HP Medical Archive solution

Software version: 8.1.0

Siemens Integration Guide

Document release date: May 2010
Software release date: November 2009

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Contents

About this document

This guide provides information about:

- integrating an existing HP Medical Archive solution (HP MAS) system with a Siemens MagicStore PACS
- integrating an existing HP Medical Archive solution (HP MAS) system with Siemens *syngo* Imaging

Intended audience

This guide is intended for:

- HP technical staff responsible for field maintenance of the HP MAS system
- Authorized agents responsible for field maintenance of the HP MAS system

Prerequisites

Prerequisites for using this upgrade guide include:

- detailed knowledge of HP MAS installation processes
- detailed knowledge of HP MAS integration processes
- knowledge of Linux/UNIX command shells

Related documentation

In addition to this guide, please refer to other documents for this product:

- *HP Medical Archive solution Release Notes* for 8.1
- *HP Medical Archive solution user guide*
- *HP Medical Archive solution audit message reference*
- *HP Medical Archive solution DICOM Integration Guide*
- *HP Medical Archive solution DICOM Conformance Statement*
- *HP Medical Archive solution IHE Integration Statement*

These and other HP documents can be found on the HP documents web site:

http://www.hp.com/support/

Document conventions and symbols

Convention	Element
#	System prompts
|	Separates alternatives.
<parameter_name>	You must supply a value for a variable parameter.
. . .	• Indicates a repetition of the preceding parameter. • Example continues after omitted lines.
Medium blue text: Figure 1 http://www.hp.com	• Cross-reference links • E-mail addresses • Web site addresses
Bold	• Key names or key sequence • GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes • Text typed into a GUI element, such as into a box
Italics	• Document titles • Text emphasis • You must supply a value for a variable in a GUI element.
Monospace	• File and directory names • Text displayed on the screen, such as system output and application messages • Command or reserved keyword in a CLI, API, program language, or operating system • Script or code example
Italic monospace	You must supply a value on the command line.
Bold monospace	• Text typed at the command line • Emphasis of file and directory names, system output, and code

NOTE Provides additional information.

Documentation updates

The title page of this document contains the following identifying information:

- Software version number

  Indicates the software version.

- Document release date

  Changes each time the document is updated.

- Software release date

  Indicates the release date of this version of the software.

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For more information about HP Passport, go to:

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1 MagicStore PACS Integration

Integrating the grid with Siemens MagicStore PACS

Siemens MagicStore treats the HP MAS system as a “Deep Archive” for long-term storage of closed exams. Once an exam has been marked as complete, MagicStore compiles all images in an exam into a single .tar archive file. MagicStore then copies this file to a Gateway Node using the Unix remote shell and remote copy commands.

Within the HP MAS system, each primary Gateway Node runs a service that authenticates remote shell logins (rsh) and remote copy (rcp) commands from MagicStore.

The file system on the Gateway Node is mirrored to each Gateway Node server in its replication group, and the archive file is sent for permanent storage to a Storage Node.

Once a day, the Long Term Manager (LTM) on MagicStore queries the HP MAS system to check if studies saved to the grid have been moved to permanent storage. If the acknowledgement program on the Gateway Node confirms that the files have been archived, the LTM deletes the copy of the exam in short term storage on MagicStore.

MagicStore never moves, renames, or deletes a study that has been saved to the HP MAS system. If the study is updated by the MagicStore PACS after it has been saved to the HP MAS system, MagicStore creates a new archive .tar file with the same name as the original study, and writes the updated copy to the same location on the managed file system of the Gateway Node.

Integration Procedure

To integrate a Siemens MagicStore PACS with the HP MAS system, you must install the custom “Siemens RSH Responder” package on each Gateway Node integrated with MagicStore. The Siemens RSH Responder enables remote shell connections and remote copies between MagicStore and the Gateway Node, and responds to queries from MagicStore as to the archive status of exams saved to the grid.

The complete integration procedure includes the following steps:

1. Run the `config_nfs.rb` script to capture information that the HP MAS system uses to authenticate the remote shell and remote copy commands from MagicStore. For more information, see Create NFS File Shares (page 11).

2 Install and start the Siemens RSH Responder program on each Gateway Node. For more information, see Install the RSH Responder (page 11).

3 Configure MagicStore with authentication credentials for the Gateway Node server. For more information, see Configure MagicStore (page 12).

4 Verify that MagicStore can archive and retrieve from the grid. For more information, see Verify the Integration (page 13).

5 Document the integration to MagicStore in the Customer Questionnaire.

Assumptions

- MagicStore PACS is correctly installed.
- MagicStore PACS is operating correctly.
- MagicStore PACS is being integrated with an existing HP MAS deployment.

Prerequisites

Before continuing, ensure that you have the following:

- `Passwords.txt` file
- `Configuration.txt` file
- List of NFS clients provided in the Customer Questionnaire
- HP MAS 8.1.0 Software CD

Integrate MagicStore PACS With the Grid

Create NFS File Shares

The HP MAS system uses the information captured by the NFS configuration utility (`config_nfs.rb`) to create the directory used by MagicStore to store files.

Follow instruction from HP Support for creating an NFS file share on the primary and secondary Gateway Nodes for use by NFS clients.

The list of NFS clients in the Customer Questionnaire includes the IP address of the MagicStore server and the directory name of the MagicStore NFS file share.

In general, the directory name is the MagicStore server name. Confirm the directory name against the config file on the MagicStore Server. Enter the server name when prompted for the directory name by the NFS configuration utility. The MagicStore writes to this directory using the path: `/archive/<MagicStore_Server_Name>`.

The next step is to install the RSH Responder as described below.

Install the RSH Responder

The Siemens RSH Responder must be installed on each Gateway Node server in the replication group that is integrated with the Siemens MagicStore PACS.

To install the Siemens RSH Responder:

NOTE Start with the primary Gateway Node (the main primary Gateway Node in a High Availability Gateway Cluster (HAGC)).

1. At the Gateway Node server, press **<Alt>+<F1>** to access a command shell and log in as `root` using the password listed in the `Passwords.txt` file.
2. Insert the HP MAS 8.1.0 Software CD.
3. To mount the CD and install the package containing the RSH Responder. Enter:

   ```
   mount /cdrom
   /cdrom/swupdate/smart-cdrom-install.rb bycast-siemens
   umount /cdrom
   ```

   NOTE If the Siemens RSH Responder has already been installed, an error message is displayed.

4. Remove the CD from the server.
5. Ensure that the FSG service is running:
   a. Press **<Alt>+<F7>** to return to the Server Manager interface.
   b. Verify that the File System Gateway (FSG) service has a status of `Running`.
   c. Press **<Alt>+<F1>** to return to the command shell.

6 If this server is a part of a High Availability Gateway Cluster (HAGC), repeat steps <Bullet>1 to <Bullet>5 for the supplementary primary Gateway Node.

NOTE You need to install the `bycast-siemens` package on all primary Gateway Nodes in a cluster prior to running the script `fsgrshdinstall.rb`. This is to ensure that heartbeat does not try to manage the service until it is installed on all Gateway Nodes in the cluster.

7 Configure the FSG service on the Gateway Node to start and stop the RSH Responder. Enter:

```
cd /usr/local/fsg
./fsgrshdinstall.rb
```

NOTE If this is a HAGC, run the script on both the main primary and the supplementary primary Gateway Node servers.

8 Use the NMS MI to verify that the RSH Responder service is running.

a In the NMS MI, go to the **GN1-A-1 > FSG > Client Services**.

b On the **Overview** tab, ensure that the Siemens RSH Responder service has a status of `Running`.

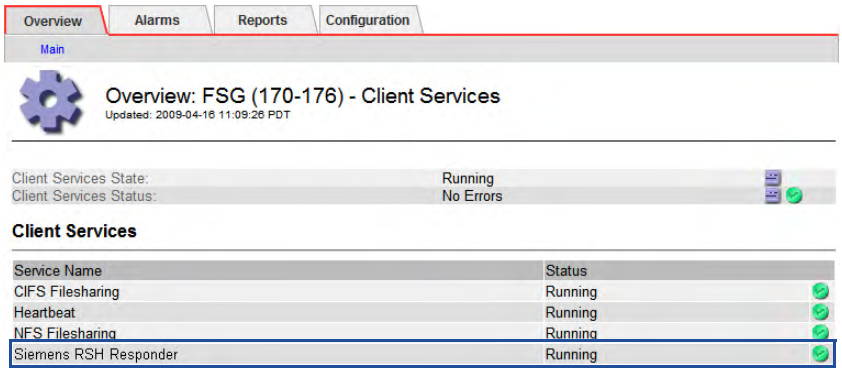

Figure 1 FSG—Client Services

NOTE Client file sharing services do not run on the standby primary FSG in an HAGC. The services will appear as “Stopped” under Client Services on the standby primary FSG > Client Services page.

9 Repeat steps step 1 through step 8 for the secondary Gateway Node(s) in the replication group.

Configure MagicStore

The next step is to configure MagicStore with authentication credentials for the Gateway Node server.

To configure MagicStore:

1. Consult the `Configuration.txt` file for the value of the external (customer) IP address of the primary Gateway Node server.
2. Set the archive host of MagicStore to be the external IP address of the primary Gateway Node server.

   For more information, see MagicStore PACS documentation.

Verify the Integration

Ensure that the MagicStore PACS can archive and retrieve files to and from the HP MAS system.

NOTE The following instructions give general guidance on how to test archiving and retrieval from within MagicStore. For complete information, consult MagicStore documentation.

To test archiving from MagicStore:

1. From a MagicView workstation, create a test folder.
2. Sign off on the folder, and then send it to MagicStore.

   MagicStore is commonly configured to archive files throughout the day. If your MagicStore is configured in this way, the test folder is immediately sent for archiving on grid. Consult the MagicStore documentation for instructions on changing the time at which MagicStore archives files.
3. On the MagicStore server that hosts the IMS database, locate the EFID of the most recently saved file. (The EFID is the unique identifier of the exam folder.) From a Solaris command shell, enter:

   `su ms`
   `grep saved <path_to_log> | tail -1`

   For example:

   ```
   #: su ms
   #: grep saved /home/sn_root/error/ltm.log | tail -1

   2005.09.08 13:47:02.71:
   001SM1DC732005090821013171 (45 obj, 14229 kB/s)
   ```

   In the above example, the EFID of the exam is:
   `001SM1DC732005090821013171`
4. From the command shell of the Gateway Node, check to see if an archive file named for this EFID has been saved. Depending upon the configuration of MagicStore, it is saved to one of the following directories:

   `/fsg/<MagicStore_Server_Name>/YYYY/MM/DD/EFID.tar`

   —or—

   `/fsg/<MagicStore_Server_Name>/YYYY/MM/EFID.tar`

Where `YYYY` = year, `MM`=month, and `DD`=day that the exam was captured.

To test retrieval from MagicStore:

1. Force MagicStore to check that the folder was saved to archive: (For full instructions, consult your MagicStore documentation.)
   a. From the service account of the MagicStore application, check that the folder you just saved is "Saved but not Confirmed".

      Select **Utilities >Ltm >List unconfirmed folders**, and enter an appropriate date range. The EFID of the folder is listed. Exit the service application.

   b. Force MagicStore to perform a check on the folder and confirm that it has been archived:
      - Temporarily set the LTM check time to be 30 minutes in the future and the buffer time to be zero. (On the MagicStore server, enter su ms and then enter cfg_editor to start the ISA Configuration editor. Use this editor to change the settings, and then exit the editor. From the Solaris command shell, kill the dba process, then confirm that it has automatically restarted.)
      - Restart MagicStore, and wait for the LTM check to be performed.

        When the check is performed, a confirmation message appears in the application message window.

   c. Verify that the folder is no longer listed as "Saved but not Confirmed" as described in step step 1, step a.
2. Remove the test folder from the MagicStore cache. From the service account of the MagicStore application, select **Utilities >Repair/Clear >Clear Store**.
3. Go to a MagicView workstation and query for the test folder. Its status should be listed as `nearline`, indicating that the folder is not available from the MagicStore cache.
4. Retrieve and open the test folder. You should not see error messages in MagicView or MagicStore.
5. From MagicView, query for the test folder again. The status of the folder is now listed as `online`, indicating that the folder has been retrieved to MagicStore.

Disable the MagicStore Integration

To prevent MagicStore from reading or writing archive files to the HP MAS system, you need to:

1. Disable the NFS Integration and then remove the RSH Responder.

   Follow the instructions from HP Support to disable an NFS file share using `config_nfs.rb`.
2. Remove the RSH Responder. For more information, see Remove the RSH Responder below.

Remove the RSH Responder

After you have disabled the NFS integration, follow these instructions to remove the RSH Responder. Once the RSH Responder has been removed, the integration between MagicStore and the HP MAS system is disabled.

To remove the RSH Responder:

1. Start with the primary Gateway Node (or main primary Gateway Node in an HAGC).
2. Ensure that the FSG service is running:
   a. Go to the Server Manager console of the server.
   b. Verify that the File System Gateway (FSG) service has the status `Running`.
3. At the Gateway Node server, press **<Alt>+<F1>** to access a command shell and log in as `root` using the password listed in the `Passwords.txt` file.
4. Remove the Siemens RSH Responder from the FSG resources file. Enter:

   ```
   cd /usr/local/fsg
   ./fsgrshdremove.rb
   ```

5. Remove the package from the server. Enter:

   ```
   smart remove bycast-siemens
   ```

6. Repeat steps <Bullet>2 to <Bullet>5 for each Gateway Node in the replication group.

Re-enable the Integration

To re-enable the MagicStore PACS integration with the HP MAS system:

1. Re-enable the disabled file share on each Gateway Node:
   a. Run `config_nfs.rb`.
   b. Select the `enable` option and enter the MagicStore share name from the list of disabled shares.
2. Re-install the RSH Responder.

2 *syngo* Integration 8.1.x

Integrating HP MAS software version 8.1.x with Siemens *syngo* Imaging

Siemens *syngo* Imaging

The Siemens *syngo* Imaging PACS system periodically archives images for long term storage (LTS). The PACS also uses the LTS to store a daily backup of its database. Images and backups are stored by writing them into the archive and backup NFS mount points provided by the HP Medical Archive solution Software.

If you convert from MagicStore to *syngo*, you must keep the RSH responder package on the Gateway Node (as described in Integration Procedure (page 9)). The RSH responder is required to enable access to legacy data originally stored using MagicStore.

HP MAS System

Figure 2 illustrates the architecture of a HP MAS archive. This archive consists of:

- A Gateway Node, providing cached file system access to archived objects
- Two or more Storage Nodes, providing a disk based object store
- An optional Tape Node, providing long term storage on removable media (usually tape)

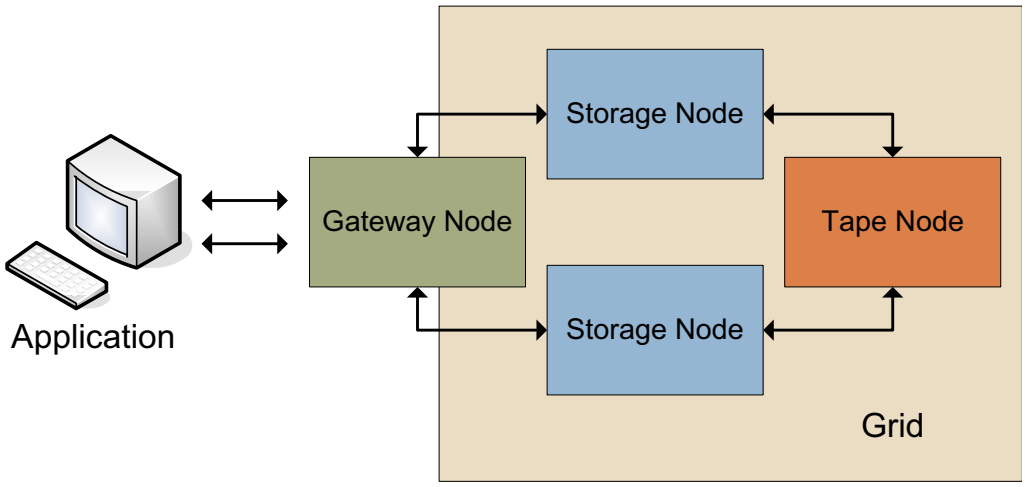

Figure 2 HP MAS Archive

The application stores files to be archived or backed up to the Gateway Node through an NFS mount. The Gateway Node saves a copy locally in its FSG cache, creates a storage object containing the file, and submits the object to the Storage Nodes for long term storage. Information Lifecycle Management (ILM) rules ensure that copies of the object exist on at least two Storage Nodes.

When the FSG cache on the Gateway Node reaches capacity, files are swapped out to make room for new ones. A swapped-out file retains its directory entry and file system metadata. From the point of view of an application, there is no distinction between a file that is resident in the FSG cache and a swapped-out file.

When an application accesses a file through the NFS mount on the Gateway Node, the file content is served from the FSG cache. If the file content was previously swapped out, the content is first retrieved from a Storage Node.

In a grid containing a Tape Node, ILM rules control the migration of stored objects to archive media. Typically, a copy of an object is placed on the Tape Node after a period of time has elapsed since the associated file was first ingested via the Gateway Node. At this time, one or both of the disk copies may be removed from the Storage Nodes.

When an application accesses a swapped-out file that has a copy of its content object on a Storage Node, the retrieval latency is negligible. However, if the object only exists on a Tape Node, the latency may be significant, since the content object has to be retrieved from removable media first, and then streamed to the FSG cache.

Security Partitions

Siemens *syngo* Imaging PACS cannot be integrated with a HP MAS system that has security partitions enabled. To check if security partitions are enabled for a grid, in the NMS Management Interface (MI), go to **Grid Management > Grid Configuration > Overview > Main** and look in the `Grid Options` table.

HP MAS *syngo* Storage Adapter Implementation

The *syngo* Imaging application can archive images directly to an NFS mounted archive. In order to obtain detailed information about the archival status of files, it calls a vendor-specific storage adapter through a defined interface.

The HP MAS *syngo* storage adapter software responds to the *syngo* application's status queries, using the HP MAS HTTP API query interface and an ssh connection to the Gateway Node to obtain status information about archived files.

If you have updated your HP MAS system from Release 7.5 or Release 8.0, the documentation directed you to this guide for instructions on updating the *syngo* integration to integrate via a port on the FSG. However, no adjustments are necessary: integrating *syngo* via the FSG is currently not supported.

Physical Connection

To link the *syngo* Data Manager (SDM) with HP MAS, connect the *syngo* internal ethernet switch to the HP MAS customer access ethernet switch.

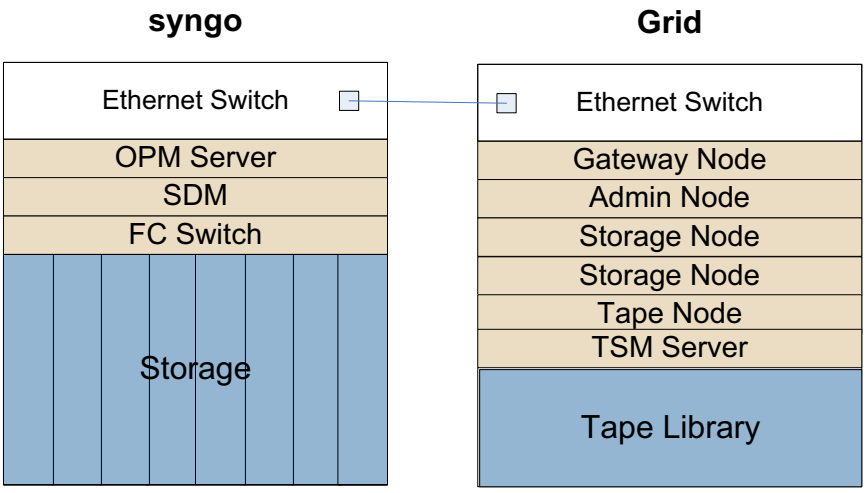

Figure 3 Physical Connection with Tape Node

Prerequisites

Before continuing, ensure that you have the following:

- `Passwords.txt` file
- If installing HP MAS software, all related materials.
- HP MAS *syngo* storage adapter software installation CD

Integrate *syngo* Imaging with the Grid

To integrate a Siemens *syngo* Imaging PACS with the HP MAS system, you must complete the following procedures:

1. Install HP MAS software and start grid services. For more information, see Install the HP MAS System (page 21).
2. Install the HP MAS *syngo* storage adapter software on the Siemens *syngo* SDM. For more information, see Install HP MAS Adapter (page 21).
3. Modify grid settings to manage *syngo* backup files. For more information, see Modify Grid Settings to Manage syngo Backup Files (page 22).
4. Configure HTTP Access to the Grid. See Configure HTTP Access to the Grid (page 22).
5. Restart the *syngo* SDM and perform additional configuration on the *syngo* system. For more information, see Restart syngo SDM (page 24).

   NOTE Additional configuration is required on the *syngo* system to enable it to interoperate with HP MAS. Contact Siemens support for assistance.

6. Configure e-mail notifications. For more information, see Configure E-mail Notifications (page 25).
7. Verify the integration. For more information, see Verify the Integration.

Paths and File Names

syngo Storage Adapter Software

The HP MAS *syngo* storage adapter software is installed at `/opt/sdm/grid` on the *syngo* SDM.

Log Files

Log files are saved to:

```
/opt/sdm/grid/logs
```

syngo SDM NFS Mount Points

The *syngo* SDM NFS mount points for the HP MAS system are:

```
/data/mnt/archive
/data/mnt/backup
```

The following symlinks are available for NFS mount points:

```
/archive
/backup
```

Install the HP MAS System

NOTE This section is for reference only. HP MAS installation is usually performed by the LTS vendor.

If you are integrating *syngo* Imaging with a new HP MAS deployment, contact HP Support to install HP MAS software, start grid services, and perform the all necessary steps before beginning the procedure described in this guide.

Alternatively, you may be integrating *syngo* Imaging with an existing HP MAS deployment. This procedure does not interfere with the operation of a running grid. If you are adding *syngo* integration to an existing grid, document the change in the Customer Questionnaire.

Install HP MAS Adapter

To install the HP MAS *syngo* storage adapter software on the *syngo* SDM:

1. Create NFS file shares on the HP MAS system's primary and secondary Gateway Nodes.
2. Install the HP MAS *syngo* storage adapter software on *syngo*.

Create NFS Shares

To create NFS file shares on the HP MAS system:

- Create two NFS file shares on the primary and secondary Gateway Nodes. These two shares must be named `archive` and `backup`.

Install HP MAS *syngo* Storage Adapter Software

To install HP MAS *syngo* Storage Adapter Software:

1. On the *syngo* SDM, log in as `root`.
2. At the *syngo* SDM command prompt or GUI, mount the HP MAS storage adapter software installation CD and note the mountpoint:

   `/<cd-mountpoint>`
3. Install the HP MAS *syngo* storage adapter software. Enter:

   `/<cd-mountpoint>/install.sh`

   The HP MAS *syngo* storage adapter software installs on the *syngo* SDM.
4. Set up the software and follow prompts. Enter:

   `/opt/sdm/grid/setup.rb`
5. Generate an ssh keypair for the *sdm* user. Enter (and then follow prompts):

   `su - sdm`

   `/opt/sdm/grid/configure-ssh.rb`
6. On the *syngo* SDM, activate the HP MAS adapter. Enter:

```
/opt/sdm/grid/activate-adapter.sh
```

NOTE It may take several seconds to complete the activation process. Ignore any warnings or errors that may occur during the activation process.

Modify Grid Settings to Manage *syngo* Backup Files

You must update the following FSG and LDR settings to ensure that the FSG cache and LDR object stores do not run out of space while storing the large *syngo* backup files:

- LDR Transient Cache Low Watermark (LWMK)
- LDR Soft Read-Only Watermark (HWMK)
- LDR Health Check Timeout (SHCT)
- FSG Swapout Free Space Watermark (FSWM)

For guidelines, contact HP support.

Configure HTTP Access to the Grid

To configure HTTP access to the grid for the *syngo* adapter:

1. Create a profile for the *syngo* adapter on the HP MAS system. See Create a Profile on the HP MAS System below.
2. Assign an IP range to the profile that you created for the syngo adapter. See Assign an IP Range (page 23).
3. Assign the IP range to a link cost group in the grid. See Assign IP Address to a Link Cost Group (page 24).

Create a Profile on the HP MAS System

You must create a profile that outlines the activities *syngo* is permitted to perform on the HP MAS. HTTP access to grid content takes place in a “namespace”. A namespace is a logical division, within which all file names are unique. In brief, specific activities over HTTP are dependent on the namespace in which content is exchanged:

- /CBID—supports content retrieval
- /UUID—permits ingestion, retrieval, and deletion of content
- /GRID—supports queries about grid nodes or services by a custom developed client application

To create a profile on HP MAS:

1. Log in to the HP MAS NMS MI using the `Vendor` account.
2. Go to **Grid Management > Grid Configuration > HTTP Advanced > Configuration > Main**.

3 For each Namespace (`CBID`, `UUID`, and `GRID`), create an HTTP profile for *syngo*:

   a In the `HTTP /<namespace> Namespace` table, click **Insert**  .

   b Enter a meaningful name for the **Profile Name**. For example, enter **`syngo_HTTP`**.

   c Select all available activities (`Put`, `Get`, `Post`, and/or `Delete`).

   d After updating each Namespace, click **Apply Changes**.

Assign an IP Range

You must now assign the profile you created in Create a Profile on the HP MAS System (page 22) to an IP range that includes the *syngo* SDM:

1 In the NMS MI, go to **Grid Management > Grid Configuration > HTTP > Configuration > Main**.

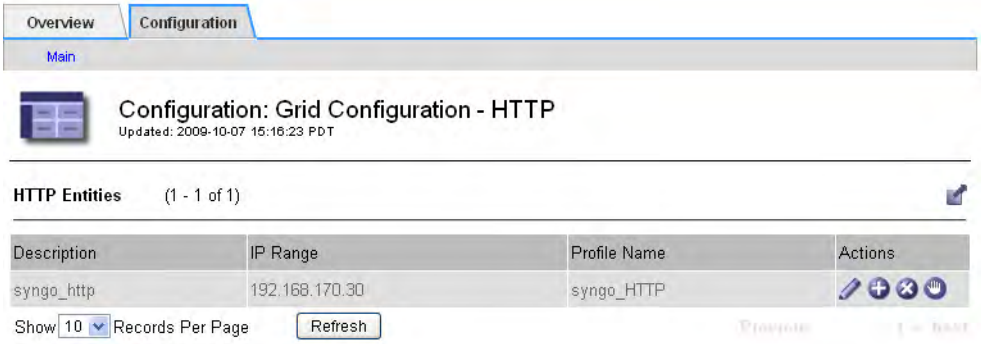

Figure 4 Grid Management > Grid Configuration > HTTP > Configuration > Main

2 In the `HTTP Entities` table, click **Insert**  .

3 Enter a **Description** for the IP range. The IP range name can be anything meaningful; it is not referenced elsewhere in the configuration.

4 Enter a value for **IP Range**. Use the *syngo* SDM IP address or a range of SDM IP addresses permitted to access the grid.

   If specifying a range, use one of the following formats:

   — Hyphenated list of IP addresses (e.g. 192.168.130.0-192.168.130.64)

   — Range of IP addresses specified using CIDR notation (e.g. 192.168.130.0/27)

5 For **Profile Name**, select the profile you created above.

6 Click **Apply Changes**.

Assign IP Address to a Link Cost Group

Associate the IP address range of the *syngo* SDM to a link cost group within the grid:

1 In the NMS MI, go to **Grid Management > Grid Configuration > Link Cost Groups > Configuration > Main**.

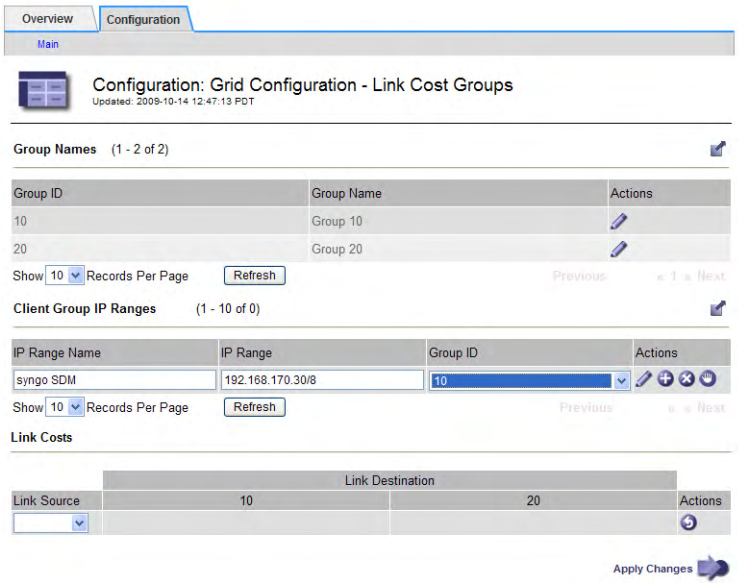

Figure 5 Assigning a Link Cost Group

2 In the `Client Group IP Ranges` table, click **Insert** (or **Edit** if this is the first entry).

3 Enter a value for **IP Range Name**. This name can be anything meaningful; it is not referenced elsewhere in the configuration.

4 Enter a value for **IP Range**. This value must be the same syngo IP address or range that you added in Assign an IP Range above.

5 Select the **Group ID**.

The group ID identifies a link cost group within the grid. Select the link cost group of the grid servers that are physically or logically "closest" to the *syngo* SDM. For example, if the SDM is located at the Data Center of a DC+DR grid, select the group ID associated with the Data Center.

6 Click **Apply Changes**.

Restart *syngo* SDM

Restart the *syngo* SDM. Restarting activates the NFS shares and LTS configuration.

NOTE Configuration settings are preserved when restarting and do not need to be explicitly saved.

Other configuration changes are required on the *syngo* system for it to interoperate with HP MAS. Consult a Siemens support technician for assistance.

Configure E-mail Notifications

Configure e-mail notifications for the Admin Node. Use the *syngo* SDM administrator's e-mail address as the destination for notifications.

Verify the Integration

Ensure that the integration of Siemens *syngo* Imaging PACS system with the HP MAS system has completed successfully.

Verify SSH Connection

To verify the ssh connection:

1. On the *syngo* SDM, log in as `root`.
2. Enter: **`su - sdm`**
3. Enter: **`cd /opt/sdm/grid`**

   `./inittest.sh`

   `ruby ./testssh.rb`

   The expected output is a UUID, for example:

   ```
   <9243EAD9-9B9C-4210-A3A3-5D1D08C84189)
   ```

Verify HTTP Connection

To verify the http connection:

1. On the *syngo* SDM, log in as `root`.
2. Enter: **`su - sdm`**
3. Enter: **`cd /opt/sdm/grid`**

   `./inittest.sh`

   `ruby ./testhttp.rb`

   The expected output is a list of Node IDs and Node Types, and a list of Adapter status messages, for example:

   ```
   Nid= 13010115 Type= CMS
   Nid= 20020133 Type= FSG
   ..
   ```

Verify the *syngo* Storage Adapter Software

To verify the *syngo* Storage Adapter Software:

1 On the *syngo* SDM, log in as `root`.

2 Enter: **`su - sdm`**

3 Enter: **`cd /opt/sdm/grid`**

`./inittest.sh`

`./testadapter.sh`

The expected output is:

```
startArchive
SUCCESS
checkArchive
ARCHIVED
getFileStatus
ONLINE
dearchive
SUCCESS
```

Maintenance

Reconfigure Adapter on SDM

If in the course of operations the Gateway Node is reinstalled, remove all known hosts and run the `configure-ssh.rb` command.

To perform a reconfiguration:

1 On the *syngo* SDM, log in as `root`.

2 Remove known hosts. Enter: **`su - sdm`**

`rm ~/.ssh/known_hosts`

3 Run the `configure-ssh.rb` command. Enter: **`su - sdm`**

`/opt/sdm/grid/configure-ssh.rb`

Gateway Node Failovers

After a Gateway Node failover, run the `setup` and `configure-ssh` commands on the *syngo* SDM.

After a Gateway Node failover:

1 On the *syngo* SDM, log in as `root`.

2 Set up the software and follow the prompts. Enter:

`/opt/sdm/grid/setup.rb`

3 Run the `configure-ssh.rb` command. Enter: **`su - sdm`**

```
/opt/sdm/grid/configure-ssh.rb
```