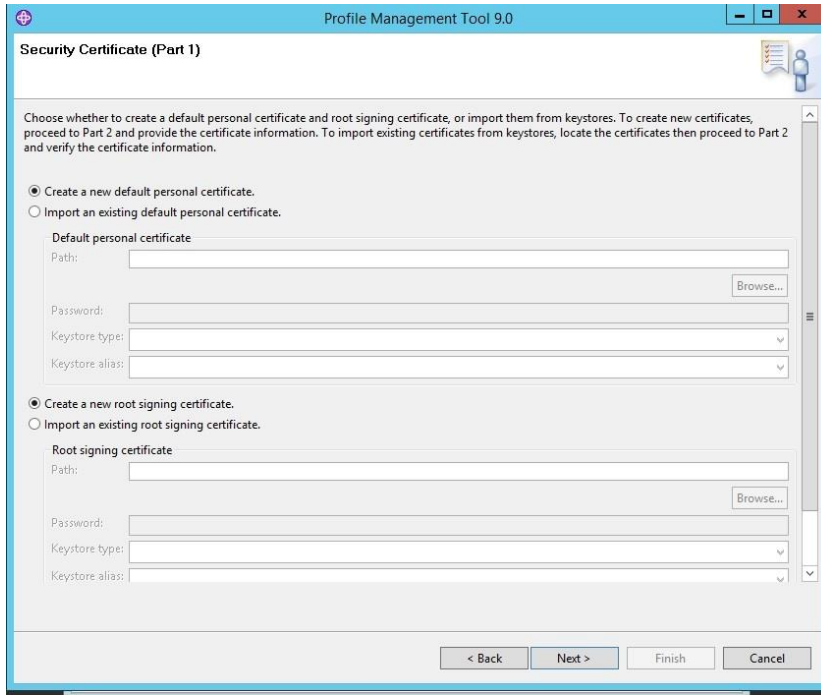


Step 7: Uncheck the box “Enable administrative security” and then click **“Next”**. We will manage security settings in the next chapters.

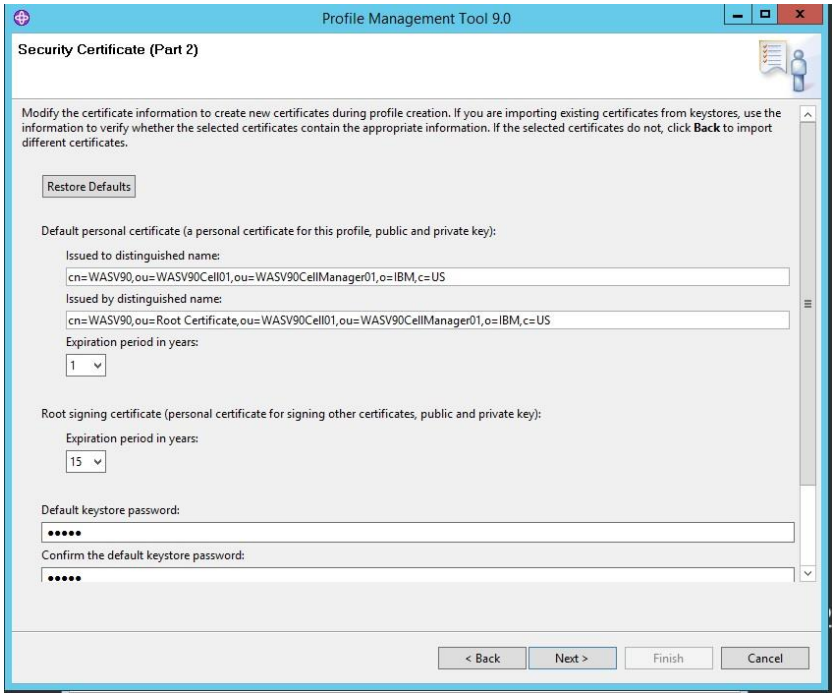


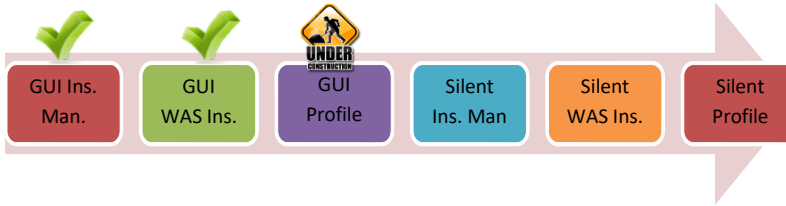


Step 7: You can use your existing certificates in this step. We will create new certificates and to do that click **"Next"**.

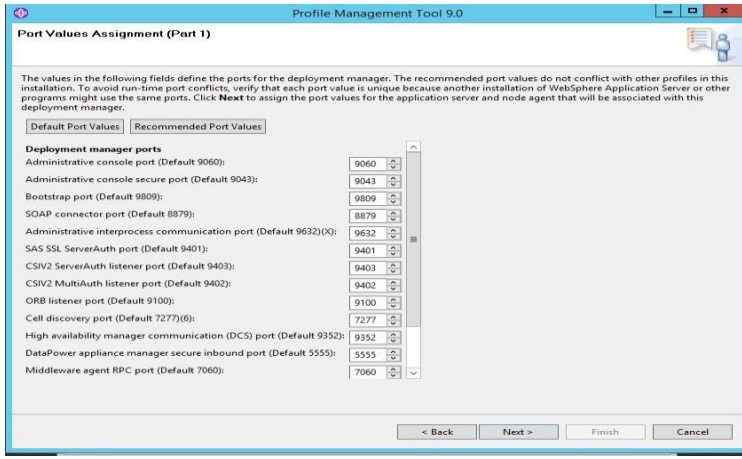


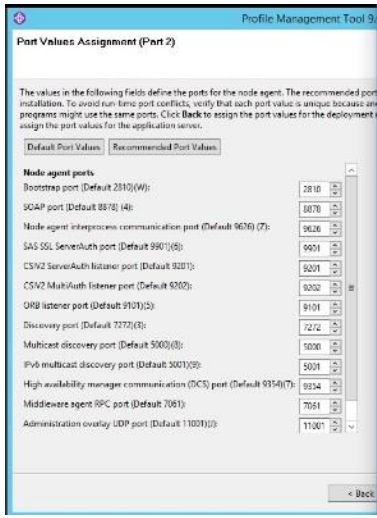
Step 8: In this step we will create new certificate. You can provide the values of depending on your organization and then click **"Next"**.

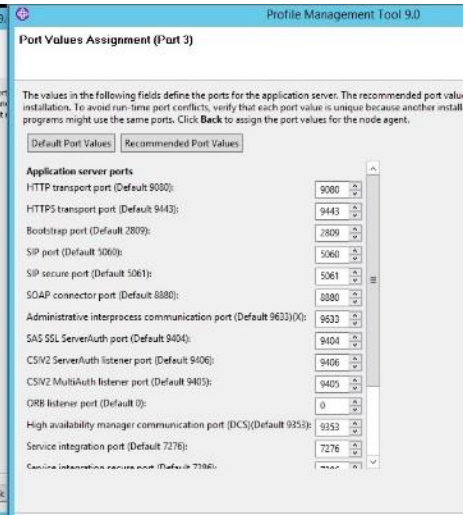




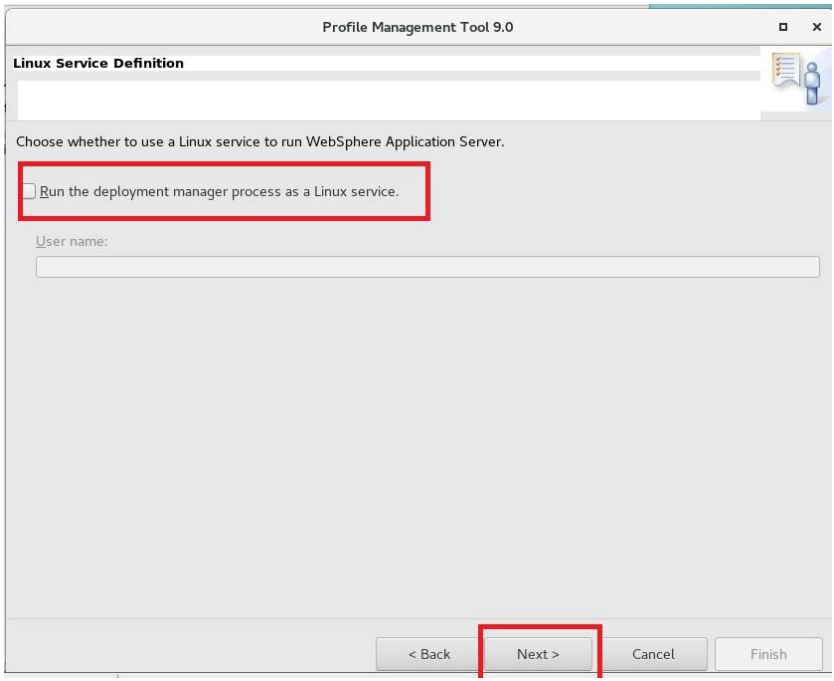
Step 9: In the following 3 steps, you need to configure ports needed for the installation. We accept the default numbers and continue installation by clicking **"Next"**.

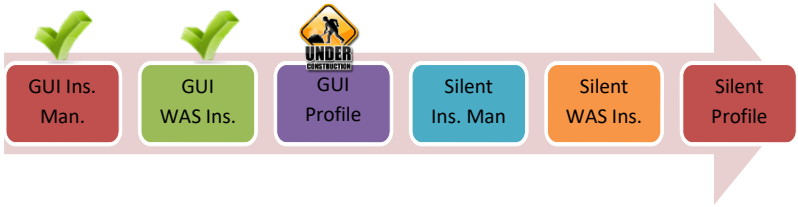




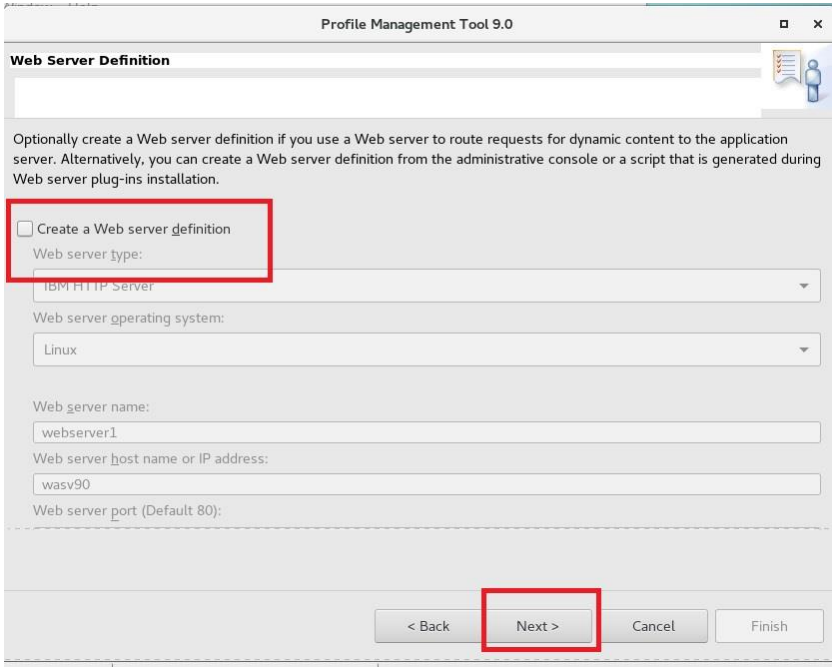


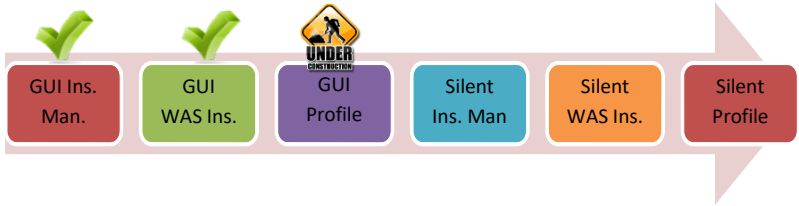
Step 10: Leave unchecked the option "Run the deployment manager process as Linux service" option and then click **"Next"**.



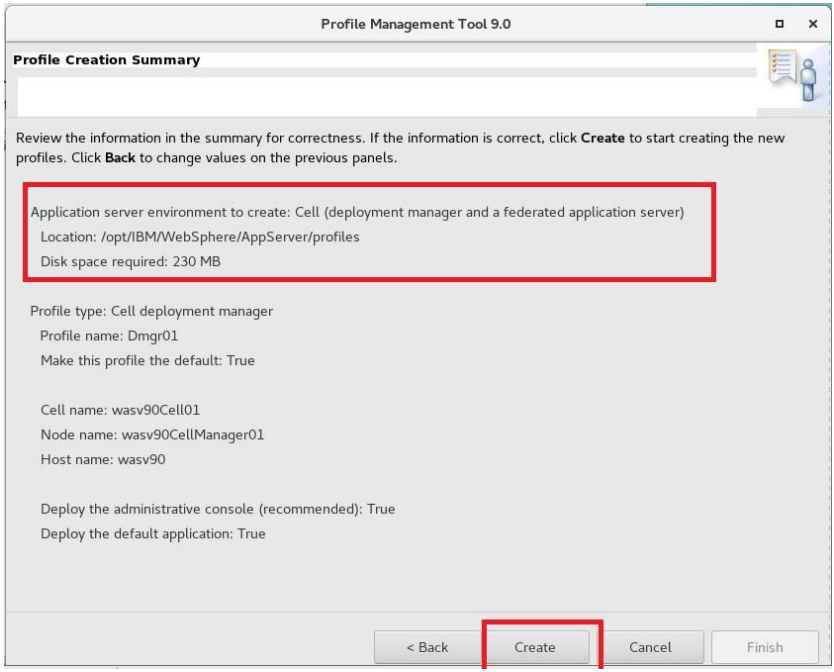


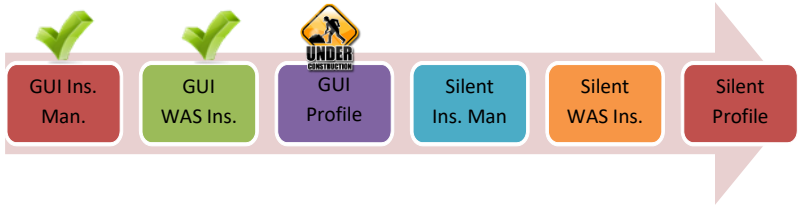
Step 11: Uncheck “Create a Web server definition” and then click **“Next”**.





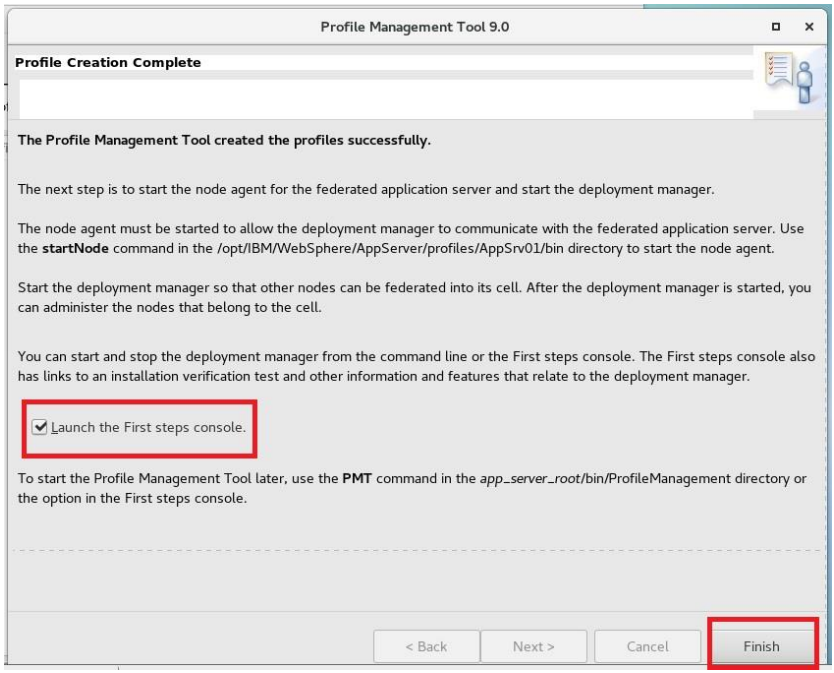
Step 12: In this step, you can see the configuration summary and click **"Create"** to complete profile creation.

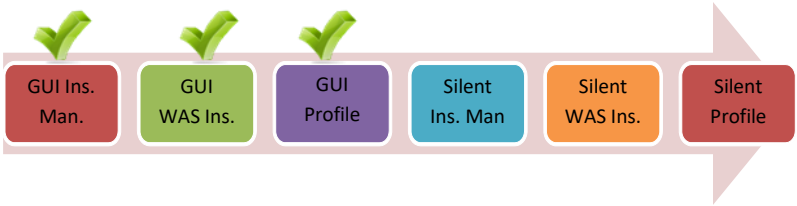




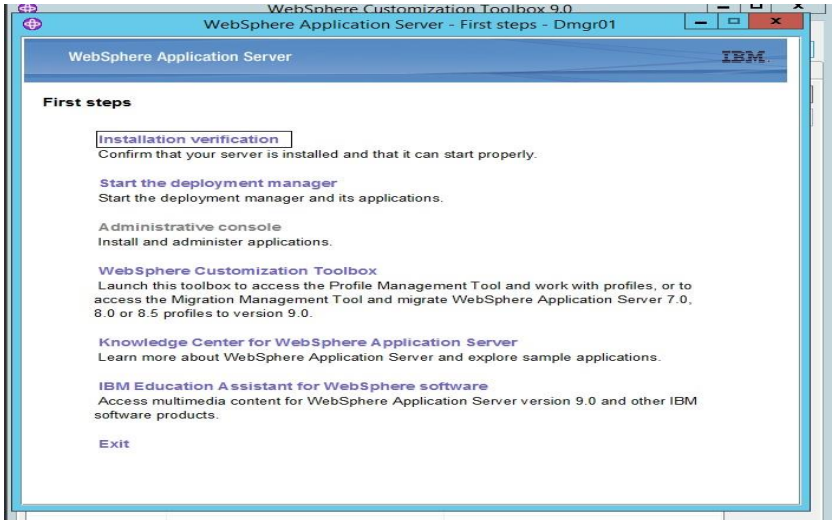
Step 13: Profile creation is completed. Make sure that "Launch the First steps console" and then click **"Finish"**.

Note: Any warning/error can be ignored.

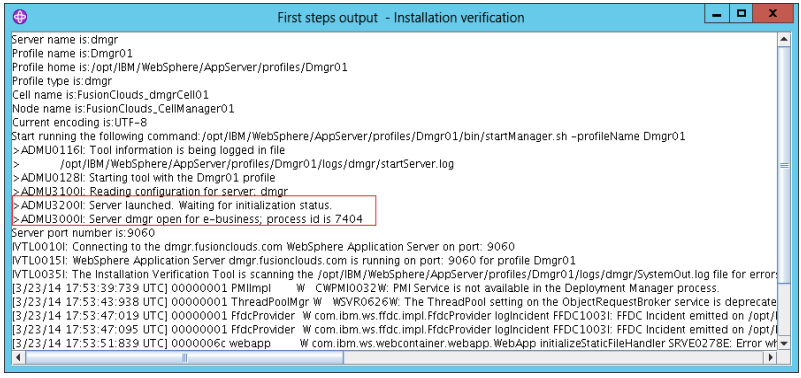




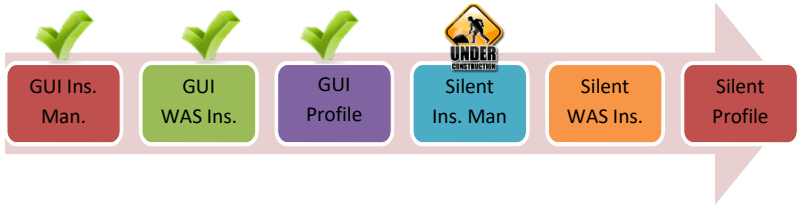
Step 14: Click on **"Installation verification"**.



Step 15: Check for the message "Server dmgr open for e-business".

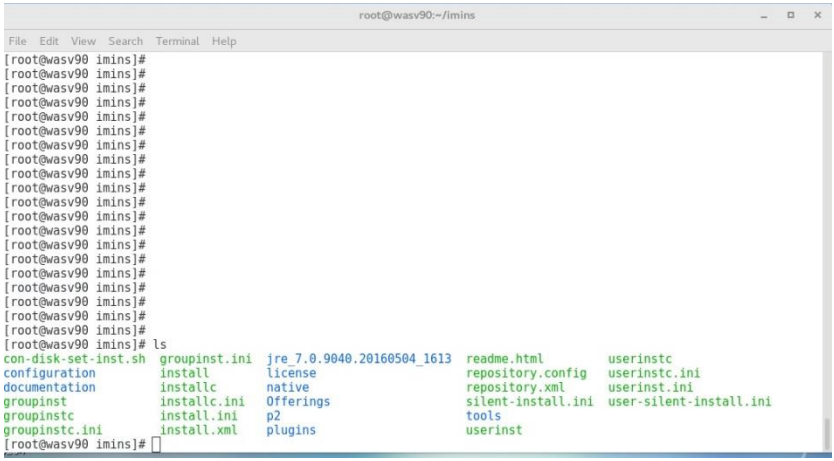


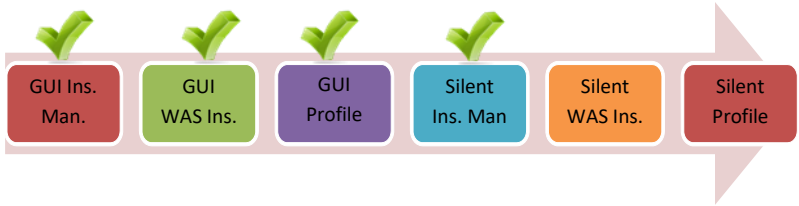
Task 3 is complete!



Task 4: Silent installation of Installation Manager

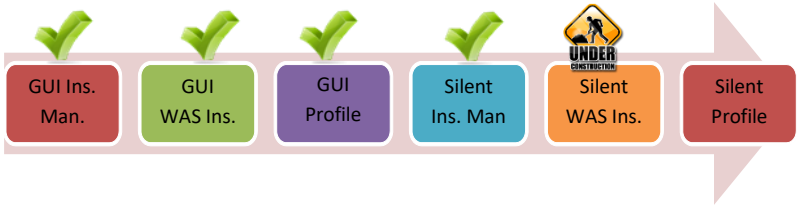
Step 1: Change to the unzipped installation directory of Installation Manager.





Step 2: Issue the comment "installc –log /tmp/ibmim.log –acceptLicense" to install Installation Manager. In case of errors, check the log file for troubleshooting.

Task 4 is complete!



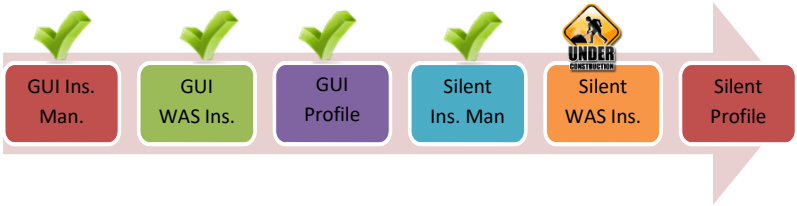
Task 5: Silent installation of WebSphere Application Server

Step 1: Change directory to the newly installed IBM Installation Manager and then prepare a response file.

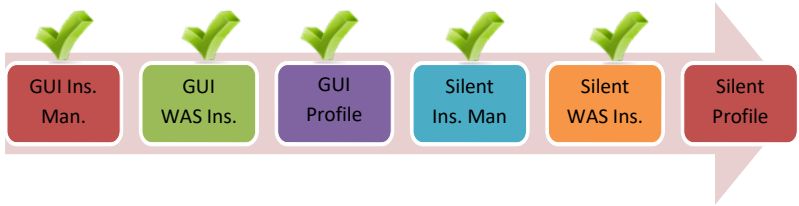
```
[root@wasv90 /]#
[root@wasv90 /]#
[root@wasv90 /]#
[root@wasv90 /]# cd /opt/IBM/InstallationManager/eclipse/tools/
[root@wasv90 tools]# vi response_file.xml
```

Sample response file

```
<?xml version="1.0" encoding="UTF-8"?>
<!--The "acceptLicense" attribute has been deprecated. Use "-acceptLicense" command line
option to accept license agreements.-->
<agent-input acceptLicense='true'>
<server>
<repository location='/root/nd'/>
<repository location='/root/dsk'/>
</server>
<profile id='IBM WebSphere Application Server V9.0'
installLocation='/opt/IBM/WebSphere/AppServer'>
<data key='eclipseLocation' value='/opt/IBM/WebSphere/AppServer'/>
<data key='user.import.profile' value='false'/>
<data key='cic.selector.os' value='linux'/>
<data key='cic.selector.arch' value='x86'/>
<data key='cic.selector.ws' value='gtk'/>
<data key='cic.selector.nl' value='en'/>
</profile>
<install modify='false'>
<offering id='com.ibm.websphere.ND.v90' version='9.0.0.20160526_1854' profile='IBM
WebSphere Application Server V9.0'
features='core.feature,ejbdeploy,thinclient,embeddablecontainer,com.ibm.java.jdk.v8,samples'
installFixes='none'/>
</install>
<preference name='com.ibm.cic.common.core.preferences.eclipseCache'
value='/opt/IBM/IMShared'/>
<preference name='com.ibm.cic.common.core.preferences.connectTimeout' value='30'/>
<preference name='com.ibm.cic.common.core.preferences.readTimeout' value='45'/>
<preference name='com.ibm.cic.common.core.preferences.downloadAutoRetryCount'
value='0'/>
```



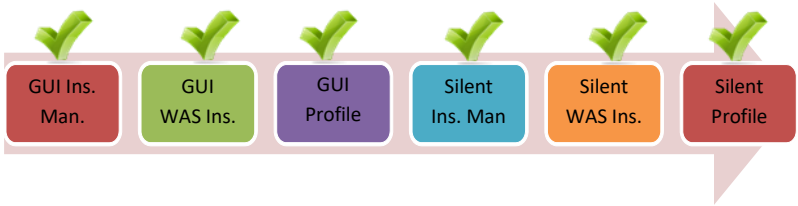
<preference name='offering.service.repositories.areUsed' value='true'/>
<preference name='com.ibm.cic.common.core.preferences.ssl.nonsecureMode' value='false'/>
<preference
name='com.ibm.cic.common.core.preferences.http.disablePreemptiveAuthentication'
value='false'/>
<preference name='http.ntlm.auth.kind' value='NTLM'/>
<preference name='http.ntlm.auth.enableIntegrated.win32' value='true'/>
<preference name='com.ibm.cic.common.core.preferences.preserveDownloadedArtifacts'
value='true'/>
<preference name='com.ibm.cic.common.core.preferences.keepFetchedFiles' value='false'/>
<preference name='PassportAdvantageIsEnabled' value='false'/>
<preference name='com.ibm.cic.common.core.preferences.searchForUpdates' value='false'/>
<preference name='com.ibm.cic.agent.ui.displayInternalVersion' value='false'/>
<preference name='com.ibm.cic.common.sharedUI.showErrorLog' value='true'/>
<preference name='com.ibm.cic.common.sharedUI.showWarningLog' value='true'/>
<preference name='com.ibm.cic.common.sharedUI.showNoteLog' value='true'/>
</agent-input>



Step 2: Issue installation command using response file. “imcl –acceptLicense input response_file.xml –log /tmp/wasins.log”

```
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]#
[root@wasv90 tools]# ./imcl -acceptLicense input ./response_file.xml -log /tmp/wasins.log
```

Task 5 is complete!

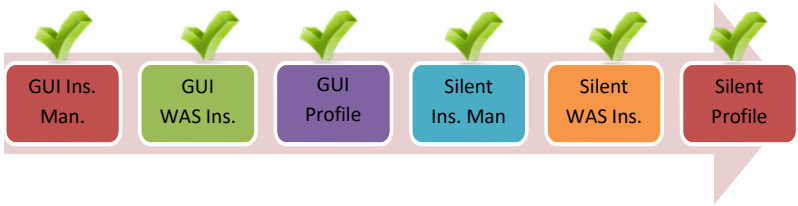


Task 6: Adding new Profile via command line

Step 1: In order to add new profile, use following command: "manageprofiles.sh -create –templatePath /opt/IBM/WebSphere/AppServer/profileTemplates/default"

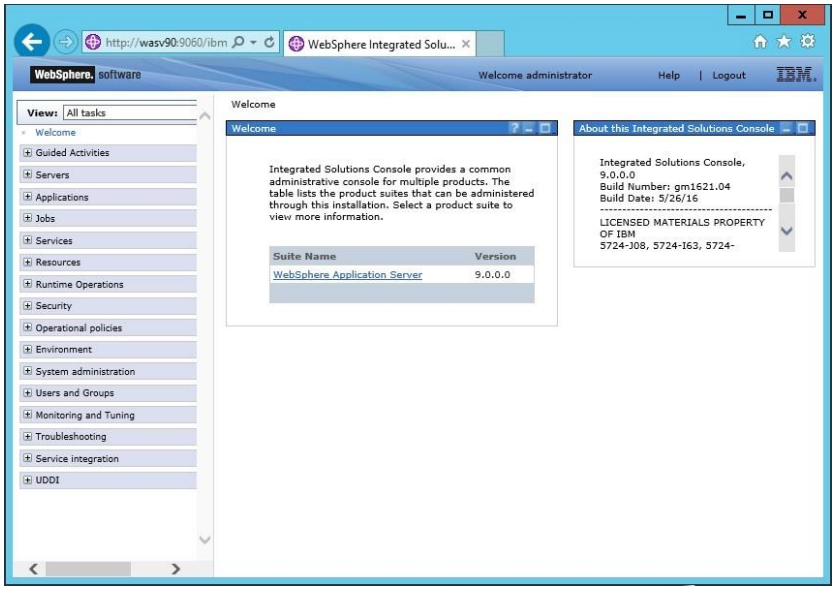
```
[root@wasv90 bin]#
[root@wasv90 bin]#
[root@wasv90 bin]# ./manageprofiles.sh -create -templatePath /opt/IBM/WebSphere/AppServ
er/profileTemplates/default/
INSTCONFSUCCESS: Success: Profile AppSrv02 now exists. Please consult /opt/IBM/WebSpher
e/AppServer/profiles/AppSrv02/logs/AboutThisProfile.txt for more information about this
 profile.
[root@wasv90 bin]#
```

Task 6 is complete!



You can verify the installations by browsing: “https://localhost:9043/ibm/console”

Use any name to authenticate.



SUMMARY

Websphere Application Server has three main concepts, application server, node and cell. Cells manage nodes that can be installed on multiple systems but, nodes cannot span on multiple operating system instances. Nodes manage multiple application servers, where each has its own JVM to host multiple applications, using node agents. IBM Installation Manager can install, update, modify, roll back and uninstall WebSphere Application Server and similar packages. You can use Installation Manager on graphical or silent modes. In order to install Websphere Application Server, we need to first install IBM Installation Manager and then configure repositories. In Network Deployment version, it is a best practice to first create deployment manager profile.

INDEX

Application server 21
Cell 22
Deployment manager 22
IBM Installation Manager 22
Node 21
node agents 22