

IBM Tivoli Netcool/OMNIBus version 7.3.1

Pre-installation checks and log monitoring for the upgrade of Tivoli Integrated Portal version 2.1 to version 2.2 on UNIX

© 2014 IBM Corporation

In this training module, you learn how to perform pre-installation checks before upgrading from IBM Tivoli® Integrated Portal 2.1.0 to 2.2.0.1. You also learn about the different logs that are used to monitor this upgrade procedure.

Objectives

When you complete this module, you can perform these tasks:

- Ensure pre-installation checks are completed before starting upgrades to Tivoli Integrated Portal 2.2
- Explain to others that you need to first upgrade to Tivoli Integrated Portal 2.2.0.1 for any upgrade from Tivoli Integrated Portal 2.1 to Tivoli Integrated Portal 2.2
- Explain to others that a feature pack must be installed with a release pack for cases when you upgrade Tivoli Integrated Portal 2.1 to Tivoli Integrated Portal 2.2
- Monitor several upgrade logs and tell others their locations and purpose

When you complete this training module, you can ensure that your pre-installation environment supports a successful upgrade of Tivoli Integrated Portal version 2.1 to 2.2. You also see which logs to monitor for verifying successful completion of the upgrade task.

Assumptions

Before you proceed, the module designer assumes that you have these skills and knowledge:

- Intermediate Tivoli Netcool/OMNibus V7.3.1 web GUI knowledge
- Intermediate UNIX® operating system related technical knowledge on performing file edit and permission change tasks

You should have intermediate knowledge of the IBM Tivoli Netcool/OMNibus V7.3.1 web GUI and the operating system that it runs on. You should also be able to perform such operating system tasks as editing files and changing read, write, and execute permissions for both files and folders.

Three IBM Tivoli Integrated Portal installation types

There are three IBM Tivoli Integrated Portal installation scenarios:

- A fresh installation where no previous Deployment Engine is installed
- A fresh installation where there is a previous Deployment Engine and the same Deployment Engine instance can be reused
- An upgrade installation of Tivoli Integrated Portal, as covered in this module

There are three types of IBM Tivoli Integrated Portal installations. They are displayed on this slide. For a pristine, clear system, you can perform a fresh installation where there is no Deployment Engine already available in your environment. For this type of installation, look at just the installation logs. Another scenario is where the Deployment Engine is already installed in the environment. In this installation type, you reuse the Deployment Engine. The third scenario is upgrading to a newer revision of IBM Tivoli Integrated Portal; it is this scenario that is used in this module.

Upgrading from Tivoli Integrated Portal 2.1.0 requires first upgrading to Tivoli Integrated Portal 2.2.0.1 before upgrading to the higher levels. For example, if you have an APAR for the IBM Tivoli Netcool/OMNibus 7.3.1 web GUI being fixed in Tivoli Integrated Portal 2.2.0.7 and you want to upgrade to this level to get the fix, first upgrade to Tivoli Integrated Portal 2.2.0.1. Only then can you upgrade to Tivoli Integrated Portal 2.2.0.7.

Pre-check on general environment data disk space and user permission

- Disk space usage check
 - Locate the path on which you want the upgrade to occur
 - Run any disk usage UNIX command on this path to verify the amount of free hard disk space available, for example:

```
df -h /opt/IBM/tivoli/tipv2
```
 - Ensure that the following minimum disk space is available during installation:
 - The installation directory typically needs a minimum of 2.5 Gb
 - The temp directory needs at least 500 Mb
- User permission check
 - Verify that the user ID that is used performed the initial product installation and the user ID that is used to perform the current upgrade are the same
 - If the root user installed the previous Tivoli Integrated Portal instance, the same root user should upgrade the Tivoli Integrated Portal instance
 - For non-root user installation, ensure that the same user performs the upgrade of the Tivoli Integrated Portal instance

There must be enough disk space for the upgrade to be successful. Check the amount of space you had at the moment of installation. This slide mentions the advised minimum disk space at the installation and temp directory. User permissions also need to be checked and verified. It is best to ensure that the user ID used to perform the upgrade is the same as the one that was used to perform the initial product or Tivoli Integrated Portal installation.

Pre-check on general environment data: Deployment Engine output shows correct Tivoli Integrated Portal Level as expected

The installed product listing from the Deployment Engine listIU command should show that the Tivoli Integrated Portal installation is at the level that you are planning to upgrade from

- Collect the output of these commands:

- For root installation:

Collect the output of the following commands:

```
/usr/ibm/common/acsi/bin/de_version
/usr/ibm/common/acsi/bin/listIU.sh
/usr/ibm/common/acsi/bin/de_!srootiu.sh
```

- Non-root installation:

Collect the output of the following commands:

```
<Install User's HOME>/.acsi_<install_username>/bin/de_version
<Install User's HOME>/.acsi_<install_username>/bin/listIU.sh
<Install User's HOME>/.acsi_<install_username>/bin/de_!srootiu.sh
```

Where <Install User's HOME> is the home directory for the OS user that is used to install Tivoli Integrated Portal, and <install_username> is the OS user ID used to install Tivoli Integrated Portal.

- Example: If you are upgrading from Tivoli Integrated Portal 2.1.0.1, you can expect to see output like this when running the listIU.sh

```
# ./listIU.sh |grep -i tip
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.0
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.0
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.1
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore         Version: 2.1.0.0
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore         Version: 2.1.0.0
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore         Version: 2.1.0.1
```

This slide shows several commands to check the version of Tivoli Integrated Portal. Use these commands as a pre-check to ensure that you have the expected level of Tivoli Integrated Portal. Checking the logs is beneficial if a machine has multiple levels of Tivoli Integrated Portal or if there have been multiple attempts to install Tivoli Integrated Portal. You can use the command **listIU.sh** as shown in this example. Make sure that all the outputs are collected and monitored for upgrade logging purposes.

Pre-check on general environment data: Java Process-Related

- You expect to see an installed IBM version of Java Runtime Environment (JRE) 1.6.0 running. See the example process check that is carried out here, which uses the UNIX **ps** command.
- You know that this is IBM Java since its being called from `<TIPHOME>/bin/java` where `<TIPHOME>` is `/appl/IBM/tivoli/tipv2` in this example

```
# ps -ef |grep -i java
```

```
root 24506 1248 0 Jul 03 ? 339:20  
/appl/IBM/tivoli/tipv2/java/bin/java -XX:+UnlockDiagnosticVMOptions -  
Dwas.statu
```

- Before you install the Tivoli Integrated Portal Fix Pack, you must stop any Tivoli Integrated Portal related Java processes that are running on your system.
 - This is achieved by issuing a "stop server server1 -username tipadmin -password <tipadmin_password>" command from `<TIPHOME>/bin`.
 - On completion of the command, Java program that was running from the `<TIPHOME>/bin/java` should also now be stopped. Use the same "ps" command to confirm that the processes are not running

Before you start upgrade steps, you must stop any running Java processes that are associated with the `<TIPHOME>` directory. For UNIX, you use the **ps** command to view or check details of the Java processes that are running. Methods of using the **ps** command are shown on the slide.

Obtaining Tivoli Integrated Portal downloads

- You need to install a Feature Pack on top of the Upgrade Pack. This feature pack allows you to upgrade your environment from Tivoli Integrated Portal Version 2.1.0 to Tivoli Integrated Portal 2.2.0.1.
- Steps to download the Tivoli Integrated Portal Feature Pack
- First, check the Tivoli Integrated Portal level that you are running – use `listIU.sh` command to get the output and specifically looking at the TIPCore version.

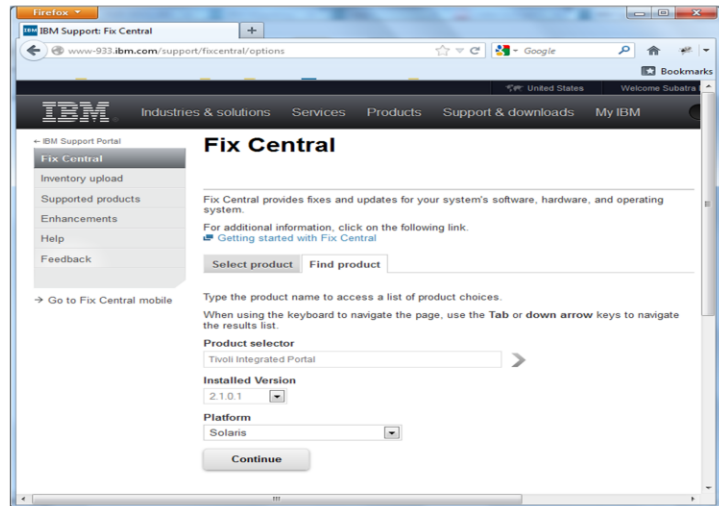
```
# ./listIU.sh |grep -i tip
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.0
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.0
IU      UUID: 5FFE79F918DF3BA0D67511FD3F7C358E  Name: SIU-TIPCore      Version: 2.1.0.1
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore          Version: 2.1.0.0
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore          Version: 2.1.0.0
IU      RootIU UUID: 2ADC4A33F09F4E85AD27963E850290C3  Name: TIPCore          Version: 2.1.0.1
```

– You see that the Tivoli Integrated Portal level is 2.1.0.1

To upgrade from Tivoli Integrated Portal 2.1 to 2.2, you need to install a feature pack on top of the upgrade pack. You must know the current level of Tivoli Integrated Portal before proceeding with the upgrade. You again use the `listIU` command to determine the current level.

Logging in to IBM fix central to obtain Tivoli Integrated Portal fixes

- Log in to IBM Fix Central:
<http://www.ibm.com/support/fixcentral>
- Enter **Tivoli Integrated Portal** at the Product Selector, then select the version from the **Installed Version** list and your platform from the **Platform** list. In this example, choose the Installed Version as **2.1.0.1** for the **Solaris** platform
- Click **Continue**.
- The next page is **Identify Fixes**. You do not need to complete this page. Click **Continue**.



Once you know which Tivoli Integrated Portal is installed in your environment, browse to IBM Fix Central. Select **Tivoli Integrated Portal** at the **Product Selector**, then select the **Installed Version** of Tivoli Integrated Portal that you currently have in your environment. Finally, you enter the platform that you are downloading the upgrade files for. In this example, the Tivoli Integrated Portal version is 2.1.0.1, so select the product as **Tivoli Integrated Portal** with Version **2.1.0.1** for the **Solaris** platform. If you are using Linux[®], make the appropriate selections. Click **Continue**.

Obtaining feature pack files on the results page

- On the Results page, you must download two files for upgrades of Tivoli Integrated Portal 2.1.0.x to 2.2.0.1:
 - The file **2.2.0.1-TIV-TIP-FITSuit-RP0001v3** is the feature pack
 - The file **2.2.0.1-TIV-TIP-SolarisSparc32-RP0001** is the refresh pack
- Select the check box for each file, then click **Continue**.
- The IBM login page opens. Enter valid IBM credentials. The final screen displays the **Download Now** button.
- Click the **Download Now** button to download these two files to your local environment.
- Review all the next steps from the Tivoli Integrated Portal 2.2.0.1 Feature Pack Installation and troubleshooting Guide document accessible here:

<http://www-01.ibm.com/support/docview.wss?uid=swg21617142>

The screenshot shows two panels. The top panel, titled "Change your selection", contains a "Product selector" with "Tivoli Integrated Portal" selected, an "Installed Version" dropdown set to "2.1.0.1", and a "Platform" dropdown set to "Solaris". A "Submit" button is at the bottom. The bottom panel, titled "Filter your content", shows a "Platform" filter with a tree view containing "TIP-UX 64-bit, IA64 (1)", "Linux (1)", "Linux zSeries (1)", "SLES 10 (1)", "Solaris (2)", and "Windows (1)". To the right of the panels are two "Results" sections. The first section shows "1-2 of 2 results" with two items: "1. refresh pack: 2.2.0.1-TIV-TIP-FITSuit-RP0001v3" and "2. refresh pack: 2.2.0.1-TIV-TIP-SolarisSparc32-RP0001". Each item has a checkbox and a right-pointing arrow. Below the results are "Continue", "Clear selections", and "Back" buttons.

On the Results page, select the two main packages: the Feature Pack and the Refresh Pack. Click **Continue**. The page prompts you for your IBM.com credentials, and then the Download Now page opens. Click **Download Now** and select a directory to save the packages, or Download Director will save the packages in the directory that you specified during previous downloads.

Monitoring general upgrade installation logs

▪ Main installation log

- Named **IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log**, sometimes referred to as the IA log
 - Root installation, typically at root directory
\$HOME/IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log
for example `./IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log`
 - Non-root installation, usually at the user home directory
\$USER_HOME/IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log
For example `/home/<user>/IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log`
- Understand the use of **IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log**. Check the exit code on this file. Successful installs show **exit code: 0** on the last line

▪ Important folders to be monitored for upgrade

- The installation folder where Tivoli Integrated Portal is installed, typically referred as `<TIP_HOME>`; these folders are reviewed when upgrading
 - `_uninst`
 - `logs`

The web GUI installer uses InstallAnywhere, Deployment Engine, and Composite Offering Installer when installing.

The **IBM_Tivoli_Netcool_OMNibus_Web_GUI_Install-00.log** is the main log that describes the overall installation flow. This file is typically found in your home directory. The common term that is used when referring to this file is **IA log** - for InstallAnywhere. It is important to check the exit code after each installation in this file. For successful installations, you see **exit code: 0**. For unsuccessful installations, you typically see **exit code: -1** in the last line.

You typically need to look at **_uninst** and **logs** folders.

The four kinds of upgrade logs

- **WebSphere® UPDI logs**
 - Generally a folder named **updilogs** at the installed users' home directory contains information about WebSphere upgrades.
- **Tivoli Integrated Portal Feature Pack Logs**
 - Tivoli Integrated Portal 2.2.0.1 feature pack allows you to upgrade your environment from Tivoli Integrated Portal Version 2.1.0.x to Tivoli Integrated Portal 2.2.0.1.
 - The Tivoli Integrated Portal feature pack process requires products to certify compatibility with new versions before an in-place upgrade is allowed which avoids problems with existing/installed products.
 - You can find the complete list of products that are certified for this exercise at the IBM Tivoli Integrated Portal community at the developerWorks® @ IBM.
 - Logs to user directory as **TIPFeaturePackInstaller-00.log**
- **Tivoli Integrated Portal Fix Pack Logs**
 - Fix Pack are the upgrade packages available for Tivoli Integrated Portal
 - Logs to user directory as **TIPFPInstaller-00.log**
- **Deployment Engine Logs**
 - Logs to `/usr/ibm/common/acsi/logs/` if installed as root
 - Logs to `/home/<user name>/.acsi_<username>/logs/` if installed as non-root

Generally you need to look at four kinds of logs for upgrade scenarios for IBM Tivoli Netcool/OMNIBus. Information about the WebSphere upgrades is in a folder named **updilogs**. These logs need to be collected and reviewed especially in the case of queries that are related to WebSphere Application Server upgrades. The other two logs are the Tivoli Integrated Portal logs. The second log on this slide is the Tivoli Integrated Portal Feature Pack log, which logs to the user directory as **TIPFeaturePackInstaller-00.log**. In this Tivoli Integrated Portal feature pack log, you find information about existing product's compatibility with the new version of the Tivoli Integrated Portal that is being installed. The third log shown, **TIPFPInstaller-00.log**, logs about the upgrade packages that are installed for Tivoli Integrated Portal. The fourth log type is the Deployment Engine logs. The Deployment Engine logs are essential for troubleshooting upgrade issues.

Understanding <TIP_HOME>/_uninst folder

- **Logs**
 - Contains logs that are created by various tasks during installation
 - Many stdout and error files are available in the <TIP_HOME>/logs folder
- **_uninst**
 - This directory contains secondary logs that help with debugging detailed failures
 - Scroll to the plan directory and you see three different subdirectories
 - checks
 - install
 - inventory
 - **Checks** and **inventory** directories contain logs that are created during pre-installations
 - **Install** directory contains logs that are created during installation and postinstallation
 - There are also cases where product fix packs embed Tivoli Integrated Portal fix packs, and in that case you might need both, the products **_uninst** folder and the Tivoli Integrated Portal fix pack's **_uninst** folder
 - WebGUI **_uninst** folder is available at <NETCOOL_HOME>/omnibus_webgui/_uninst
 - The next slides show sample log files after a successful Tivoli Integrated Portal 2.2.0.1 Upgrade.

Two folders are valuable for troubleshooting; the **_uninst** folder and the **logs** folder. The common logs folder for Tivoli Integrated Portal is named similar to <TIP_HOME>profiles/TIPProfile/logs/server1. For installation, also see the logs that you find at the <TIP_HOME>/logs folder. The **_uninst** directory in the folder <TIP_HOME>/_uninst contains secondary logs that help with debugging detailed failures. The **_uninst** folder contains three different subdirectories.

The upgrade has two major steps that it needs to do. First, it does the pre-installation checks and inventory verification. The **checks** and **inventory** directories at the <TIPHOME>/_uninst folder contain logs and records that are created during pre-installation. The **installation** directory contains logs that are created during and after installation. Both of these steps are automatic and these directories are for reference purposes so that you can better understand the installation or upgrade process.

When Tivoli Integrated Portal is included as part of the product fix pack deliverable, in addition to the Tivoli Integrated Portal **_uninst** folder, you also want to look at the product's **_uninst** folder at the location that is shown on this slide.

Sample log (1 of 2)

<TIP_HOME>/_uninst/TIPInstall2201/plan/checks/logs/[INSTALL_Date] , where TIP_HOME is /appl/IBM/tivoli/tipv2

```
# pwd
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/checks/logs/[INSTALL_0608_01.44]

# cat DeploymentPlan.log
2014-06-08 01:44:50.365 : Started: Parallel Plan: Operation = INSTALL
2014-06-08 01:44:50.366 : ProcessID: [INSTALL_0608_01.44]

2014-06-08 01:44:50.518 : Started: Machine Plan: MachinePlan_localhost
2014-06-08 01:44:50.529 : Log File:
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/checks/MachinePlan_localhost/logs/[INSTALL_0608_01.44]/MachinePlan_localhost.log

2014-06-08 01:44:53.225 : Started: Deployment Step: step_00001_TIPInstall_PreCheck-FF1
2014-06-08 01:44:53.226 : Machine Plan: MachinePlan_localhost

2014-06-08 01:52:44.629 : Completed: Deployment Step: step_00001_TIPInstall_PreCheck-FF1
2014-06-08 01:52:44.632 : Machine Plan: MachinePlan_localhost

2014-06-08 01:52:44.695 : Completed: Machine Plan: MachinePlan_localhost
2014-06-08 01:52:44.696 : Log File:
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/checks/MachinePlan_localhost/logs/[INSTALL_0608_01.44]/MachinePlan_localhost.log

2014-06-08 01:52:44.703 : Completed: Parallel Plan: Operation = INSTALL
2014-06-08 01:52:44.703 : ProcessID: [INSTALL_0608_01.44]
```

This slide shows a sample log in the **Checks** folder in the plan directory. You see that it has three **started** tasks and three **completed** tasks, which indicates that all the steps are ready.

Sample log (2 of 2)

```
<TIP_HOME>/_uninst/TIPInstall2201/plan/install, where TIP_HOME is /appl/IBM/tivoli/tipv2
# pwd
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/install/logs/[INSTALL_0608_01.53]
# cat DeploymentPlan.log
2014-06-08 01:53:15.764 : Started:   Parallel Plan:   Operation = INSTALL
2014-06-08 01:53:15.764 :           ProcessID:       [INSTALL_0608_01.53]
2014-06-08 01:53:15.847 : Started:   Machine Plan:   MachinePlan_localhost
2014-06-08 01:53:15.858 :           Log File:
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/install/MachinePlan_localhost/logs/[INSTALL_0608_01.53]/MachinePlan_localhost.log
2014-06-08 01:53:16.397 : Started:   Deployment Step: step_00001_StopWAS
2014-06-08 01:53:16.397 :           Machine Plan:   MachinePlan_localhost
2014-06-08 01:53:18.536 : Completed: Deployment Step: step_00001_StopWAS
2014-06-08 01:53:18.536 :           Machine Plan:   MachinePlan_localhost
.....
2014-06-08 02:56:45.069 : Completed: Deployment Step: step_00008_TIPCorePostConfig
2014-06-08 02:56:45.071 :           Machine Plan:   MachinePlan_localhost
2014-06-08 02:56:45.257 : Completed: Machine Plan:   MachinePlan_localhost
2014-06-08 02:56:45.257 :           Log File:
/appl/IBM/tivoli/tipv2/_uninst/TIPInstall2201/plan/install/MachinePlan_localhost/logs/[INSTALL_0608_01.53]/MachinePlan_localhost.log
2014-06-08 02:56:45.262 : Completed: Parallel Plan:   Operation = INSTALL
2014-06-08 02:56:45.262 :           ProcessID:       [INSTALL_0608_01.53]
```

On this slide, you see an example log at the **plan/install** directory. The log ends with **Completed: Parallel Plan: Operation = INSTALL** and indicates that all went well with the upgrade.

Summary

Now that you completed this module, you can perform these tasks:

- Ensure pre-installation checks are completed before starting upgrades to Tivoli Integrated Portal 2.2
- Explain to others that you need to first upgrade to Tivoli Integrated Portal 2.2.0.1 for any upgrade from Tivoli Integrated Portal 2.1 to Tivoli Integrated Portal 2.2
- Explain to others that a feature pack must be installed with a release pack for cases when you upgrade Tivoli Integrated Portal 2.1 to Tivoli Integrated Portal 2.2
- Monitor several upgrade logs and tell others their locations and purpose

This slide shows the summary of the topics that are covered in this training module.

Some useful IBM websites

- DeveloperWorks Tivoli Integrated Portal Community
<https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityview?communityUuid=26d4aa47-4fd6-460d-a93b-3ee8945324d6>
- Tivoli Integrated Portal Read First MustGather
<http://www-01.ibm.com/support/docview.wss?uid=swg21568245>
- Netcool/OMNIBus Read First MustGather
<http://www-01.ibm.com/support/docview.wss?uid=swg21631338>
- IBM Support Portal Fix Central
<http://www.ibm.com/support/fixcentral/>
- Web GUI Reference for Tivoli Integrated Portal 2.1 to Tivoli Integrated Portal 2.2 upgrade
<http://www-01.ibm.com/support/docview.wss?uid=swg21617142>

Here are some IBM websites with more product information.

Trademarks, disclaimer, and copyright information

IBM, the IBM logo, ibm.com, developerWorks, Tivoli, and WebSphere are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of other IBM trademarks is available on the web at "[Copyright and trademark information](http://www.ibm.com/legal/copytrade.shtml)" at <http://www.ibm.com/legal/copytrade.shtml>

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, or service names may be trademarks or service marks of others.

THE INFORMATION CONTAINED IN THIS PRESENTATION IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. WHILE EFFORTS WERE MADE TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION CONTAINED IN THIS PRESENTATION, IT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IN ADDITION, THIS INFORMATION IS BASED ON IBM'S CURRENT PRODUCT PLANS AND STRATEGY, WHICH ARE SUBJECT TO CHANGE BY IBM WITHOUT NOTICE. IBM SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES ARISING OUT OF THE USE OF, OR OTHERWISE RELATED TO, THIS PRESENTATION OR ANY OTHER DOCUMENTATION. NOTHING CONTAINED IN THIS PRESENTATION IS INTENDED TO, NOR SHALL HAVE THE EFFECT OF, CREATING ANY WARRANTIES OR REPRESENTATIONS FROM IBM (OR ITS SUPPLIERS OR LICENSORS), OR ALTERING THE TERMS AND CONDITIONS OF ANY AGREEMENT OR LICENSE GOVERNING THE USE OF IBM PRODUCTS OR SOFTWARE.

© Copyright International Business Machines Corporation 2014. All rights reserved.