

# IBM Tivoli Storage Manager 6.2

## Upgrade from V5, Part 1: Preparing to upgrade



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Welcome to the IBM Education Assistant module for upgrading IBM Tivoli® Storage Manager from version 5 to version 6.2, part one. In part one of the upgrade series, you prepare for the upgrade.

## Assumptions

- You are familiar with Tivoli Storage Manager version 5.5 or higher

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## Objectives

After completing this module, you should be able to:

- Describe the upgrade process and methods
- Prepare the Tivoli Storage Manager V5 database for upgrade

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Describe the upgrade process and methods

Prepare the Tivoli Storage Manager version 5 database for upgrade

## Upgrade options

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

The upgrade of the Tivoli Storage Manager server from version 5 to version 6 is basically moving and reformatting the version 5 proprietary database to DB2®. You can perform this upgrade manually, by issuing command-line utilities, or you can use the upgrade wizard.

You have four scenarios or options for performing the upgrade:

Scenario 1: Upgrading on the same system, using the media method

Scenario 2: Upgrading on the same system, using the network method

Scenario 3: Upgrading on a new system, using the media method

Scenario 4: Upgrading on a new system, using the network method

The amount of time to complete the upgrade depends on several factors. These factors include the size of the database being upgraded, the number and speed of system processors, and the storage device configuration. One other factor is the method you choose 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. If possible, upgrade one server first in a test environment. Then, stage the upgrade of additional servers and storage agents.

If you are upgrading multiple servers on a single machine, you first install the version 6.2 server program and upgrade the database for each server instance separately.

## Two processes for upgrading the database

- Upgrade wizard
- Upgrade utilities (manual)

You have two options for upgrading the database.

If you use the upgrade wizard, you run the wizard once for each server instance. You can upgrade multiple servers at the same time. Each time that you start the upgrade wizard, you work with a single server. You can also start the wizard in multiple windows 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 being upgraded.

## Scenario 1: Same system, media method

### Tivoli Storage Manager 5.5 database tasks



1. Back up the V5 database
2. Install the DSMUPGRD utilities
3. Prepare the V5 database
4. Uninstall the V5 server code

7. Start the extraction process

### Tivoli Storage Manager 6.2 database tasks



5. Install the Tivoli Storage Manager 6.2 server code
6. Format an empty database to receive data
8. 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 V6.2 database

The first four steps are performed for the Tivoli Storage Manager version 5 server. First, perform a snapshot database backup. You might also want to back up the storage pools to copy pools and back up the server options.

Next, install the DSMUPGRD utilities in the version 5 server directory. Then, prepare the version 5 database, either by issuing the PREPAREDB utility or with the wizard. Remember, the wizard is a user interface that issues the utilities for you.

Next, uninstall the Tivoli Storage Manager version 5 server code. The V5 code will be uninstalled by the V6 installation, but it is a good idea to do the uninstall. Only one version of the code can run on the same system.

After the server, license, and device driver code for your version 5 Tivoli Storage Manager server are removed, you install Tivoli Storage Manager version 6 server, license, and device drivers. Do not perform the configuration. You complete the configuration during the upgrade process.

You perform the last steps by using either the wizard or the command-line utilities. On your Tivoli Storage Manager version 6 server, format an empty database to receive the data. On your Tivoli Storage Manager version 5 server, start the database extraction process. You will extract the database to removable media. Finally, on your Tivoli Storage Manager version 6 server, start the database insertion process, using the removable media that you created in the previous step. You can perform the database insertion later.

When you choose a scenario that includes media, a manifest file is created to store the database location information.

## Scenario 2: Same system, network method

### Tivoli Storage Manager 5.5 database tasks



1. Back up the V5 database
2. Install the DSMUPGRD utilities
3. Prepare the V5 database
4. Uninstall the V5 server code
  
7. Start the extraction process



### Tivoli Storage Manager 6.2 database tasks

5. Install the Tivoli Storage Manager 6.2 server code
6. Format an empty database to receive data
  
8. 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

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Upgrade from V5, Part 1: Preparing to upgrade

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You might perform the upgrade of the server on the same system and use the network method for moving the database. If so, you must ensure that the system memory is sufficient to run two servers at the same time.

When you run the process that extracts the database from the existing server and inserts the database for the new server, the two processes run at the same time. The system memory must be large enough to handle these processes.

The network method reduces the storage that is required because there are no requirements for disk or tapes to hold the data that is unloaded from the version 5 database. This 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.

### Scenario 3: New system, media method



**Tivoli Storage  
Manager 5.5  
server**

1. Back up the V5 database
2. Install the DSMUPGRD utilities
3. Prepare the V5 database
  
6. Start the extraction process

**Tivoli Storage  
Manager 6.2  
server**



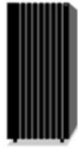
4. Install the Tivoli Storage Manager 6.2 server code
5. Format an empty database to receive data
  
7. Start the insertion for the new server

Some upgrade tasks are performed on the original system, and some on the new system. The database is extracted to media and later inserted into the V6.2 database

Scenario 3 is similar to scenario 1, however, Tivoli Storage Manager version 6 is on a different system, and you do not have to uninstall version 5. When you move the server to a new system, you must 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.



## Scenario 4: New system, network method



**Tivoli Storage  
Manager 5.5  
server**

**Tivoli Storage  
Manager 6.2  
server**



1. Back up the V5 database
2. Install the DSMUPGRD utilities
3. Prepare the V5 database
4. Install the Tivoli Storage Manager 6.2 server code
5. Format an empty database to receive data
6. Start the extraction process
7. Start the insertion for the new server

Some upgrade tasks are performed on the original system, and some 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

Like scenario 3, you do not have to uninstall Tivoli Storage Manager version 5 before installing version 6.

## Optional upgrade method

- Hybrid upgrade-migration method
  - Uses a combination of export and import operations, along with the standard V6 upgrade methods
- Upgrade steps
  - Scenario 3 or Scenario 4 through extracting the database, with the **EXPORT SERVER** command
- The Tivoli Storage Manager V5 server is operational after the database data is extracted
- For more information, visit this website:

<https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Storage%20Manager/page/Tivoli%20Storage%20Manager%20Version%206%20Hybrid%20Upgrade%20Migration%20Method>

Another method is to set up a new system for version 6. Run full data backups and run the version 5 and version 6 systems at the same time until the version 6 system backups and archives meet all the policy retention constraints.

This method is called the hybrid upgrade-migration method. You can find documentation about this method on the ibm.com developerworks website that is listed on the slide.

## Preparing for the Tivoli Storage Manager V6 upgrade

Basic steps for preparing to upgrade from V5 to V6

1. Check the prerequisites for the upgrade
2. Prepare space and requirements 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

Before you begin the upgrade process, verify the requirements, based on your environment. Go to the IBM website and check the requirements for the version release to which you are upgrading. Another helpful resource is the IBM Tivoli Storage Manager 6.2 Server Upgrade Guide (part number SC23-9554-01).

After you ensure that your system meets the requirements, you prepare the space for the process and select the method to perform the upgrade. Later in this module, you review the options for upgrading your server.

You must modify some Tivoli Storage Manager version 5 server settings before you perform the process. You can use these adjustments to roll back, if needed.

As with any maintenance, you back up your storage pools and server database before proceeding. You might also want to back up your configuration files and store them remotely. After you finish, you must stop all the version 5 processes.

## Requirements for Tivoli Storage Manager V5

- From V5.3, V5.4, or V5.5 to V6
- For a V5.3 or V5.4 server
  - Check whether the operating system must be upgraded before beginning the upgrade
- System requirements for the upgrade utility
  - Same as the system requirements for a V5.5 server
- Upgrade utility
  - Based on the V5.5 server code
- Upgrade utility package
  - Must be installed on the system where the V5 database is located

**Tip:** You do not have to upgrade the V5.3 or V5.4 server to V5.5 before upgrading to V6.2. The system where the server is located must meet the operating system requirements for running a V5.5 server

Client nodes and storage agents must be V5.4 or later to connect to a V6 server

You can upgrade Tivoli Storage Manager from versions version 5.3.6 or later to version 6.2 without upgrading the version 5.5 first.

Because the upgrade utilities are based on Tivoli Storage Manager version 5.5 requirements, you must ensure that your system requirements meet the requirements for Tivoli Storage Manager version 5.5.

The Tivoli Storage Manager backup-archive client must be at version 5.4 or later.

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

Some platforms that were supported for earlier versions of the server are not supported for version 6.2. Check the system requirements website.

## Prepare space and requirements for the upgrade process

- Amount and type of space depends on the scenario
- Space must be available for storing the database and the manifest file that are created by the extraction process
- Identify the device class to which you will extract the original database.  
The definition must exist in the server database before you use the DSMUPGRD PREPAREDB utility
- The device class must be a sequential device class that has volumes or space available  
Define a new device class if necessary
- Ensure that you have space or volumes available in the selected device class  
Similar to the current size of the original database
- Check the access permissions for the location that you plan to specify for the manifest file

The amount of space that you need during the upgrade depends on whether you are upgrading to the same system.

If you use removable media to transfer the database, ensure that you have sufficient space to store the database and a manifest file. The manifest file, which contains information about the volumes that are used for storing the extracted data, is typically less than 1 KB. Also, ensure that the manifest file permissions are correct.

You must also verify that you have a sequential-access device class that is defined to that version of the server database. The space or volumes required for your device class should be the same size as the version 5 database.

For the version 6 DB2 database, plan for 33%–50% more space than the space that is required for the version 5 database.

To determine the minimum amount of space, perform this calculation:

1. Use the `QUERY DB FORMAT=DETAILED` command to determine the number of used database pages in your version 5 database.
2. Multiply the number of used database pages by 4096 to obtain the number of used bytes.
3. Add 33%–50% to the used bytes to determine the database space requirements.

## Modify server settings for the upgrade

- Ensure Server Password Set field has the value Yes
- Set the REUSEDELAY parameter so that you can revert to the original server
- Set the RECLAIM parameter to 100
- Ensure that the DELETE VOLHISTORY command does not delete database backups
- Review the steps for reverting to the earlier version of the server

When you use the network method to transfer the database, you must determine if the server password is set. Issue the query status command to check this setting.

- If the server password is not set, issue this command:

```
set serverpassword password
```

- To set or change the server name, issue this command:

```
set servername server_name
```

Set reclamation to 100% before you perform the upgrade process.

Set REUSEDELAY, DELETE VOLHISTORY, and SCHEDLOGRETENTION to a time period that allows for a roll back to the previous version, if needed.

Ensure that the DELETE VOLHISTORY command does not delete database backups for at least the same number of days that you set for the REUSEDELAY period for sequential-access storage pools.

## Backups

- Back up primary storage pools to copy storage pools by using the BACKUP STGPOOL command
- Back up the database with the snapshot backup type
- Back up device configuration information
- Back up volume history information
- Make copies of dsmserv.opt and dsmserv.dsk
- Make a copy of the accounting log file, dsmacnt.log (optional)
- Back up scripts that have been used to perform daily tasks for the server
- Store all the files off the system that is being upgraded

The last steps before disabling all processes on the version 5 server is creating final backups. These backups include storage pools, the database, the volume history files, the device configuration file, and the dsmserv server options files.

Copy your primary storage pools to copy storage pools. Create a snapshot of the database to use as a point-in-time database for recovery, if needed.

You might also want to back up accounting log files and all scripts that you use to automate routine tasks. Examine backup scripts for changes that are needed after the upgrade.

Store these backups on removable media. You might also want to consider making two copies of the backup to protect the backup from media failures.

## Stopping processes

- Stop all clients, storage agents, servers, and administrators from starting new sessions with the server
- Use the **disable sessions all** command
- Check for existing sessions and notify the users that the server will be stopped.  
Use the **query session** command
- Cancel sessions that are running  
Use the **cancel session** command
- Halt the server

Regardless of the upgrade scenario that you use, you must stop all clients, storage agents, servers, and administrators sessions after you complete all the backups.

Issue the `disable sessions all` command to do so. To verify all sessions have stopped, issue the `query sessions` command. If you have any remaining sessions, use the `cancel sessions` command to stop them.

Finally, halt the server.

If you are upgrading to Tivoli Storage Manager 6.2 on the same server, you must uninstall the version 5 server.



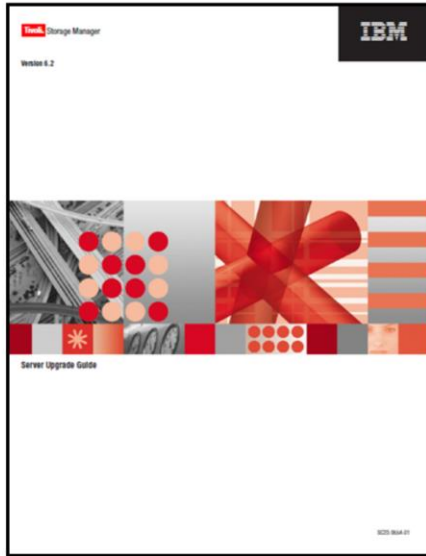
## Testing the upgrade

- Test the upgrade on a nonproduction system
- For testing, you can use one of these methods to use a backup copy of the database
  - Test by extracting data from a separate copy of the server
  - Test by extracting data from the production server

If possible, test the upgrade process on a non-production system first, if you have one. If you do not have one, you can test the upgrade by extracting the data from a production server and inserting it on a test system.

If you have scripts or other automation that use server messages, check the lists of new, changed, and deleted messages for items that you might have to change.

## Upgrade guide



IBM Tivoli Storage Manager Version 6.2  
Server Upgrade Guide

(part number SC23-9554-01)

[http://www-01.ibm.com/support/knowledgecenter/SSGSG7\\_6.2.0/com.ibm.itsm.srv.upgrd.doc/b\\_srv\\_upgrade\\_guide.pdf](http://www-01.ibm.com/support/knowledgecenter/SSGSG7_6.2.0/com.ibm.itsm.srv.upgrd.doc/b_srv_upgrade_guide.pdf)

For detailed steps for all upgrade methods on all supported platforms, see the IBM Tivoli Storage Manager 6.2 Server Upgrade Guide (part number SC23-9554-01).

## Summary

You should now be able to:

- Describe the upgrade process and methods
- Prepare the Tivoli Storage Manager V5 database for upgrade

You should now be able to:

- Describe the upgrade process and methods
- Prepare the Tivoli Storage Manager version 5 database for upgrade

You completed Tivoli Storage Manager version 6 Upgrade, Part 1: Preparing for the upgrade. Continue this topic with IBM Tivoli Storage Manager 6.2 Upgrade from V5, Part 2: Performing the upgrade.

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