

*IBM Tivoli Storage Manager automatic
deployment configuration*



Contents

Deploying the backup-archive client automatically	1
Server and client disk space requirements	1
Automatic deployment terminology	3
Configuring the server for backup-archive client automatic deployments	3
Downloading the deployment package	5
Importing the client deployment package.	6
Defining a deployment schedule for clients on AIX, HP-UX, Linux, or Solaris systems	7
Defining a deployment schedule for clients on Mac OS X systems	9

Defining a deployment schedule for clients on Windows systems	10
Verifying the configuration of automatic deployment on the server	12
Verifying the deployment status by using the administrative command line	13
Verifying the deployment status by using the Schedule status to messages mapping	16

Index	19
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Deploying the backup-archive client automatically

You can schedule backup-archive clients in the environment to automatically update the software.

About this task

The deployment feature can simultaneously update multiple backup-archive clients. You configure and schedule the deployment feature from the server administrative command line. When the schedule runs, files from the deployment package on the server are copied to the client system. The `postnschedulecmd` command runs and the client is upgraded.

The deployment feature requires that the server IP and port information are known when the deployment schedule starts. Issue the **SET SERVERHLADDRESS** and **SET SERVERLLADDRESS** commands to set the values before you use the deployment feature.

To use the deployment feature, the backup-archive clients must meet the following requirements:

- The client system must be at version 5.5 or later.
- The `passwordaccess` option must be set to generate.
- For backup-archive clients on Windows operating systems:
 - The client must be deployed from the server as a scheduled task; the client scheduler must be running when the deployment schedule starts.
 - The scheduler must be started as a Windows service.
- backup-archive clients that are installed on operating systems other than Windows:
 - The client must be deployed from the server as a scheduled task, and the client scheduler daemon must be running when the deployment schedule starts.

Restriction: Do not schedule automatic client deployments to workstations that have a Tivoli® Data Protection for Enterprise Resource Planning application installed.

For more information about the backup-archive client requirements, see Automatic backup-archive client deployment (http://www.ibm.com/support/knowledgecenter/SSGSG7_7.1.1/com.ibm.itsm.client.doc/c_inst_mig_autoclientdeploy.html).

Server and client disk space requirements

The server must have enough disk space for the packages that you download. Each client must have enough disk space for the files that are deployed to it.

Server disk space requirements

The server system must meet the following disk space requirements for the deployment packages:

Table 1. Disk space required for deployment packages

Operating system	Total required disk space
AIX®	1000 MB
Solaris	900 MB
HP-UX	600 MB
Linux on Power Systems™	200 MB
Linux x86/x86_64	300 MB
Linux on System z®	200 MB
Windows	500 MB
Mac OS X	200 MB

The disk space required further depends on whether you plan to keep multiple packages for different operating systems and versions at the same time and the retention value that you set for the packages. For example, the packages for AIX and Windows require a total of 1500 MB of disk space. If the AIX and Windows packages for the previous and current product version are kept on the server, a total of 3000 MB of disk space is required.

To free space, you can delete packages that are no longer required and then download and re-import them again if they are required in the future.

Client disk space requirements

The client system must meet the following disk space requirements for the backup-archive client files:

Table 2. Disk space required for backup-archive client files

Operating system	Total required disk space
AIX	1500 MB
Solaris	1200 MB
HP-UX	900 MB
Linux on Power Systems	350 MB
Linux x86/x86_64	950 MB
Linux on System z	350 MB
Windows	2000 MB
Mac OS X	200 MB

Automatic deployment terminology

You must understand the terminology that is used before you configure the IBM Tivoli Storage Manager servers for automatic deployment.

The following table lists the terminology that you must be familiar with.

Table 3. Automatic deployment terminology

Term	Explanation
Deployment packages or exported packages	<p>The deployment packages are the backup-archive client files that are used to upgrade the client. The packages are also known as exported packages and have a .exp extension.</p> <p>The packages can be downloaded from the FTP site at ftp://public.dhe.ibm.com/storage/tivoli-storage-management.</p> <p>For example, the 7.1.4.0-TIV-TSMBAC-WinX64.exp package is located at: ftp://public.dhe.ibm.com/storage/tivoli-storage-management/maintenance/client/v7r1/Windows/autodeploy/v714/</p>
Import location	The directory where the deployment packages are placed after they are downloaded from the FTP site.
Storage pool media	A FILE or DISK storage pool where deployment packages are stored after they are imported from the import location directory.
Policy settings	The policy domain that is used for deployment operations.

Configuring the server for backup-archive client automatic deployments

Configure the IBM® Tivoli Storage Manager server to prepare the client nodes for automatic deployment.

Before you begin

Ensure that the following system privileges are specified:

- You must have SYSTEM privileges on the server to issue the deployment commands that are used to configure and import the deployment packages.
- To schedule a backup-archive client deployment for a client node, you must have SYSTEM privileges or DOMAIN privileges on the domain that the client node belongs to.

You can review the automatic deployment terminology to help you complete the configuration.

Before you configure the server to automatically update the backup-archive client software, you must understand the following terms:

Import location

The directory where the deployment packages are placed after they are downloaded from the FTP site.

Storage pool media

A FILE or DISK storage pool where the deployment packages are stored after they are imported from the import location directory.

Policy domain

Domain that is used for deployment operations. The `ibm_client_deploy` policy is a user-defined domain on the Tivoli Storage Manager server that you can define and use for deployment operations.

Procedure

To configure the server for automatic deployment, complete the following steps:

1. Log on to the Tivoli Storage Manager server from the administrative command line.
2. Define an import location by completing the following steps:
 - a. Create a directory where the deployment packages can be stored. The location must be accessible from the Tivoli Storage Manager server instance user ID.
 - b. Define the `ibm_client_deploy_import` device class:

```
define devclass ibm_client_deploy_import devtype=file
directory=import_directory
```

where *import_directory* is the directory that you created in Step 2a.

Restriction: Do not use this device class to create a storage pool.

3. Define the storage pool media by completing the following steps:
 - a. Create a directory that will contain the server volumes after the deployment packages are imported. The directory must be accessible from the server instance user.
 - b. Define the type of storage pool that you want to use by completing one of the following tasks:
 - For a FILE storage pool, issue the following two commands:

```
define devclass deploy_devclass_name devtype=file dir=deploy_pkg_dir
define stgpool stgpool_name deploy_devclass_name maxscr=max_number
```

where:

- *deploy_devclass_name* is the name of the device class
- *deploy_pkg_dir* is the name of the directory for the device class
- *stgpool_name* is the name of the storage pool
- *max_number* is the maximum number of scratch volumes

- For a DISK storage pool, issue the following command:

```
define volume stgpool_name deploy_pkg_dir/volume1.dsm format=size
```

where:

- *stgpool_name* is the name of the file or disk storage pool
- *deploy_pkg_dir* is the directory that you defined in Step 3a
- *size* is the size of the volumes

4. Define the policy domain by completing the following steps:
 - a. Create and configure the domain:

```
define domain ibm_client_deploy
define policyset ibm_client_deploy ibm_client_deploy
define mgmtclass ibm_client_deploy ibm_client_deploy ibm_client_deploy
```


- b. Create the copy group:

```
define copygroup ibm_client_deploy ibm_client_deploy ibm_client_deploy  
standard type=archive destination=stgpool_name retver=retention_value
```

where *retention_value* sets the retention time for the package. You can set the value to *NOLimit* or to a number of days. If you set the value to *NOLimit*, the server retains the package forever.

- c. Assign a default management class to the policy set:

```
assign defmgmtclass ibm_client_deploy ibm_client_deploy ibm_client_deploy  
activate policyset ibm_client_deploy ibm_client_deploy
```

5. Set the high-level and low-level address of the server by issuing the following commands:

```
set serverhladdress server.serveraddress.com  
set serverlladdress tcp_port
```

where:

- *server.serveraddress.com* is the server IP address or host name of the Tivoli Storage Manager server.
- *tcp_port* is the port number of the Tivoli Storage Manager server. The default is 1500.

What to do next

Download the deployment package for the version and operating system of your choice. For more information about the available packages, see “Downloading the deployment package.”

If you previously downloaded a deployment package, you can import it to the Tivoli Storage Manager server. For more information about importing the deployment packages, see “Importing the client deployment package” on page 6.

Downloading the deployment package

You must download the deployment package before you can use the automatic deployment feature.

Before you begin

Before you download the deployment package, ensure that you configured the server for automatic deployment.

Procedure

Download a deployment package by completing the following steps:

1. Open the `catalog.xml` file on the FTP site at `ftp://public.dhe.ibm.com/storage/tivoli-storage-management/catalog/client/catalog.xml`.
2. Review the information for each package in the `xml` file. The information about each package is contained between the opening and closing package tags like `<package>` and `</package>`. Choose a package by reviewing the information in the version, platform, and architecture tags.

For example, the following package definition represents a 7.1.4.0 package for AIX:

```

<package>
<name>7.1.4.0-TIV-TSMBAC-AIX.exp</name>
<subdir>maintenance/client/v7r1/AIX/autodeploy/v714</subdir>
<version>7.1.4.0</version>
<platform>AIX</platform>
<architecture>PPC</architecture>
<datePublished>11-30-2015</datePublished>
<minimumOSLevel/>
</package>

```

3. Use the value in the `subdir` tag to change paths to the deployment package on the FTP site at `ftp://public.dhe.ibm.com/storage/tivoli-storage-management`.
For example, if the `subdir` is `maintenance/client/v7r1/AIX/autodeploy/v714`, you can download the package from `ftp://public.dhe.ibm.com/storage/tivoli-storage-management/maintenance/client/v7r1/AIX/autodeploy/v714/`.
4. Download the package and save it to the directory that is referenced by the `IBM_CLIENT_DEPLOY_IMPORT` device class that you defined in *Configuring the server for backup-archive client automatic deployments*.

What to do next

Import the deployment package to the Tivoli Storage Manager server. For more information, see “Importing the client deployment package.”

Importing the client deployment package

You must import the deployment package to the IBM Tivoli Storage Manager server for the deployment files to be available to the backup-archive clients.

Before you begin

Ensure that you completed the following steps before you import the deployment package:

- You configured the server for automatic deployment.
- You downloaded the deployment package from the FTP site at `ftp://public.dhe.ibm.com/storage/tivoli-storage-management`.
- You placed the deployment package in the directory that is referenced by the `IBM_CLIENT_DEPLOY_IMPORT` device class.

Procedure

Import the package by issuing the **IMPORT** command:

```

import node * filedata=archive mergefilespace=yes
devclass=ibm_client_deploy_import volumenames=package.exp

```

where *package.exp* is the name of a deployment package that you downloaded. You must specify one package at a time.

Tip: If you want to view the progress, issue the `QUERY PROCESS` command.

Results

Verify that the package is in a location that the server can access. Issue the following command:

```

select * from archives where node_name like 'IBM_CLIENT_DEPLOY%'

```

What to do next

Define client schedules to automatically upgrade the backup-archive clients. You must define one schedule per package that you imported. Depending on the operating system of the package that you imported, complete the steps in one of the following sections:

- “Defining a deployment schedule for clients on AIX, HP-UX, Linux, or Solaris systems”
- “Defining a deployment schedule for clients on Mac OS X systems” on page 9
- “Defining a deployment schedule for clients on Windows systems” on page 10

Related tasks:

“Configuring the server for backup-archive client automatic deployments” on page 3

Configure the IBM Tivoli Storage Manager server to prepare the client nodes for automatic deployment.

“Downloading the deployment package” on page 5

You must download the deployment package before you can use the automatic deployment feature.

Defining a deployment schedule for clients on AIX, HP-UX, Linux, or Solaris systems

Define a schedule to upgrade the backup-archive client software on AIX, HP-UX, Linux, or Solaris systems.

Before you begin

Before you define a schedule for automatic deployment, verify that you completed the following steps:

- You configured the server for automatic deployment.
- You imported the deployment packages to the server.
- You ensured that the clients that you want to upgrade meet the minimum disk space requirements.

Procedure

To create a schedule for an automatic deployment, complete the following steps from the IBM Tivoli Storage Manager administrative command line:

1. Define the retrieve location that will be used in the **DEFINE SCHEDULE** command:
 - a. Query the server for the `deployclient.sh` script by issuing the following command:

```
select hl_name, description from archives where  
node_name='IBM_CLIENT_DEPLOY_UNX' and lower(ll_name) like 'deployclient.sh'
```

Tip: The `node_name` and `ll_name` parameters are case sensitive.

- b. Review the description field for the package version and operating system for each entry that was returned. Identify the entry for the package that you imported.

For example, a database entry with a description of `DEPLOY 7.1.4.0 AIX PPC` represents the 7.1.4.0 AIX deployment package.

- c. Define the *retrieve_location* value by appending an asterisk (*) to the `hl_name` values, as shown in the following example:

/tsm/patches/client/v7r1/Linux/x86/v714/v7140/*.

2. Define a schedule for automatic deployment by issuing the **DEFINE SCHEDULE** command. Use no spaces before or after the number sign (#) or the greater than character (>):

```
define schedule domain_name schedule_name action=deploy
durunits=minutes perunits=onetime
objects='retrieve_location target_directory/IBM_ANR_UNX/'
options='-fromnode=IBM_CLIENT_DEPLOY_UNX
-postnschedulecmd="target_directory/IBM_ANR_UNX/vXXXX/deployclient.sh>
target_directory/IBM_ANR_UNX/vXXXX/upmin#schedule=schedule_name
#domain=domain_name#nodeinfo2=TBD" -preschedulecmd="" -sub=yes -replace=all'
```

where:

- *domain_name* is the domain that the client nodes are defined to.
- *schedule_name* is the name of the schedule that you want to define.
- *retrieve_location* is the path on the volume where the deployment package is located. Use the value that you defined in Step 1c.
- *target_directory* is the directory where the backup-archive client is installed on the client system.

For example, on operating systems such as AIX, the installation default directory is /usr/tivoli/tsm/client/. You can also use /opt/tivoli/tsm/client/ directory based on where you want to temporarily store the deployment files that are retrieved from the server and the deployment processing logs.

- *vXXXX* is the last directory of the *retrieve_location* value, which represents the version of the deployment package.

3. Associate client nodes that you want to automatically upgrade with the deployment schedule by issuing the following command:

```
define association domain_name schedule_name node1, node2
```

where *node1*, and *node2* are client nodes that you want to associate with the deployment schedule.

4. Optional: Update the **TARGETLEVEL** value to the level of the deployment package that you downloaded. You can use this parameter to determine whether the client nodes were upgraded to the target level. For example, if you downloaded the package called 7.1.4.0-TIV-TSMBAC-AIX.exp, issue the following command:

```
update node node_name targetlevel=7.1.4.0
```

where *node_name* is the name of a client node that you associated with the deployment schedule.

Issue the command for each client node that you associated with the deployment schedule. After the deployment schedule completes, you can compare the current version field to the target version field in the output to determine whether the client was successfully upgraded.

Example

If you want to schedule the backup-archive client software on a Linux system to upgrade to version 7.1.4.0, issue the following command:

```
define schedule mydomain deploy_sched action=deploy
description=deploy_714_package_to_client_nodes
durunits=minutes perunits=onetime
startdate=09/15/2014 starttime=10:00:00
objects="/tsm/patches/client/v7r1/Linux/x86/v714/v7140/*
/opt/tivoli/tsm/client/IBM_ANR_UNX/"
```

```
options="-fromnode=IBM_CLIENT_DEPLOY_UNX
-postnschedulecmd='/opt/tivoli/tsm/client/IBM_ANR_UNX/v7140/deployclient.sh>
/opt/tivoli/tsm/client/IBM_ANR_UNX/v7140/upmin#schedule=deploy_sched#
domain=mydomain#nodeinfo2=TBD' -preschedulecmd=""
-sub=yes -replace=all"
```

Defining a deployment schedule for clients on Mac OS X systems

Define a schedule to upgrade the backup-archive client software on MAC OS X systems.

Before you begin

Before you define a schedule for automatic deployment, verify that you completed the following steps:

- You configured the server for automatic deployment.
- You imported the deployment packages to the server.
- You ensured that the clients that you want to upgrade meet the minimum disk space requirements.

Procedure

To create a schedule for an automatic deployment, complete the following steps from the IBM Tivoli Storage Manager administrative command line:

1. Define the retrieve location that will be used in the **DEFINE SCHEDULE** command:

- a. Query the server for the DEPLOYCLIENT.SH script by issuing the following command:

```
select hl_name, description from archives where
node_name='IBM_CLIENT_DEPLOY_MAC' and ll_name='DEPLOYCLIENT.SH'
```

where the node_name and ll_name are case-sensitive.

- b. Review the description field for the package version and operating system for each entry that was returned. Identify the entry for the package that you imported. For example, the database entry with a description of DEPLOY 7.1.4.0 Mac x86 is part of the 7.1.4.0 Mac x86 deployment package.
- c. Define the *retrieve_location* value by appending an asterisk (*) to the hl_name values, as shown in the following example:
/TSM/PATCHES/CLIENT/V7R1/MAC/X86/V714/V7140/.*

2. Define a schedule for automatic deployment by issuing the **DEFINE SCHEDULE** command. Ensure that there are no spaces before or after the number sign (#) or the greater than character (>):

```
define schedule domain_name schedule_name action=deploy
durunits=minutes perunits=onetime
objects='retrieve_location target_directory/IBM_ANR_MAC/'
options='-fromnode=IBM_CLIENT_DEPLOY_MAC
-postnschedulecmd="target_directory/IBM_ANR_MAC/VXXXX/DEPLOYCLIENT.SH>
target_directory/IBM_ANR_MAC/VXXXX/upmin#schedule=schedule_name
#domain=domain_name#nodeinfo2=TBD" -preschedulecmd=""
-sub=yes -replace=all'
```

where:

- *domain_name* is the domain that the client nodes are defined to.
- *schedule_name* is the name of the schedule that you want to define.
- *retrieve_location* is the path on the volume where the deployment package is located. Use the value that you defined in Step 1c.

- *target_directory* is the directory where the backup-archive client is installed on the client system. The relative path to *./IBM_ANR_MAC/* can also be used, for example, *./IBM_ANR_MAC/*.
 - *VXXXX* is the last directory of the *retrieve_location* value, which represents the version of the deployment package.
3. Associate client nodes that you want to automatically upgrade with the deployment schedule by issuing the following command:
`define association domain_name schedule_name node1, node2`

where *node1*, and *node2* are client nodes that you want to associate with the deployment schedule.

4. Optional: Update the **TARGETLEVEL** value to the level of the deployment package that you downloaded. For example, if you downloaded the package called *7.1.4.0-TIV-TSMBAC-MAC.exp*, issue the following command:
`update node node_name targetlevel=7.1.4.0`

where *node_name* is the name of a client node that you associated with the deployment schedule.

Issue the command for each client node that you associated with the deployment schedule. After the deployment schedule completes, you can compare the current version field to the target version field in the output to determine whether the client was successfully upgraded.

Example

If you want to schedule the backup-archive client software on Mac OS systems to upgrade to version 7.1.4.0, issue the following command:

```
define schedule mydomain deploy_sched action=deploy
description=deploy_714_package_to_client_nodes
durunits=minutes perunits=onetime
startdate=09/15/2014 starttime=10:00:00
objects="/TSM/PATCHES/CLIENT/V7R1/MAC/X86/V714/V7140/*
./IBM_ANR_MAC/"
options="-fromnode=IBM_CLIENT_DEPLOY_MAC
-postnschedulecmd='./IBM_ANR_MAC/V7140/deployclient.sh>
./IBM_ANR_MAC/V7140/upmin#schedule=deploy_sched#
domain=mydomain#nodeinfo2=TBD' -preschedulecmd=""
-sub=yes -replace=all"
```

Defining a deployment schedule for clients on Windows systems

Define a schedule to upgrade the backup-archive client software on Windows systems.

Before you begin

Before you define a schedule for automatic deployment, verify that you completed the following steps:

- You configured the server for automatic deployment.
- You imported the deployment packages to the server.
- You ensured that the clients that you want to upgrade meet the minimum disk space requirements.

Procedure

To create a schedule for an automatic deployment, complete the following steps from the IBM Tivoli Storage Manager administrative command line:

1. Define the retrieve location that will be used in the **DEFINE SCHEDULE** command:

- a. Query the server for the DEPLOYCLIENT.BAT script by issuing the following command:

```
select filespace_name, hl_name, description from archives where
node_name='IBM_CLIENT_DEPLOY_WIN' and ll_name='DEPLOYCLIENT.BAT'
```

where the node_name and ll_name are case-sensitive.

- b. Review the description field for the package version and operating system for each entry that was returned. Identify the entry for the package that you imported. For example, the entry with a description of DEPLOY 7.1.4.0 Windows X64 is part of the 7.1.4.0 Windows x64 deployment package.
- c. Define the *retrieve_location* value by appending an asterisk (*) to the hl_name values, as shown in the following example:

```
filespace_namehl_name*
```

For example, \\ibm_anr_win\c\$\TSM\PATCHES\CLIENT\V7R1\WINDOWS\X64\V714\V7140*.

2. Define a schedule for automatic deployment by issuing the **DEFINE SCHEDULE** command:

```
define schedule domain_name schedule_name action=deploy
durunits=minutes perunits=onetime
objects='retrieve_location target_directory\IBM_ANR_WIN\'
options='-fromnode=IBM_CLIENT_DEPLOY_WIN
-posnschedulecmd="target_directory\IBM_ANR_WIN\VXXXX\DEPLOYCLIENT.BAT
schedule=schedule_name
domain=domain_name autodeploy=noreboot nodeinfo=TBD"
-preschedulecmd="" -sub=yes -replace=all'
```

where:

- *domain_name* is the domain that the client nodes are defined to.
- *schedule_name* is the name of the schedule that you want to define.
- *retrieve_location* is the path on the volume where the deployment package is located. Use the value that you defined in Step 1c.
- *target_directory* is the directory where the backup-archive client is installed on the client system. The location is determined by the default installation directory of the backup-archive client.

For example, on Windows, the default installation directory is C:\program files\tivoli\tsm\baclient. The relative path to IBM_ANR_WIN can also be used, for example, ..\IBM_ANR_WIN\.

- VXXXX is the last directory of the *retrieve_location* value, which represents the version of the deployment package.
- AUTODEPLOY can be YES, NO, or NOREBOOT. The default is YES.

If you use AUTODEPLOY=NOREBOOT in your command, the client operating system does not restart after the deployment completes. Restarting can affect any critical applications that are running on the client operating system.

Applications that are not Tivoli Storage Manager applications that are running on the client operating system might not be restarted automatically. In most cases, the installation can complete without restarting the client operating system. There are rare cases where the deployment manager cannot detect the

restart. For example, if client processes are started from a script. In these cases, the new backup-archive client installation continues, but a manual restart of the client computer is required.

3. Associate client nodes that you want to automatically upgrade with the deployment schedule by issuing the following command:

```
define association domain_name schedule_name node1, node2
```

where *node1*, and *node2* are client nodes that you want to associate with the deployment schedule.

4. Optional: Update the **TARGETLEVEL** value to the level of the deployment package that you downloaded. For example, if you downloaded the package called 7.1.4.0-TIV-TSMBAC-WinX32.exp, issue the following command:

```
update node node_name targetlevel=7.1.4.0
```

where *node_name* is the name of a client node that you associated with the deployment schedule.

Issue the command for each client node that you associated with the deployment schedule. After the deployment schedule completes, you can compare the current version field to the target version field in the output to determine whether the client was successfully upgraded.

Example

If you want to schedule the backup-archive client software on Windows systems to upgrade to version 7.1.4.0, issue the following command:

```
define schedule mydomain deploy_sched action=deploy
description=deploy_714_package_to_client_nodes
durunits=minutes perunits=onetime
startdate=09/15/2014 starttime=10:00:00
objects="//ibm_anr_win\c$\TSM\PATCHES\CLIENT\V7R1\WINDOWS\X64\V714\V7140\*
..\IBM_ANR_WIN\" options="-fromnode=IBM_CLIENT_DEPLOY_WIN
-postnschedulecmd='..\IBM_ANR_WIN\V7140\DEPLOYCLIENT.BAT schedule=deploy_sched
domain=mydomain autodeploy=noreboot nodeinfo=IBD' -preschedulecmd="" -sub=yes -replace=all"
```

Verifying the configuration of automatic deployment on the server

Verify that the server is configured to automatically update the backup-archive clients.

Procedure

To verify that the server is configured to manage deployment packages, complete the following steps. Use the administrative command line to issue the commands.

1. Verify that the IBM_CLIENT_DEPLOY_IMPORT device class is defined. Issue the following command:

```
QUERY DEVCLASS IBM_CLIENT_DEPLOY_IMPORT F=D
```

2. Verify that the storage pool that you defined is configured to store the deployment packages on the server. Issue the following command:

```
QUERY STGPPOOL stgpool_name F=D
```

where *stgpool_name* is the name of the storage pool.

3. Verify that the archive copy group is defined. Issue the following command:

```
QUERY COPYGROUP IBM_CLIENT_DEPLOY IBM_CLIENT_DEPLOY IBM_CLIENT_DEPLOY
TYPE=ARCHIVE
```


4. Verify that the default management class is set to the active policy set. Issue the following command:

```
QUERY POLICYSET IBM_CLIENT_DEPLOY F=D
```

5. Verify that the schedule is created for the client nodes. Issue the following command:

```
QUERY EVENT domain_name sched_name F=D
```

where *sched_name* is the name of the deployment schedule.

6. Optional: Verify that the **TARGETLEVEL** parameter is set to match the level of the deployment package. Issue the following command:

```
QUERY NODE node_name F=D
```

where *node_name* is one of the nodes that you associated with the deployment schedule.

Verifying the deployment status by using the administrative command line

After a deployment schedule runs, you can query the server to determine the success or failure of the client upgrade.

About this task

Issue commands from the IBM Tivoli Storage Manager administrative command line to determine the status of a deployment schedule.

Procedure

- Determine whether the client software was upgraded to the target level by issuing the following command:

```
SELECT DISTINCT N.NODE_NAME, N.TCP_ADDRESS, N.CLIENT_VERSION,  
N.CLIENT_RELEASE, N.CLIENT_LEVEL,N.CLIENT_SUBLEVEL,  
N.CLIENT_TARGET_VERSION, N.CLIENT_TARGET_RELEASE,  
N.CLIENT_TARGET_LEVEL, N.CLIENT_TARGET_SUBLEVEL,  
N.PLATFORM_NAME, N.CLIENT_OS_NAME  
FROM NODES N, ASSOCIATIONS A, CLIENT_SCHEDULES CS  
WHERE N.NODE_NAME=A.NODE_NAME AND A.SCHEDULE_NAME=CS.SCHEDULE_NAME  
AND A.SCHEDULE_NAME='deploy_sched' AND CS.ACTION='DEPLOY'
```

where *deploy_sched* is the name of the deployment schedule.

From the following example output, you can see that the current version, release, level, and sublevel do not match that of the target. The software failed to upgrade, or the upgrade is not finished.

```
      NODE_NAME: CNODE1  
      TCP_ADDRESS: x.xx.xxx.xxx  
      CLIENT_VERSION: 6  
      CLIENT_RELEASE: 3  
      CLIENT_LEVEL: 0  
      CLIENT_SUBLEVEL: 0  
      CLIENT_TARGET_VERSION: 7  
      CLIENT_TARGET_RELEASE: 1  
      CLIENT_TARGET_LEVEL: 1  
      CLIENT_TARGET_SUBLEVEL: 0  
      PLATFORM_NAME: WinNT  
      CLIENT_OS_NAME: WIN:Windows Server 2008 R2
```

- Determine whether any deployment processes are still processing by issuing the following command:

```

SELECT DISTINCT N.NODE_NAME, N.TCP_ADDRESS, N.CLIENT_VERSION,
N.CLIENT_RELEASE, N.CLIENT_LEVEL, N.CLIENT_SUBLEVEL,
N.CLIENT_TARGET_VERSION, N.CLIENT_TARGET_RELEASE,
N.CLIENT_TARGET_LEVEL, N.CLIENT_TARGET_SUBLEVEL,
N.PLATFORM_NAME, N.CLIENT_OS_NAME
FROM NODES N, ASSOCIATIONS A, CLIENT_SCHEDULES CS
WHERE N.NODE_NAME=A.NODE_NAME AND A.SCHEDULE_NAME=CS.SCHEDULE_NAME
AND A.SCHEDULE_NAME='deploy_sched' and PLATFORM_NAME='DeployMgr'
AND CS.ACTION='DEPLOY'

```

where *deploy_sched* is the name of the deployment schedule.

- Retrieve the status for each deployment schedule.
 1. Query the server for the deployment schedule information by issuing the following command:

```

SELECT A.NODE_NAME, A.DOMAIN_NAME, A.SCHEDULE_NAME, S.STARTDATE,
S.STARTTIME FROM ASSOCIATIONS A, CLIENT_SCHEDULES S
WHERE A.SCHEDULE_NAME=S.SCHEDULE_NAME AND A.DOMAIN_NAME=S.DOMAIN_NAME
AND S.ACTION='DEPLOY' AND S.STARTDATE>='{timestamp}'
AND A.SCHEDULE_NAME='deploy_sched'

```

where:

- *timestamp* is in a format like the following example: 2015-09-15 15:04:00
- *deploy_sched* is the name of the deployment schedule

The output is similar to the following example:

```

NODE_NAME: CNODE1
DOMAIN_NAME: PARIS
SCHEDULE_NAME: AUTODEPLOY
STARTDATE: 2015-09-15
STARTTIME: 15:04:00

```

Tip: You can obtain the start time of the deployment schedule by using the **QUERY SCHEDULE** command.

2. Query the server to obtain the event status for each client node that is associated with the schedule, by issuing the following command:

```

SELECT E.SCHEDULED_START, E.ACTUAL_START, E.DOMAIN_NAME,
E.SCHEDULE_NAME, E.NODE_NAME, E.STATUS
FROM EVENTS E, CLIENT_SCHEDULES S
WHERE S.SCHEDULE_NAME=E.SCHEDULE_NAME AND S.DOMAIN_NAME=E.DOMAIN_NAME
AND S.ACTION='DEPLOY' AND E.SCHEDULED_START>='{timestamp}'
AND E.STATUS<>'Future' AND S.SCHEDULE_NAME='deploy_sched'
ORDER BY E.SCHEDULED_START DESC

```

where:

- *timestamp* is in a format like the following example: 2015-09-15 15:04:00
- *deploy_sched* is the name of the deployment schedule

The output is similar to the following example:

```

SCHEDULED_START: 2015-09-15 15:45:53.000000
ACTUAL_START:
DOMAIN_NAME: PARIS
SCHEDULE_NAME: AUTODEPLOY
NODE_NAME: CNODE1
STATUS: Pending

```

- Retrieve the messages that were reported from the client nodes during deployment processing.

If all client events are enabled for the client nodes, the client nodes can send messages that are available in the server activity log. You can use the following

SELECT statement or you can review the client version and target version from the **QUERY NODE** output to verify that the client software was upgraded.

```
SELECT DISTINCT A.DATE_TIME, A.NODENAME, A.SESSION,  
A.DOMAINNAME, A.MSGNO, A.MESSAGE  
FROM ACTLOG A, ASSOCIATIONS AC, CLIENT_SCHEDULES CS  
WHERE A.NODENAME=AC.NODE_NAME AND CS.SCHEDULE_NAME=AC.SCHEDULE_NAME  
AND CS.ACTION='DEPLOY' AND A.DATE_TIME>{'timestamp'}  
AND CS.SCHEDULE_NAME='deploy_sched' ORDER BY A.DATE_TIME
```

where:

- *timestamp* is in a format like the following example: 2015-09-15 15:04:00
- *deploy_sched* is the name of the deployment schedule

The output is similar to the following example:

```
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4956  
MESSAGE: ANE4956I Total number of objects retrieved: 43 (SESSION: 27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4959  
MESSAGE: ANE4959I Total number of objects failed: 0 (SESSION: 27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4961  
MESSAGE: ANE4961I Total number of bytes transferred: 401.94 MB (SESSION:  
27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4963  
MESSAGE: ANE4963I Data transfer time: 8.84 sec (SESSION: 27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4964  
MESSAGE: ANE4964I Elapsed processing time: 00:00:14 (SESSION: 27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4966  
MESSAGE: ANE4966I Network data transfer rate: 46,533.80 KB/sec  
(SESSION: 27)  
  
DATE_TIME: 2015-09-15 16:37:53.000000  
NODENAME: CNODE1  
SESSION: 27  
DOMAINNAME: PARIS  
MSGNO: 4967  
MESSAGE: ANE4967I Aggregate data transfer rate: 27,570.18 KB/sec  
(SESSION: 27)
```

- Review the server activity log to view warning or error messages from the deployment manager on the client system. For information about mapping the schedule status to the deployment manager messages, see “Schedule status to messages mapping.”

Verifying the deployment status by using the

You can use the to determine whether the backup-archive clients were upgraded.

Procedure

- Determine whether the client software was upgraded to the target level:
 1. In the menu bar, click **Clients**.
 2. On the TSM Clients page, click the **Version** column name to identify clients that are not at the correct version level. This column is hidden by default, so you might have to display the column before you can sort it.
 3. Optional: You can filter the results by clicking the **Advanced Filter** icon and filtering by server or platform.
- Determine whether any deployment operations are still processing:
 1. In the menu bar, click **Clients**.
 2. On the TSM Clients page, click the **Platform** column name to identify clients that have a value of DeployMgr. This column is hidden by default, so you might have to display the column before you can sort it.
 3. Optional: You can filter the results by clicking the **Advanced Filter** icon and filtering by server.
- Observe the client deployment progress when completes:
 1. In the menu bar, click **Servers**.
 2. On the TSM Servers page, select a server and click **Details**.
 3. On the server Summary page, click the **Active Tasks** tab.
 4. Optional: You can sort the Active Tasks table by clicking the ID or Type column names.

Tip: You can view failed and completed sessions from the past 24 hours on the Completed Tasks page.
- Retrieve the messages that were reported from the client nodes during deployment processing:
 1. In the menu bar, click **Clients**.
 2. On the TSM Clients page, select a client, and click **Details**.
 3. On the client Summary page, click the **Diagnosis** tab.
 4. View client log messages from the past 24 hours.

Schedule status to messages mapping

You can determine whether any action is required after the deployment schedule fails by reviewing deployment manager messages from the activity log.

If the client node is configured to send messages to the server, you can see the deployment manager messages in the server activity log. Review the following table to map the deployment schedule status to the deployment manager message.

Table 4. Map for schedule status and deployment manager messages

Schedule status	Detailed result	Message from the deployment manager	Reason code description	User action
Success	Success	ANE4300	No action required.	No action required.
Failed	Failed - requires attention	ANE4299 with reason code ANE4210 (Windows)	ANE4210 Installation of client failed with an MSI error code.	Investigate MSI error. Manually uninstall and reinstall the new client.
Failed	Failed - requires attention	ANE4263 with reason code ANE4210 (UNIX/Linux/Mac)	ANE4263 The deployment manager failed to uninstall the backup-archive client.	Review the deployment manager log and trace files on the client workstation for more details about the error. You might have to manually uninstall the client.
Failed	Failed - requires attention	ANE4264 with reason code ANE4210 (UNIX/Linux/Mac)	ANE4264 The deployment manager failed to install the backup-archive client.	Review the deployment manager log and trace files on the client workstation for more details about the error. Manually install the new client after the issue is resolved.
Success	Warning - requires attention	ANE4297 with reason code ANE4242 or ANE4212	ANE4242 There was an error retrieving the client package. The upgrade failed. ANE4212 The deployment manager failed to restart the client scheduler or client acceptor daemon.	Ensure that client packages for all architectures are available on the server. Review the backup-archive client error log for more detailed error messages. Review for network connection problems between the client and server.
Reboot required	Warning - requires attention	ANE4295 (Windows)	No action required.	Restart the client system.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4274 (UNIX/Linux/Mac)	ANE4274 The deployment manager cannot stop the scheduler or the CAD processes.	Reschedule the client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4213 (Windows)	ANE4213 The client option autodeploy=noreboot was detected. Automatic restart of the client computer is required.	Restart the client system.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4220 (Windows)	ANE4220 The deployment manager is unable to determine whether any processes are running.	Enable the automatic restart function by setting autodeploy=yes in the schedule definition. Restart the client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4215	ANE4215 The upgrade path is not supported.	Refer to the backup-archive Client documentation in the Information Center. Reschedule the client deployment.

Table 4. Map for schedule status and deployment manager messages (continued)

Schedule status	Detailed result	Message from the deployment manager	Reason code description	User action
Stopped	Canceled - not completed	ANE4298 with reason code ANE4248	ANE4248 The client is already at the target level.	No action required.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4260 (UNIX/Linux/Mac)	ANE4260 The installation file system is not writeable.	Review the installation file system permissions. It is possible that the current client node runs in a virtualized environment using the client code installed in a shared storage of the physical environment. Reschedule the client deployment with the client node in the physical environment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4259 (UNIX/Linux/Mac)	ANE4259 The client scheduler is not started as a root user.	Log in as the root user ID and start the client scheduler. Reschedule the client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4273 (Linux)	ANE4273 The deployment manager detected a journal-based backup (JBB) client on the workstation where it must deploy the backup-archive client.	Uninstall the JBB client and reschedule the backup-archive client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4276 (UNIX/Linux/Mac)	ANE4276 The deployment manager cannot obtain information about the scheduler or the CAD processes.	Log in to the backup-archive client workstation and review the error log file and the deployment manager error log file.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4271 (UNIX/Linux/Mac)	ANE4271 The deployment package is missing one or more required installation image files.	Ensure that client packages are available on the server. Review the backup-archive client error log file for more detailed error messages.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4232 (Windows)	ANE4232 Windows self-extracting installation image cannot be found.	Review the server activity log or the scheduler log on the client system. Reschedule the client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4206	ANE4206 The deployment manager received an error while extracting from installation image.	Ensure that there is sufficient disk space on the client system. Make sure that all of the Windows self-extracting client images are valid. Reschedule the client deployment.
Stopped	Canceled - not completed	ANE4298 with reason code ANE4253	ANE4253 There was not enough disk space on the client computer.	Allocate the free space that is required for the client software upgrade. Reschedule the client deployment.

Index

A

- automatic deployment
 - catalog.xml 5
 - configuring 3
 - defining the schedule 7, 9, 10
 - disk space requirements 1
 - downloading the package 5
 - importing packages 6
 - overview 1
 - schedule status 13, 16
 - terminology 3
 - verifying the configuration 12

C

- client deployment
 - catalog.xml 5
 - configuring 3

- client deployment (*continued*)
 - defining the schedule 7, 9, 10
 - disk space requirements 1
 - downloading the deployment
 - package 5
 - importing packages 6
 - overview 1
 - terminology 3
 - verifying the configuration 12
- configuring
 - automatic deployment 3

D

- deployment
 - catalog.xml 5
 - configuring 3
 - defining the schedule 7, 9, 10
 - disk space requirements 1

- deployment (*continued*)
 - downloading the package 5
 - importing packages 6
 - map 16
 - overview 1
 - schedule status 13, 16
 - terminology 3
 - verifying the configuration 12

I

- importing
 - deployment packages 6

S

- scheduling
 - deployment schedules 7, 9, 10