



Tivoli Storage Manager 6.1

Upgrade from a version 5 database

Tivoli. software



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This module provides an overview of preparing and upgrading the IBM Tivoli Storage Manager database from version 5 to version 6.1.

Objectives

Upon completion of this module, you will be able to:

- ▶ Prepare the Tivoli Storage Manager version 5 database for upgrade
- ▶ Upgrade the version 5 database to Tivoli Storage Manager 6.1

Upon completion of this module, you will be able to prepare the Tivoli Storage Manager version 5 database for upgrade. You will also be able to upgrade the version 5 database to Tivoli Storage Manager 6.1.

Planning the Tivoli Storage Manager 6.1 upgrade

Follow these basic steps when preparing to upgrade from version 5 to version 6.1:

1. Check the prerequisites for the upgrade.
2. Prepare space for the upgrade process.
3. Modify server settings for the upgrade.
4. Back up storage pools and the server database.
5. Back up configuration information.
6. Stop all server processes before installing the upgrade.

Follow these basic steps when preparing to upgrade from version 5 to version 6.1:

1. Check the prerequisites for the upgrade.
2. Prepare space for the upgrade process.
3. Modify server settings for the upgrade.
4. Back up storage pools and the server database.
5. Back up configuration information.
6. Stop all server processes before installing the upgrade.

Requirements for Tivoli Storage Manager versions before version 5.3.6

- A version 5.3, version 5.4, or version 5.5 server can be upgraded to version 6.1.
- For a version 5.3 or version 5.4 server, check whether the operating system must be upgraded before beginning the upgrade procedure.
- The system requirements for the upgrade utility are the same as the system requirements for a version 5.5 server.
- The upgrade utility is based on the version 5.5 server code.
- The upgrade utility package must be installed on the system where the version 5 database is located.
- **Tip:** The version 5.3 or version 5.4 server itself does not have to be upgraded to version 5.5 before you upgrade to version 6.1. Instead, the system where that server is located must meet the operating system requirements for running a version 5.5 server.

Client nodes and storage agents must be version 5.4 or later to connect to a version 6.1 server.

A version 5.3, version 5.4, or version 5.5 server can be upgraded to version 6.1.

For a version 5.3 or version 5.4 server, check whether the operating system must be upgraded before beginning the upgrade procedure.

The system requirements for the upgrade utility are the same as the system requirements for a version 5.5 server.

The upgrade utility is based on the version 5.5 server code.

The upgrade utility package must be installed on the system where the version 5 database is located.

Tip: The version 5.3 or version 5.4 server itself does not have to be upgraded to version 5.5 before you upgrade to version 6.1. Instead, the system where that server is located must meet the operating system requirements for running a version 5.5 server.

Client nodes and storage agents must be version 5.4 or later to connect to a version 6.1 server.

You cannot upgrade your server to run on an operating system that is different from the operating system it currently runs on.

Some platforms that were supported for earlier versions of the server are *not* supported for version 6.1. These include the following platforms:

- HP-UX running on a PA-RISC system
- Linux® running on an Intel® Itanium® system (IA64)
- Linux running on a 32-bit x86 system
- Microsoft® Windows® running on an Intel Itanium system (IA64)
- Solaris SPARC 9

Refer to the *Server Upgrade Guide* for more details.

Upgrade options

- There are four scenarios for performing an upgrade:
 - ▶ Scenario 1: Same system, media method
 - ▶ Scenario 2: Same system, network method
 - ▶ Scenario 3: New system, media method
 - ▶ Scenario 4: New system, network method
- There are two processes for upgrading the database:
 - ▶ Upgrade utilities (manual)
 - ▶ Upgrade wizard

There are four scenarios for performing an upgrade:

- Scenario 1: Same system, media method
- Scenario 2: Same system, network method
- Scenario 3: New system, media method
- Scenario 4: New system, network method

There are two processes for upgrading the database:

- Upgrade utilities (manual)
- Upgrade wizard

The time required to complete the upgrade depends on the following factors:

- The size of the database being upgraded
- The number and speed of system processors
- The storage device configuration
- The method chosen for moving the data from the version 5 database to the version 6 database

If your environment includes multiple servers and storage agents, evaluate the compatibility of the versions being run with an upgraded version 6.1 server. Plan to upgrade one server first in a test environment. Then stage the upgrade of additional servers and storage agents.

After you install the version 6.1 server program, upgrade the database for each server instance separately.

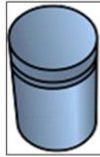
If you use the upgrade wizard, run the wizard once for each server instance. You can upgrade multiple servers at the same time.

If you use the upgrade utilities from a command-line interface, repeat the procedure for upgrading each server instance.

You can begin production-level operations with one upgraded server instance while other server instances are still being upgraded.

Scenario 1: Same system, media method

Tivoli Storage Manager 5.5 database tasks



1. Back up version 5 database.
3. Install DSMUPGRD utilities.
4. Prepare the version 5 database.
7. Start the extraction process.

Tivoli Storage Manager 6.1 database tasks



2. Install Tivoli Storage Manager 6.1 server code.
5. Format an empty database to receive data.
6. Start the insertion for the new server.

All upgrade tasks are performed on the same system. The database is extracted to media and later inserted into the version 6.1 database.

With scenario 1, all upgrade tasks are performed on the same system. The database is extracted to media and later inserted into the version 6.1 database.

Follow these steps to perform the upgrade:

1. Back up the version 5 database to media.
2. Install Tivoli Storage Manager 6.1 server code.
3. Install DSMUPGRD utilities for the version 5 database.
4. Prepare the version 5 database.
5. Format an empty database for version 6.1 to receive the data.
6. Start the database insertion from media for the new server.
7. Start the database extraction from media for the version 5 database.

Scenario 2: Same system, network method

Tivoli Storage Manager 5.5 database tasks



1. Back up the version 5 database.
3. Install DSMUPGRD utilities.
4. Prepare the version 5 database.
7. Start the extraction process.

Tivoli Storage Manager 6.1 database tasks



2. Install Tivoli Storage Manager 6.1 server code.
5. Format an empty database to receive data.
6. Start the insertion for the new server.

All upgrade tasks are performed on the same system. The data is extracted from the original server database and inserted into the new server database at the same time.

The process for upgrading with scenario 2 is similar to scenario 1. The data is extracted from the original server database and inserted into the new server database at the same time over the network..

Follow these steps to perform the upgrade:

1. Back up the version 5 database.
2. Install Tivoli Storage Manager 6.1 server code.
3. Install DSMUPGRD utilities for the version 5 database.
4. Prepare the version 5 database.
5. Format an empty database for version 6.1 to receive the data.
6. Start the database insertion process for the new server.
7. Start the database extraction process of the version 5 database.

Scenario 3: New system, media method



**Tivoli Storage
Manager 5.5
server**

**Tivoli Storage
Manager 6.1
server**



1. Back up the version 5 database.
3. Install DSMUPGRD utilities on the version 5 system.
4. Prepare the version 5 database.
7. Start the extraction process.
2. Install Tivoli Storage Manager 6.1 server code.
5. Format an empty database to receive data.
6. Start the insertion for the new server.

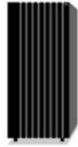
Some upgrade tasks are performed on the original system and some are performed on the new system. The database is extracted to media and later inserted into the version 6.1 database.

With scenario 3, some upgrade tasks are performed on the original system and some are performed on the new system. The database is extracted to media and later inserted into the version 6.1 database.

Follow these steps to perform the upgrade:

1. Back up the version 5 database to media.
2. Install Tivoli Storage Manager 6.1 server code on the new system.
3. Install DSMUPGRD utilities for the database on the version 5 system.
4. Prepare the database on the version 5 system.
5. Format an empty database on the new system for version 6.1 to receive the data.
6. Start the database insertion from media on the new server.
7. Start the database extraction from media on the version 5 system.

Scenario 4: New system, network method



**Tivoli Storage
Manager 5.5
server**

**Tivoli Storage
Manager 6.1
server**



1. Back up the version 5 database.
2. Install Tivoli Storage Manager 6.1 server code.
3. Install DSMUPGRD utilities on the version 5 system.
4. Prepare the version 5 database.
5. Format an empty database to receive data.
6. Start the insertion for the new server.
7. Start the extraction process.

Some upgrade tasks are performed on the original system and some are performed on the new system. The data is extracted from the original server database and sent over the network connection to be inserted into the new server database.

The process for upgrading with scenario 4 is similar to scenario 3. The data is extracted from the original server database and sent over the network connection to be inserted into the new server database.

Follow these steps to perform the upgrade:

1. Back up the version 5 database.
2. Install Tivoli Storage Manager 6.1 server code.
3. Install DSMUPGRD utilities for the version 5 database.
4. Prepare the version 5 database.
5. Format an empty database for version 6.1 to receive the data.
6. Start the database insertion process for the new server.
7. Start the database extraction process of the version 5 database.

Upgrading the database to a new system

- If you are moving the server to a new system, ensure that the new system can access the storage devices that are used on the original system. These storage devices include disk and tape devices that are used to store client data.
- If you are moving the database using the media method, you might need to leave a storage device attached to the original system.

If you are moving the server to a new system, ensure that the new system can access the storage devices that are used on the original system. These storage devices include disk and tape devices that are used to store client data.

If you are moving the database using the media method, you might need to leave a storage device attached to the original system.

Upgrading the database on the same system

If you plan to upgrade the server on the same system, you can take one of two approaches:

1. Ensure that the system has enough disk storage for storing database and recovery logs for both the original server and the new version 6.1 server.

Both will be stored on disk storage during the upgrade process.

2. After you back up the version 5 database and extract the data in the database to media, reconfigure the disk subsystem used for the database storage. Then load the data into the new database from the media.

You must take this approach if you do not have enough disk space for both the original server and the new server.



If you plan to upgrade the server on the same system, you can take one of two approaches:

1. Ensure that the system has enough disk storage for storing database and recovery logs for both the original server and the new version 6.1 server. Both will be stored on disk storage during the upgrade process.

2. After you back up the version 5 database and extract the data in the database to media, reconfigure the disk subsystem used for the database storage. Then insert the data to the new database from the media.

You must take this approach if you do not have enough disk space for both the original server and the new server.

If you plan to upgrade the server on the same system and use the network method for moving the database, ensure that the system memory is sufficient to run two servers simultaneously.

When you run the process that extracts the database from the existing server and inserts the database for the new server, the net effect is that two servers are running at the same time on the system. System memory must be large enough to handle these processes.

Moving the database using media

- You can extract data from the original database to media, and later load the data into the new database.
- The new database can be located on either the same system or a different system.
- Use this method if you are upgrading to a new physical system for the server and:
 - ▶ You cannot have both your old and new machines available at the same time.
 - ▶ You cannot connect the systems with a high-speed network.
- Use this method if you want the version 6.1 server to use the same disk storage space that is used by the version 5 server on the same system.

You can extract data from the original database to media, and later load the data into the new database.

The new database can be located on either the same system or a different system.

Use this method if you are upgrading to a new physical system and you cannot have both your old and new machines available at the same time or you cannot connect the systems with a high-speed network.

Use this method if you want the version 6.1 server to use the same disk storage space that is used by the version 5 server on the same system.

If you plan to extract the original server's database to media to load into the new database later, ensure that you have space available for storing the database and the manifest file that the extraction process creates.

Moving the database using the network

- You can simultaneously extract data from the original database and load the data into the new database.
- The new database can be located on either the same system or a system connected on the network.
- This method provides maximum performance from the upgrade utility, particularly if:
 - ▶ You are migrating from one physical system to a new system.
 - ▶ The systems are connected by a high-speed network.
- The network method reduces the amount of storage that is required because there are no requirements for disk or tapes to hold the data unloaded from the version 5 database.

The network method for the data movement overlaps the extraction time with the insertion time. Using the network method for the database extraction and insertion and database directories that are spread across different physical devices, you can attain a rate of 5 – 10 GB per hour.

Basic steps to upgrade from version 5 to version 6.1

1. Prepare for the upgrade.
2. Uninstall the version 5 program.
3. Install the version 6.1 server.
4. Install the upgrade utilities on the original server.
5. Upgrade the server by using one of the following methods:
 - ▶ Upgrade the server using the upgrade wizard.
 - ▶ Upgrade the server manually using utilities.
6. Complete the upgrade by taking important first steps.

Follow these basic steps to perform the upgrade:

1. Prepare for the upgrade.
2. Uninstall the version 5 program.
3. Install the version 6.1 server.
4. Install the upgrade utilities on the original server.
5. Upgrade the server by using one of the following methods:
 - Upgrade the server using the upgrade wizard.
 - Upgrade the server manually using utilities.
6. Complete the upgrade by taking important first steps.

Access the upgrade utilities package

The upgrade utilities package is available to download from an IBM FTP site.

1. Go to **ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/server-upgrade**.
2. Navigate to the directory that names the platform that your version 5 server runs on.
3. In that directory, open the 6.1.0.0 directory.
4. Download the **.tar** or **.exe** file to a convenient location on the server system.
5. Use the upgrade utilities to prepare and extract the database from the original server.

Install the upgrade utilities package even if you use the upgrade wizard.

The upgrade utilities package is available to download from an IBM FTP site.

1. Go to the IBM FTP site listed on the slide.
2. Navigate to the directory that names the platform that your version 5 server runs on.
3. In that directory, open the 6.1.0.0 directory.
4. Download the **.tar** or **.exe** file to a convenient location on the server system.

Use the upgrade utilities to prepare and extract the database from the original server. The upgrade utilities package is required even if you use the upgrade wizard.

Upgrade manually with the upgrade utilities

1. Prepare the version 5 database.
Use the utility DSMUPGRD PREPAREDB.
2. Extract the version 5 database to external media.
Use the utility DSMUPGRD EXTRACTDB.
3. Format an empty database to receive the data.
Use the utility DSMSERV LOADFORMAT.
4. Insert the data from the media to which it was extracted.
You must have the manifest file.
Use the utility DSMSERV INSERTDB.

If you are going to upgrade the database manually, follow these steps:

1. Prepare the version 5 database.
Use the utility DSMUPGRD PREPAREDB.
2. Extract the version 5 database to external media.
Use the utility DSMUPGRD EXTRACTDB.
3. Format an empty database to receive the data.
Use the utility DSMSERV LOADFORMAT.
4. Insert the data from the media to which it was extracted. You must have the manifest file.
Use the utility DSMSERV INSERTDB.

Detailed instructions for the supported platforms are in the *IBM Tivoli Storage Manager Version 6.1 Server Upgrade Guide*.

Upgrade with the upgrade wizard

1. Install the upgrade utilities package on the version 5 system.
2. Run the **dsmupgdx.exe** file in the Tivoli Storage Manager version 6.1 server directory.
3. Log on as administrator.
4. Run the executable package for the upgrade utilities.
5. Install the utilities package in its own directory.

Do *not* install the utilities in the installation directory for the original server that is to be upgraded.

If you are going to upgrade the database with the wizard, follow these steps:

1. Install the upgrade utilities package on the version 5 system.
2. Run the **dsmupgdx.exe** file in the Tivoli Storage Manager version 6.1 server directory.
3. Log on as administrator.
4. Run the executable package for the upgrade utilities.
5. Install the utilities package in its own directory.

Do *not* install the utilities in the installation directory for the original server that is to be upgraded.

Detailed instructions for the supported platforms are in the *IBM Tivoli Storage Manager Version 6.1 Server Upgrade Guide*.

Starting the upgrade wizard

**C:\Program Files\Tivoli\TSM\server\dsmupgdx.exe
/opt/tivoli/tsm/server/bin/dsmupgdx**



Before upgrading, create empty directories for the version 6.1 database and recovery logs.

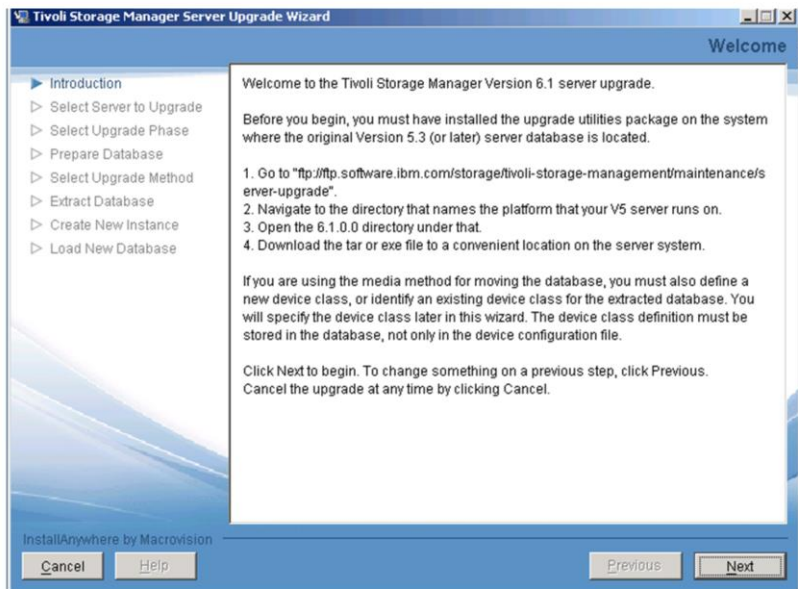
This is an example of using the upgrade wizard on a Microsoft Windows system.

Before upgrading, create empty directories for the version 6.1 database and recovery logs.

Start the wizard by clicking the **dsmupgdx.exe** file in the directory for your version 6.1 server.

Click **Next** to continue.

Welcome screen



Upgrade from a version 5 database

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Review the Welcome screen and click **Next**.

Target system authentication

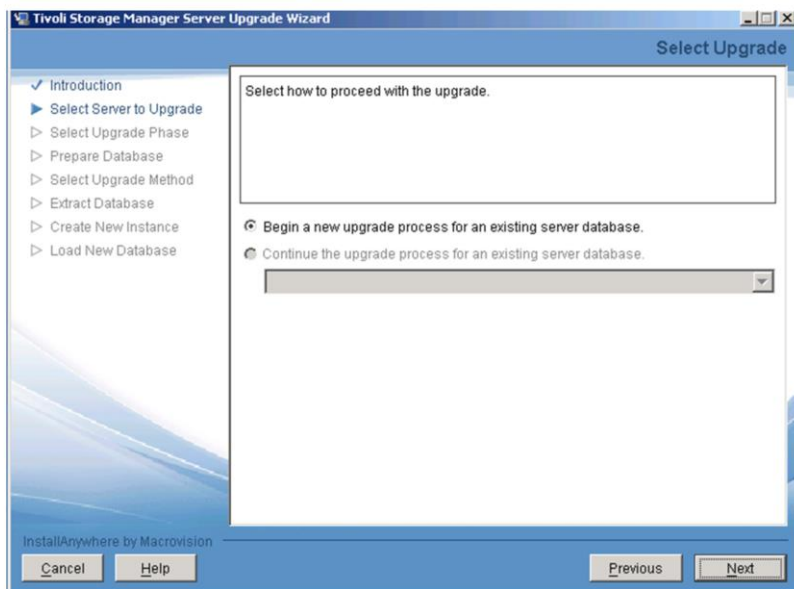
The screenshot shows the 'Target System Authentication' dialog box within the 'Tivoli Storage Manager Server Upgrade Wizard'. The dialog has a sidebar on the left with a tree view containing the following items: Introduction (checked), Select Server to Upgrade (expanded), Select Upgrade Phase, Prepare Database, Select Upgrade Method, Extract Database, Create New Instance, and Load New Database. The main area contains a text box with instructions: 'Specify the system on which the server to be upgraded resides. If the system is not the local system, specify the necessary credentials with which to log in.' Below this are two radio button options: 'The server being upgraded is on this system' (selected) and 'The server being upgraded is on a remote system'. To the right of these options are red annotations: 'Scenarios 1 and 2' next to the first option and 'Scenarios 3 and 4' next to the second option. Below the second option is a text field for 'Host name of remote system:'. Further down are text fields for 'Administrator or root user ID:' (containing 'administrator') and 'Administrator or root password:' (containing '*****'). A note at the bottom states: 'Note: When you click Next, the wizard will attempt to establish a connection to the local machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.' At the bottom of the dialog are 'Cancel', 'Help', 'Previous', and 'Next' buttons.

Select the type of upgrade, either on this system or on a remote system.

If you select an upgrade on a remote system, enter the host name of the version 5 system.

Enter the system root or administrator user ID and password.

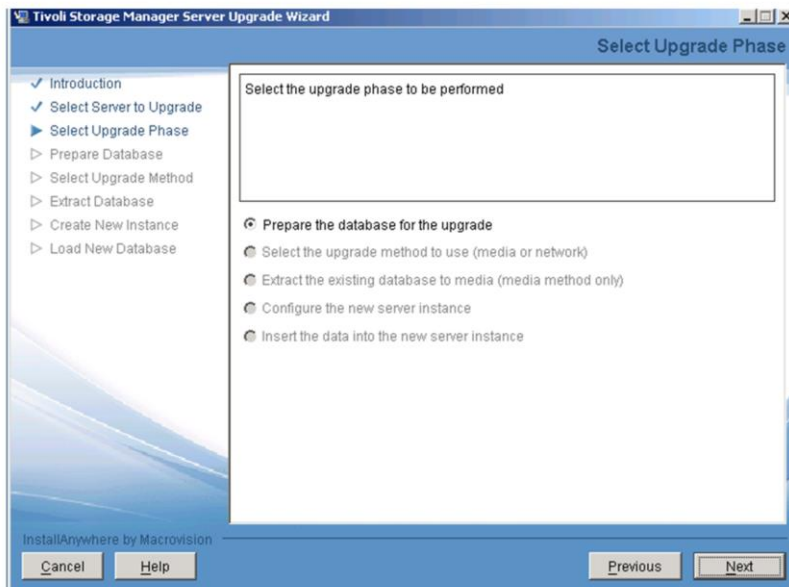
Select upgrade



Select **Begin a new upgrade process for an existing server database** and click **Next**.

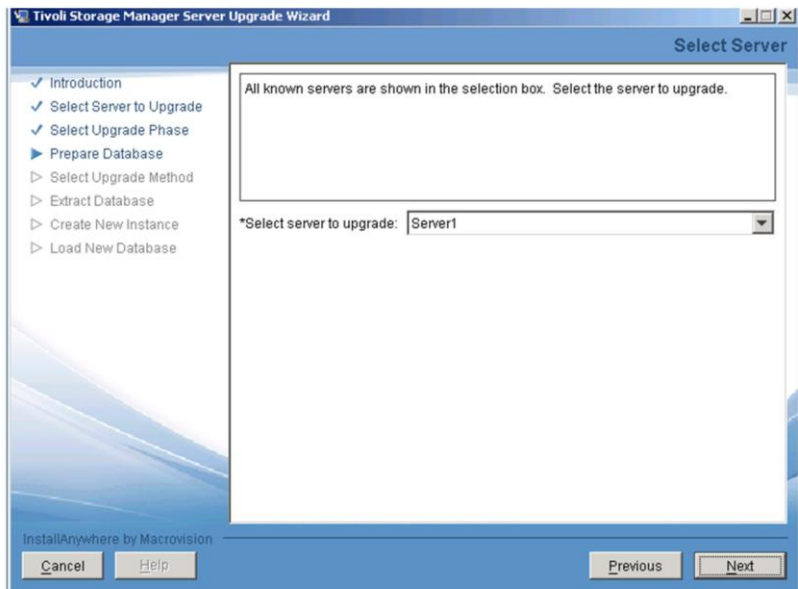
If you are restarting the upgrade after correcting an error, select **Continue the upgrade process for an existing server database** and click **Next**.

Select upgrade phase



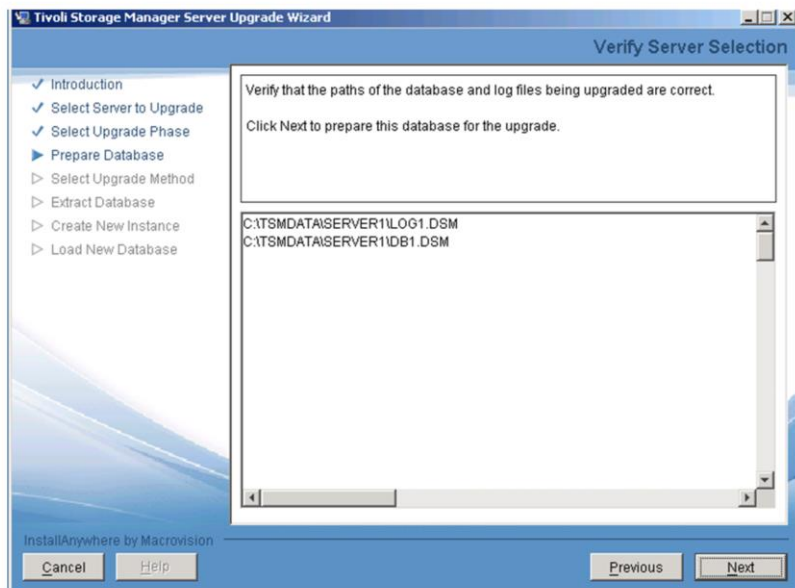
The five steps are shown in this screen. The steps are selected by the wizard. Click **Next** to continue.

Select server



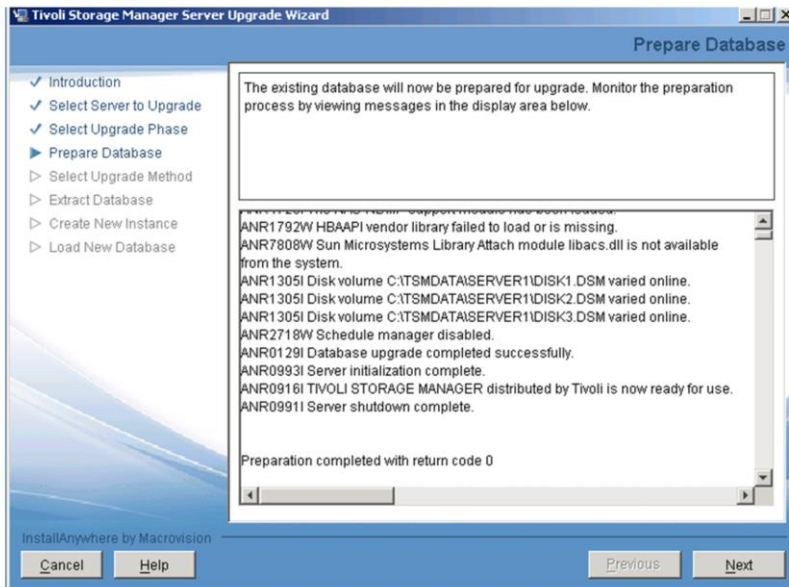
Ensure that the version 5 server to be upgraded is correct and click **Next**.

Verify server selection



Verify that the version 5 database and log files are listed. Click **Next** to continue.

Prepare database

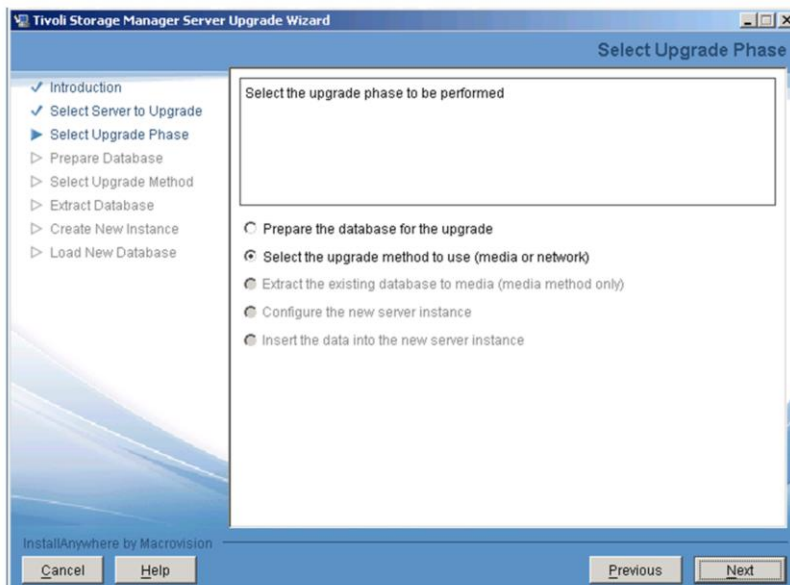


The status of PREPAREDB is displayed.

Return code 0 indicates success.

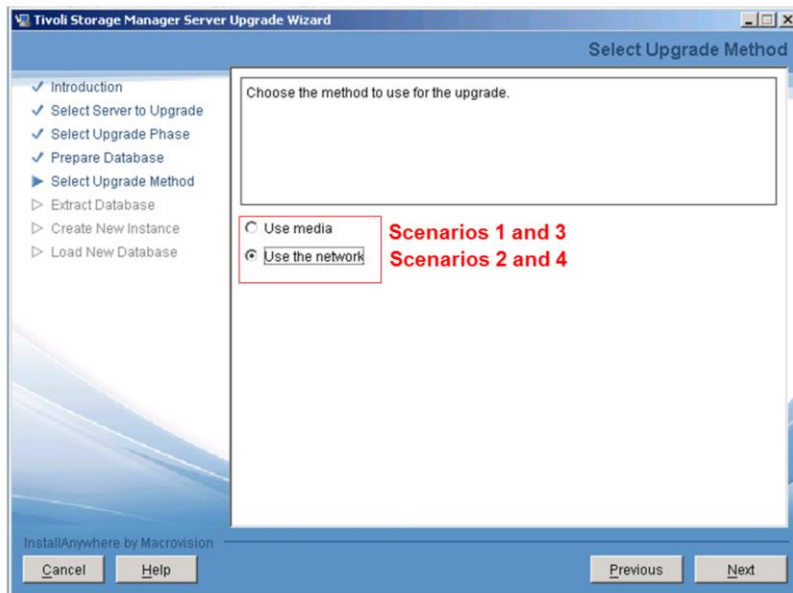
Click **Next** to continue.

Select upgrade phase



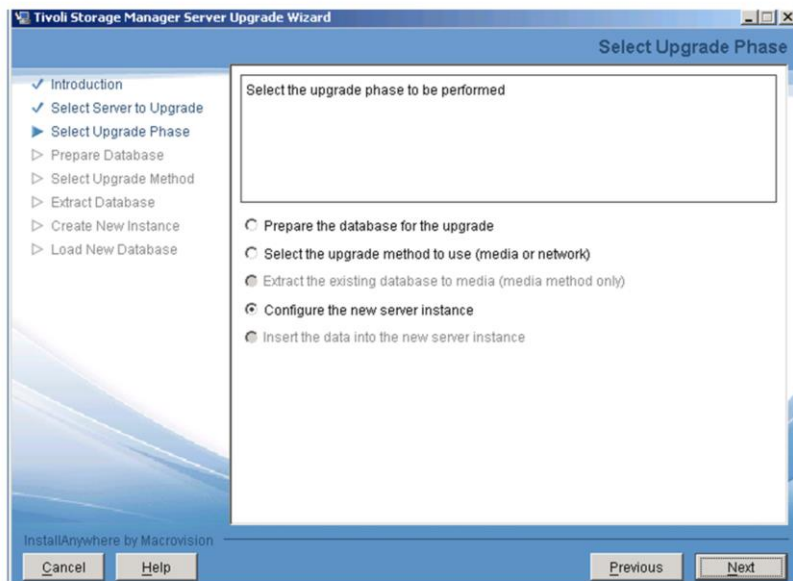
Select the upgrade method to use (media or network) is selected. Click **Next** to continue.

Select upgrade method



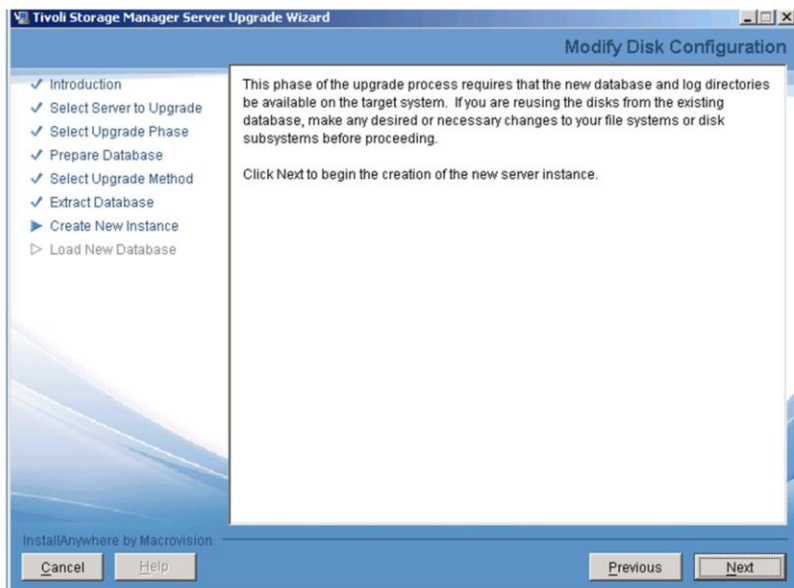
Select **Use media** if you are using scenario 1 or 3. Select **Use the network** if you are using scenario 2 or 4. Scenario 2 is used in this example. Click **Next** to continue.

Select upgrade phase



Because this example is for scenario 2, the **Extract the existing database to media** step is skipped. The **Configure the new server instance** step is selected. Click **Next** to continue.

Modify disk configuration



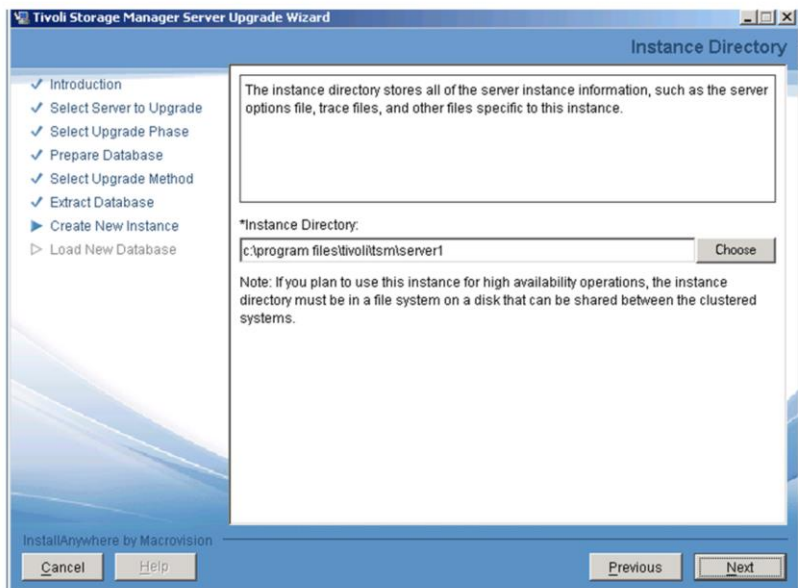
The extraction is complete. Click **Next** to begin the creation of the new server instance.

Instance user ID

The screenshot shows the 'Instance User ID' step of the Tivoli Storage Manager Server Upgrade Wizard. The window title is 'Tivoli Storage Manager Server Upgrade Wizard' and the subtitle is 'Instance User ID'. On the left, a navigation pane lists the following steps: Introduction (checked), Select Server to Upgrade (checked), Select Upgrade Phase (checked), Prepare Database (checked), Select Upgrade Method (checked), Extract Database (checked), Create New Instance (selected), and Load New Database (disabled). The main area contains a text box with the instruction: 'Specify the instance name of the new instance. Also, specify the user ID and password under which the database manager for this instance will run.' Below this are three input fields: 'Instance:' with the value 'Server1', 'User ID:' with the value 'administrator', and 'Password:' with a masked password '*****'. A note below the fields states: 'Note: When you click Next, the wizard will attempt to establish a connection to the local machine. Ensure that File and Print Sharing is enabled and that your firewall allows connections to port 445.' At the bottom, there are 'Cancel', 'Help', 'Previous', and 'Next' buttons. The footer of the wizard window includes 'InstallAnywhere by Macrovision' and the page number '30'.

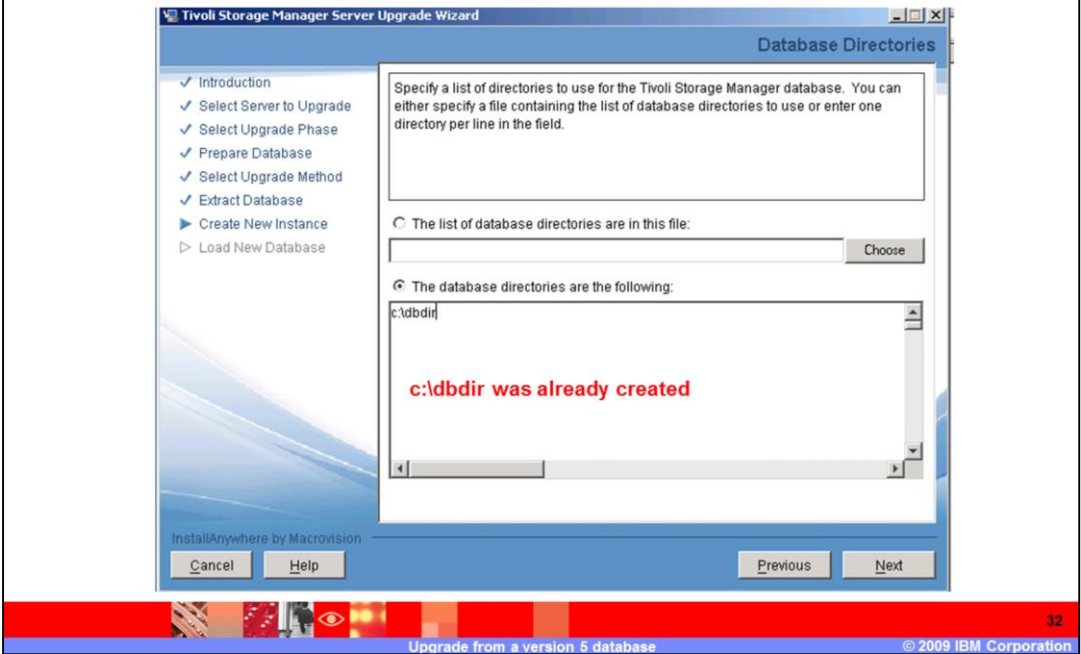
Enter the system root or administrator user ID and password. Click **Next** to continue.

Instance directory



Verify the instance directory. Click **Next** to continue.

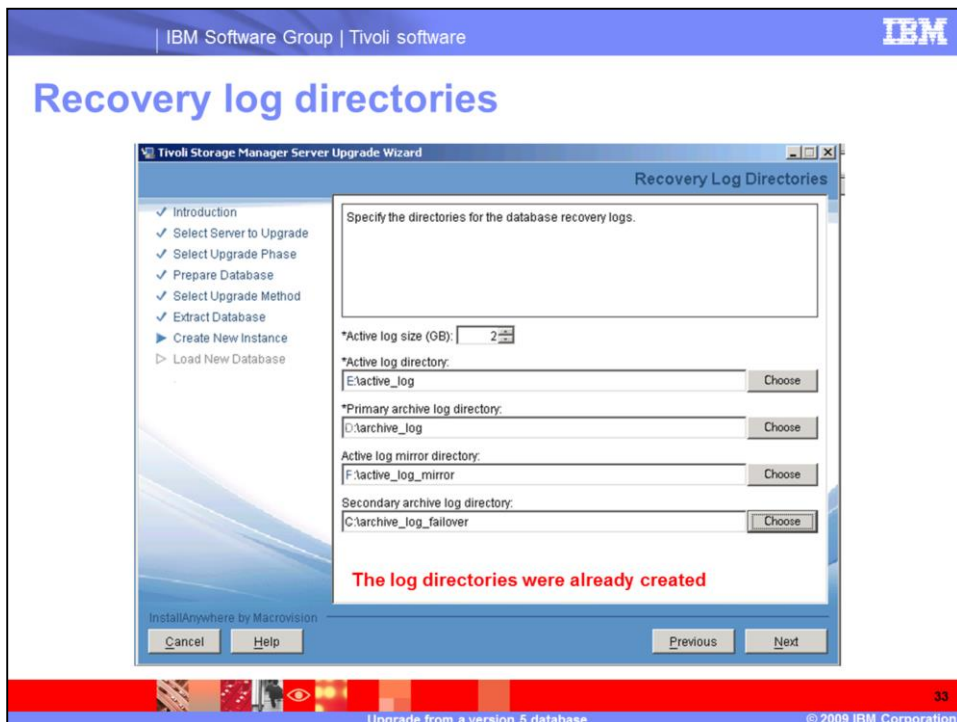
Database directories



Specify the database directory for version 6.1.

Each instance requires its own directory. Consider using separate disks.

Click **Next** to continue.

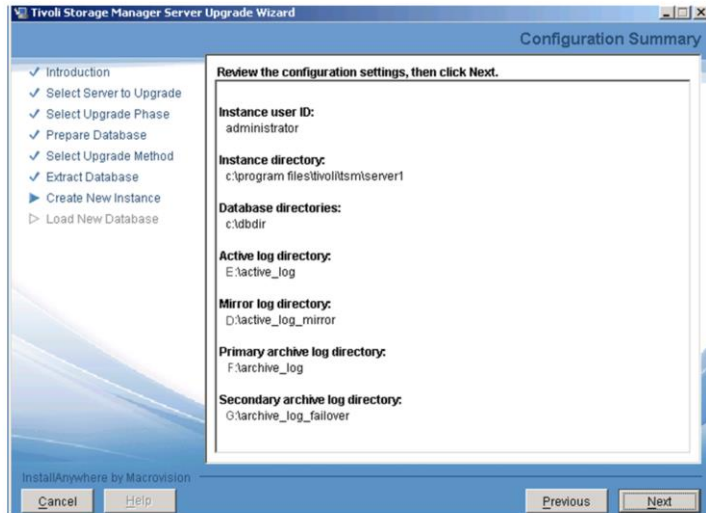


Specify the names of the new log files you previously created:

- Active log
- Primary archive log
- Active log mirror
- Secondary archive log

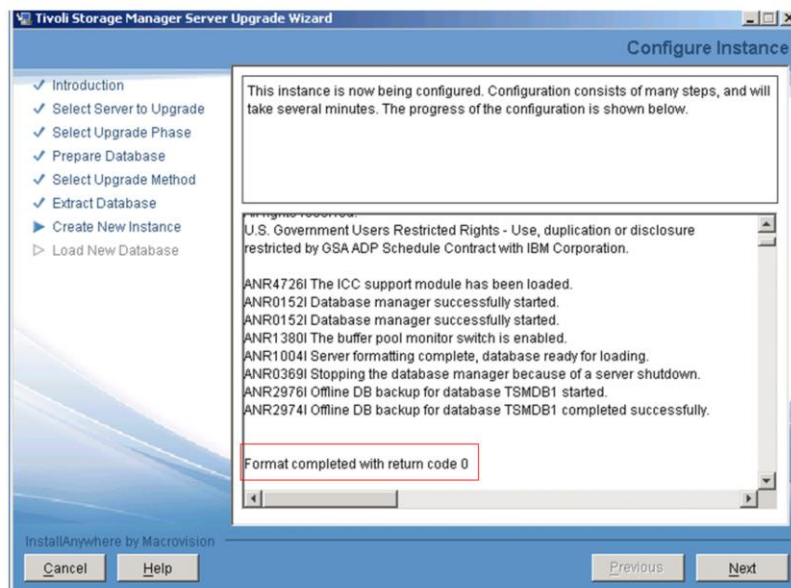
Click **Next** to continue.

Configuration summary



Review the summary and click **Next** to continue.

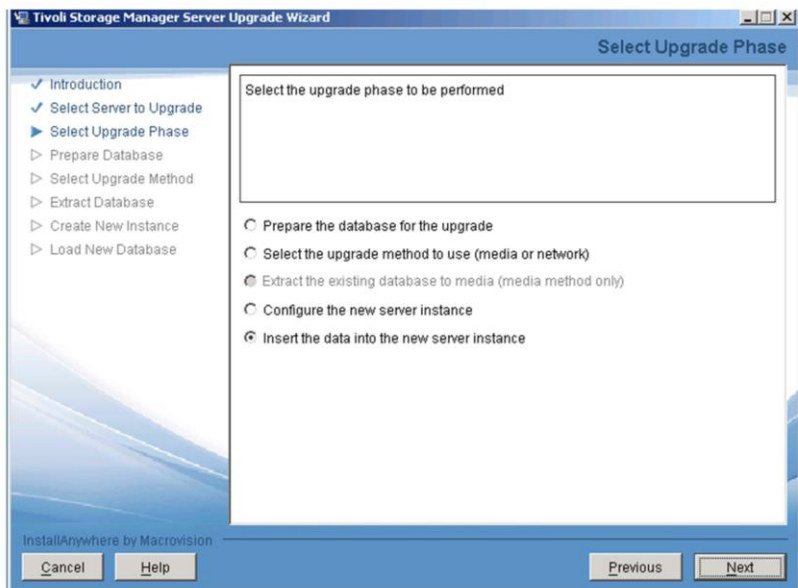
Configure instance



Configuring the instance will take a few minutes.

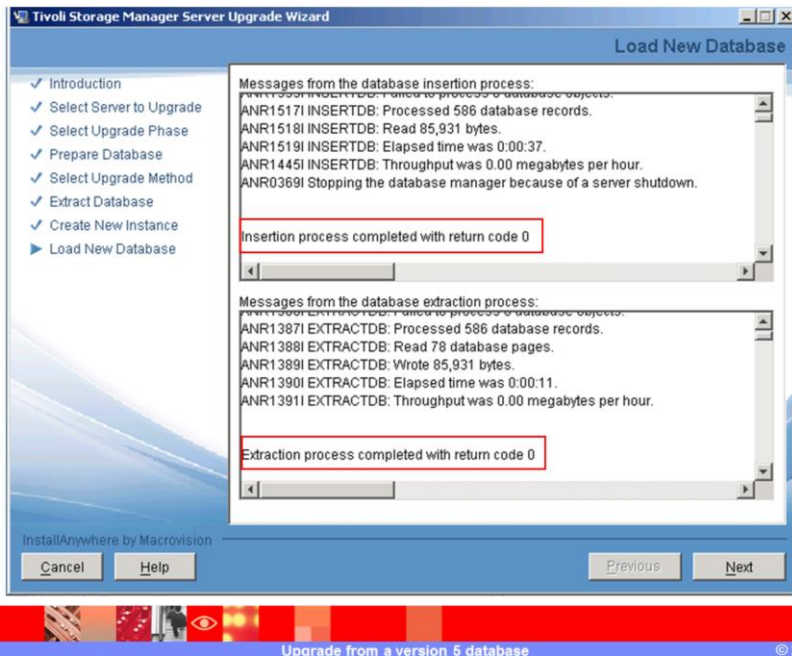
When it is completed with return code 0, click **Next** to continue.

Select upgrade phase



Click **Next** to insert the data into the new server instance.

Load new database



The size of the database determines the amount of time it takes to load the new database.

Click **Next** to finish.

If the insertion process return code is 0, the upgrade was successful and you are done. If the load failed, you can restart the wizard.

After the upgrade

- Verify access to storage pools on disk.
- Start the server instance after the upgrade.
- Register licenses.
- Back up the database after upgrading the server.
- Verify the upgraded server.
- Update automation.

Verify access to storage pools on disk

For all disk space that was used for storage pools (device types of FILE or DISK) by the version 5 server, verify that the user ID that owns the upgraded Tivoli Storage Manager server instance has ownership or read/write permission.

Start the server instance after the upgrade

Verify that the server instance is correctly set up by starting the server instance.

Register licenses

Immediately register any Tivoli Storage Manager licensed functions that you have purchased so that you do not lose any data after you begin using the server. Use the REGISTER LICENSE command for this task.

Back up the database after upgrading the server

After successfully upgrading the server, perform a full backup of its database as soon as possible. Before performing the backup, you must first select the device class that the database manager will use for automatic backups of the database.

Verify the upgraded server

Verify the operation of the server. If the server was installed on a new system as part of the upgrade, check and update connections to storage devices and other components.

Update automation

Implement and verify changes to any automation or scripts that were identified in the planning process.

Summary

You should now be able to:

- ▶ Prepare the Tivoli Storage Manager version 5 database for upgrade
- ▶ Upgrade the version 5 database to Tivoli Storage Manager 6.1

This concludes the IBM Education Assistant training module for Tivoli Storage Manager 6.1 upgrade from a version 5 database.

You should now be able to prepare the Tivoli Storage Manager version 5 database for upgrade and upgrade the version 5 database to Tivoli Storage Manager 6.1.

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