

Metalogix<sup>®</sup> Archive Manager for Exchange 8.5

## **Hierarchical Storage Manager Guide**



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### Legend



**CAUTION:** A caution icon indicates potential damage to hardware or loss of data if instructions are not followed.



**IMPORTANT, NOTE, TIP, MOBILE OR VIDEO:** An information icon indicates supporting information.

Metalogix® Archive Manager for Exchange

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# Introduction

Hierarchical Storage Manager (HSM) as a data storage system, is a complement of several Metalogix archiving products. HSM can be installed in two ways:

- manually by the HSM installer
- automatically by the Metalogix Archive Manager installation package. When installed by the Installation package as a part of the Archive Manager product installation, necessary configuration is performed by the Installation package itself as described in the *Metalogix Archive Manager Quick Start Guide*.

**This guide describes the manual HSM installation and configuration of HSM.**

HSM allows storing of data (even all company data) on one or more file-servers. It is possible to use a shared store as well. HSM includes the Single Instance Store service (SIS), which ensures that identical content is stored only once. The SIS service activates versioning, allowing the HSM system to keep track of any changes made to files or emails. With versioning activated, the administrator may retrieve older versions. Even if the original file or email was deleted, it can be restored back.

The HSM Server (i.e. the computer where the HSM system is installed), as a complement of Archive Manager products, takes care of saving and securing archived documents. Archived data reside in store. HSM works with different store types depending on administrator's choice.

When archived with Archive Manager, the desired file or email with its attachments is transferred to the HSM system. It is the HSM System that takes care of storing and retrieving files/emails. The HSM system works with a database because the information contained in the shortcut is stored either in an ORACLE or MS SQL database. The HSM system passes down the file/email to a store specified by the administrator and this file/email is compressed *on the fly*. Only shortcut of a few kilobytes remains at the file/email's original location. This shortcut includes information about the new location of the archived file/email. The only difference a user notices is that the shortcut is displayed with a slightly modified icon.

Users may work with archived files/emails as usual which means: when an archived file/email is reopened, Archive Manager passes the information from the shortcut onto the HSM system. The HSM system restores the file/email from the store. For users it seems as if they are working in a normal environment.

The HSM system includes the Single Instance Store service (SIS), allows versioning in cooperation with Archive Manager products. Due to versioning the HSM system keeps track of any changes made to a document, for example:

- who modified the document;
- when this modification occurred;

- what was modified within the document.

With versioning activated, the administrator may retrieve older versions. Even files whose shortcuts were deleted can be retrieved as well.

## Supported operating systems

- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Windows Server 2019

## Software Requirements

- .Net Framework 2.0
- .Net Framework 3.5 – if not available, setup can be installed but the following store types will not be functional: Amazon S3, Windows Azure, Caringo CStore, EMC Atmos, FileNet IS, Hitachi HCAP, Hitachi HCP, Nirvanix, Rackspace, Simple Foldering Store, XAM
- .Net Framework 4.5 – if not available, Google Drive store will not be functional. If .NET Framework 4.5 is installed after HSM, it is necessary to run the HSM setup in “Repair” mode to activate the Google Drive store.
- IIS (32-bit support) – if not available, setup will continue but the HSM web client will not be installed.
- Microsoft WSE 3.0 – if not available, the iTernity store cannot be created.
- Database - ORACLE Database (version 12c or higher), MS SQL Server (version 2012 or higher) or Azure SQL Database

## Database requirements

- If you are using an MS SQL Database, then installation of MDAC (Microsoft Data Access Components) is necessary, as it contains the required OLEDB Data Provider for MS SQL Server. The MS SQL Data Provider for .Net is also needed for accessing MS SQL (part of the .NET Framework installation). We recommend installing the latest version of MDAC (Currently we recommend installing MDAC 2.8.)
- If you are using an ORACLE Database, and it has not been installed on the HSM server, then an ORACLE Database Client must be installed on your HSM server and a Net8 connection from the HSM server to the ORACLE Database server must be established. The ORACLE OLEDB Data Provider (part of the MDAC installation) and the Oracle Data Provider for .Net (part of the .NET Framework installation) are required for connecting the ORACLE Database. If you prefer working with an ORACLE Database, make sure to have similar data (database, database user, password, owner of the schema) available during the installation of Archive Manager for Exchange.

Databases with the database user(s) (who, in addition, should be the owner of the database) have to be available before HSM installation.

# Installation

In this topic:

- [Steps to download the install media](#)
- [Worksheet for this installation](#)
- [Steps to install HSM](#)

## Steps to download the install media

1. Login to the server with the credentials of the **superuser** (eg. **democorp\mamadmin**)
2. From your browser, navigate to the <https://www.quest.com/products/metalogix-archive-manager-for-exchange> page  
or  
navigate to the <http://www.quest.com/trials> page. Locate the product Metalogix Archive Manager for Exchange.
3. Click the **Download Free Trial** button.
4. Fill the *Download Your Free Trial* registration form and click **Download Trial**. The file download page appears.
5. Download the install media zip file.
6. The the trial license key is specified in the email that is sent to you.
7. Ensure that the files are available locally on the computer on which you are planning to install the Metalogix Archive Manager for Exchange features.

## Worksheet for this installation

The following information will be required through the installation process. Sample values are provided here as a guidance.

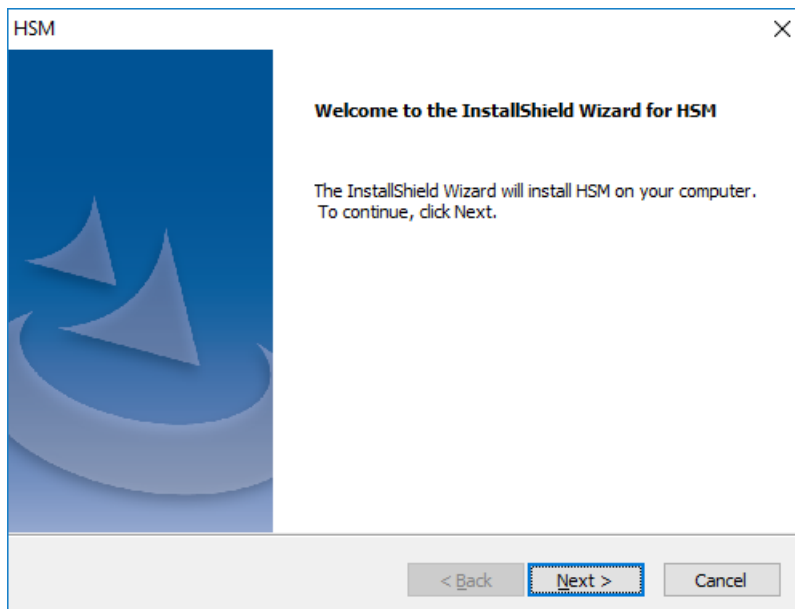
Item	Description	Example
HSM server	The server where the HSM and Archive Manager Search will be installed.	AMXHSM

Superuser account	Windows account that is used to install the application and run the Archive Manager for Exchange services.	username: democorp\mamadmin  password: *****
Media folder	Full path of the folder where the media files are extracted	C:\Metalogix
Installation folder	Full path of the folder where the application files will be installed	C:\Program Files (x86) \Metalogix
HSM Store folder	Full path of the folder that will contain the archived files.	C:\HSM  The local hard drive folder is used as the default media store. Use of other media storage systems are described in the <i>Media Store Administration Guide</i> .
Store name	Name of the media store on a hard drive. With the <i>Advanced Installation</i> option of the installer wizard, only a local hard drive can be setup as a media store.	FILESTORE
Schema name	Name of a schema in a hard drive media store.	FILESHEMA
Database Authentication method	Type of database authentication: <i>Integrated Windows Authentication</i> or <i>SQL Authentication</i>	Integrated Windows Authentication
UserLogin	Username if <i>SQL Authentication</i> is selected	dbadmin
Password	Database password if <i>SQL Authentication</i> is selected	*****
Database server	The database server instance name where the databases for Archive Manager for Files will be installed.	AMXDB



## Steps to install the application

1. Log in to the server (eg. **AMXHSM**) with the credentials of the **superuser** (eg. **democorp\mamadmin**)
2. Download the installation media. For more information see [Steps to download the install media](#).
3. Run the **Metalogix Archive Manager Installation Package** to extract the files to a local folder.
4. Close the integrated installer wizard which starts automatically.
5. Run the HSM setup from <Media folder>\Archive Manager Installation Package\HSM\HSM Setup.exe
6. A prerequisite check occurs and missing requirements if any are displayed. Click **Install** to ensure all missing requirements are installed.
7. The *Welcome* window of the HSM installer opens.



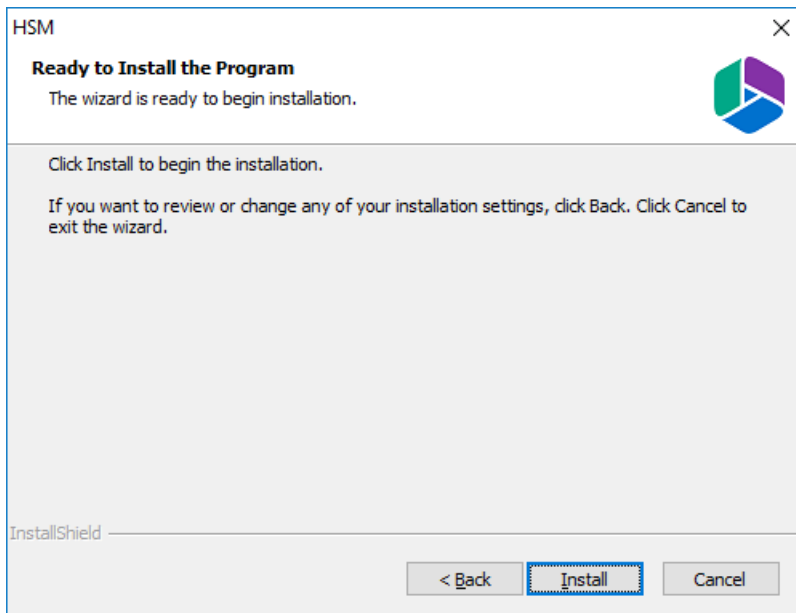
8. Click **Next**. The *Logon Information* window opens.

Enter the information as described below:

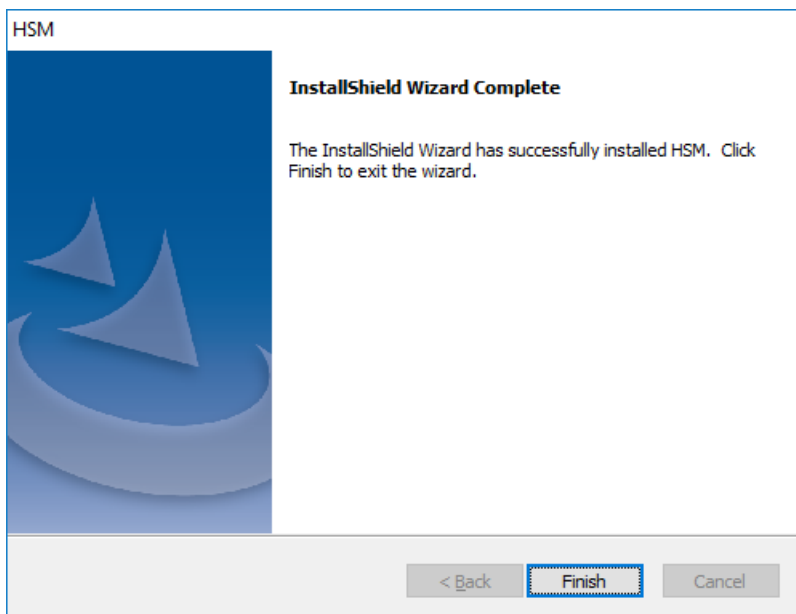
- a. **User name** - logon name of the superuser (for example, democorp\mamadmin)
  - b. **Password** - logon password of the superuser
  - c. **Confirm password** - same as the Password.
9. Click **Next**. The *Firewall Settings* window opens.

Select **Allow programs to communicate through Windows Firewall**.

10. Click **Next**. The *Ready to install the Program* window opens.



11. Click **Install**. The installation starts and the progress is displayed on the *Setup Status* window. When the installation completes, the *InstallShield Wizard Complete* window opens.



12. Click **Finish** to close the installer.

# Configuration

In this chapter:

- [Database](#)
- [Stores](#)

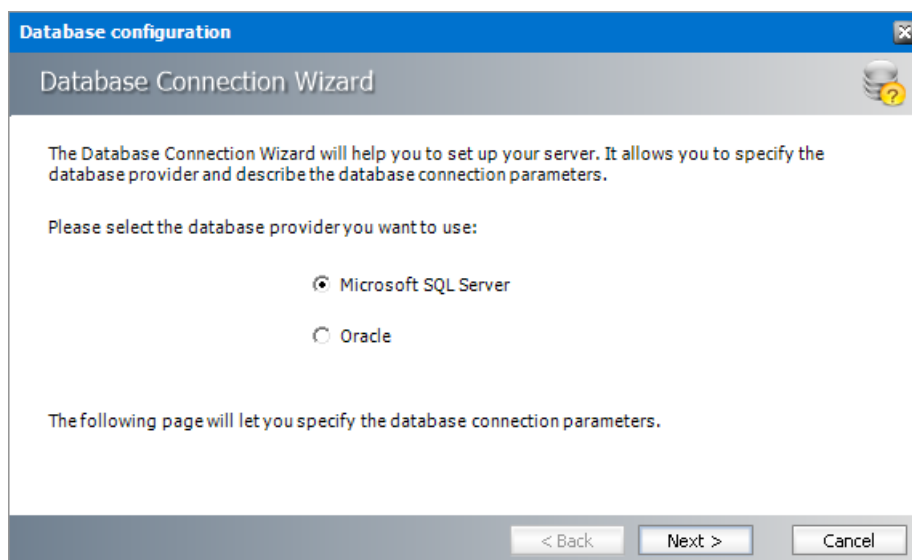
## Database

In this topic:

- [Steps to configure the HSM database](#)
- [Steps to install the HSM database](#)

### Steps to configure the HSM database

1. When the installation completes, the *Configuration* wizard opens. If it does not open automatically, click **Start > Metalogix > Archive Manager Configuration**.
2. From the feature panel on the left, click **HSM** and select the **Database** tab.
3. Click **Configure**. The *Database Connection Wizard* opens.



4. Select either **Microsoft SQL Server** or **Oracle** and click **Next**. If you choose **Microsoft SQL Server**, the *Database Connection* window opens for the Microsoft SQL Server connection information.

**Database configuration**

Database Connection Wizard

**Set up your Microsoft SQL Server connection.**

Please enter parameters which will be used to create a connection to your Microsoft SQL Server.

Server name:

Initial catalog:

Schema name:

Authentication:

User name:

Password:

< Back    Next >    Cancel

*For Microsoft SQL Server*

- a. **Server name** - name of the SQL server (eg. **AMXDB**)
- b. **Initial catalog** - name of the HSM database (e.g. **MAMHSM** which is the default name of the HSM database)
- c. **Schema name** - name of the SQL Schema (e.g. **dbo**)
- d. **Authentication** – authentication type used for the database. Choose either **Windows authentication** or **SQL Server authentication**
- e. **User name** - database login user name if *SQL Server authentication* is the selected as the authentication mode.
- f. **Password** - password of the database user if *SQL Server authentication* is the selected as the authentication mode.

*For Oracle*

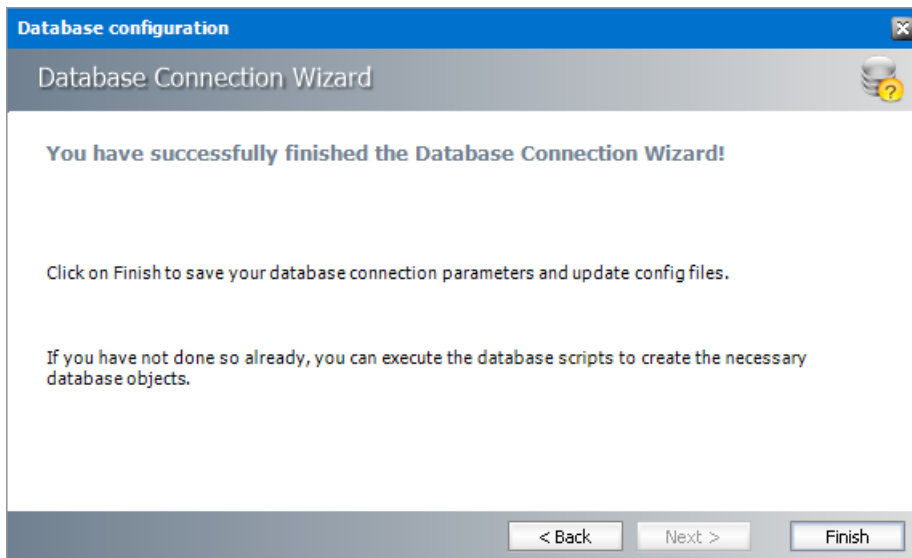
- a. **Oracle net name** - net service name that describes the network address of the database server in your `tnsnames.ora` file.
  - b. **Schema** - name of the Oracle schema from your `tnsnames.ora` file.
  - c. **User name** - database login user name.
  - d. **Password** - password of the database user.
5. Click **Next** and then click **Yes** on the confirmation dialog that opens.

**Database configuration**

Database does not exists on the server. Shall we try to create it?

Yes    No

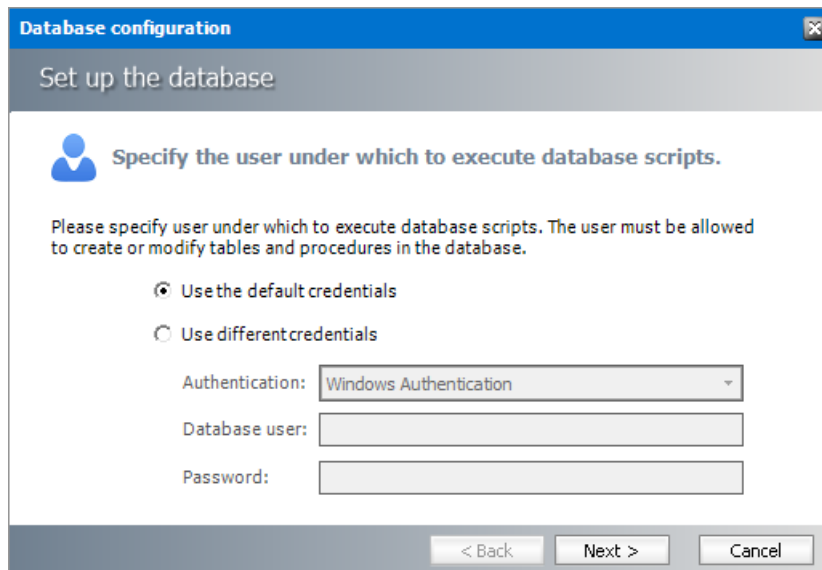
6. If the database connection is setup successfully, the configuration completion window opens.



7. Click **Finish** to close the *Database Connection* wizard.

## Steps to install the HSM database

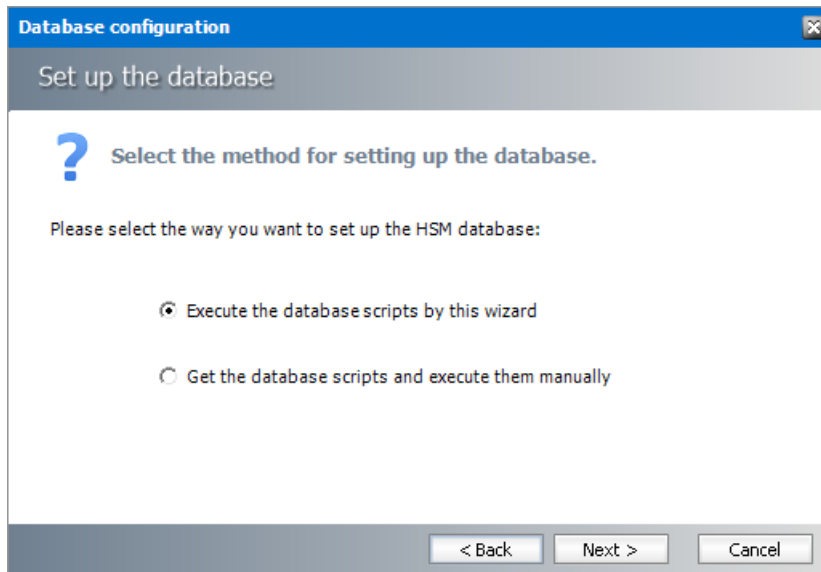
1. From the feature panel on the left in the *Configuration* tool, click **HSM** and then select the **Database** tab.
2. Verify that the database connection information is as expected. Then click **Run Scripts**. The script installer wizard opens.



3. Select **Use the default credentials** to use the information displayed in the *Database connections* section. If you select **Use different credentials**, enter the following information:
  - a. **Authentication** - authentication type used for the database. Choose either **Windows authentication** or **SQL Server authentication**
  - a. **User name** - database login user name if *SQL Server authentication* is the selected as the authentication mode.

- b. **Password** - password of the database user if *SQL Server authentication* is the selected as the authentication mode.

4. Click **Next**.

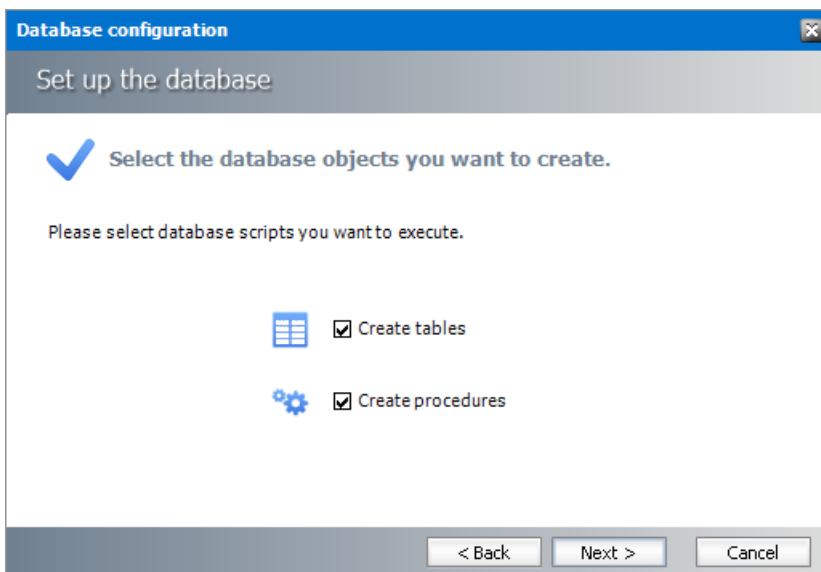


In the *Select the method for setting up the database* step, choose one of the following options:

- a. **Run the database scripts by this wizard** - the installer will automatically run the scripts to create the tables and procedures required for the database.
- b. **Get the database scripts and run them manually** - you get the option to either save the scripts or copy it to clipboard and paste it elsewhere.

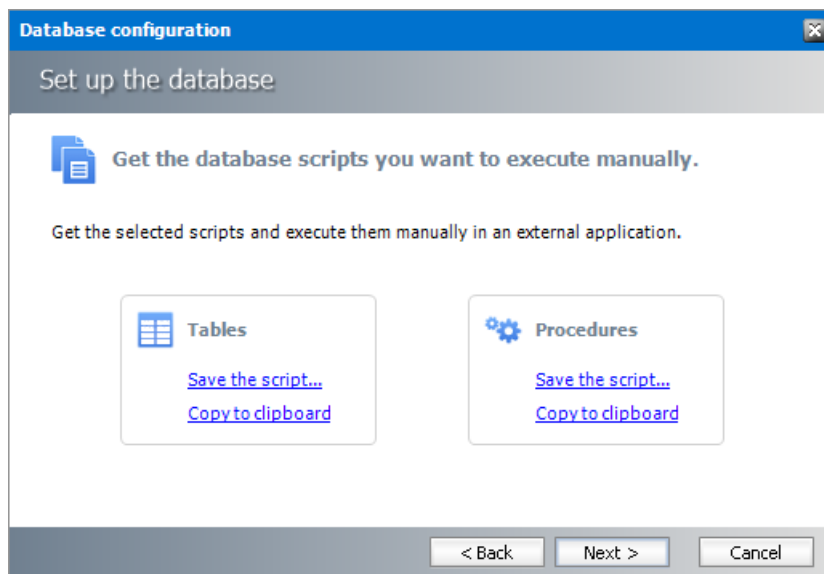
5. Click **Next**. Depending on your selection, one of the following windows open:

**For *Run the database scripts by this wizard***



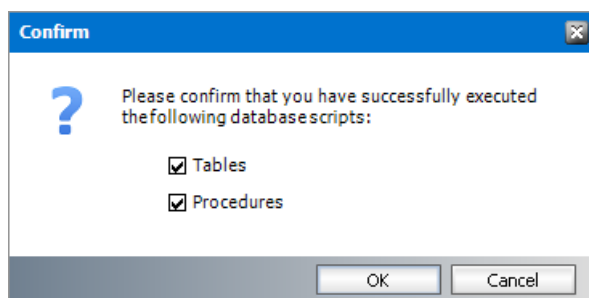
Select both check boxes: **Create tables** and **Create procedures**.

**For *Get the database scripts and run them manually***



You must run both the scripts for a successful database installation.

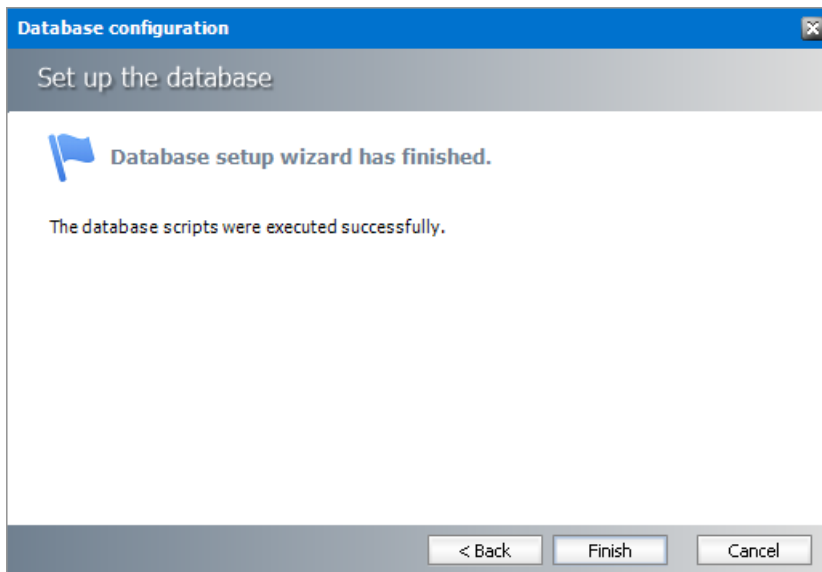
6. Click **Next**. Depending on your selection in step 4, one of the following windows open
  - a. If you chose **Run the database scripts by this wizard**, and the installation is successful, a confirmation dialog opens. Click **OK** to close the dialog.
  - b. If you chose **Get the database scripts and run them manually**, you must run the scripts immediately because a confirmation dialog will verify whether you ran the scripts.



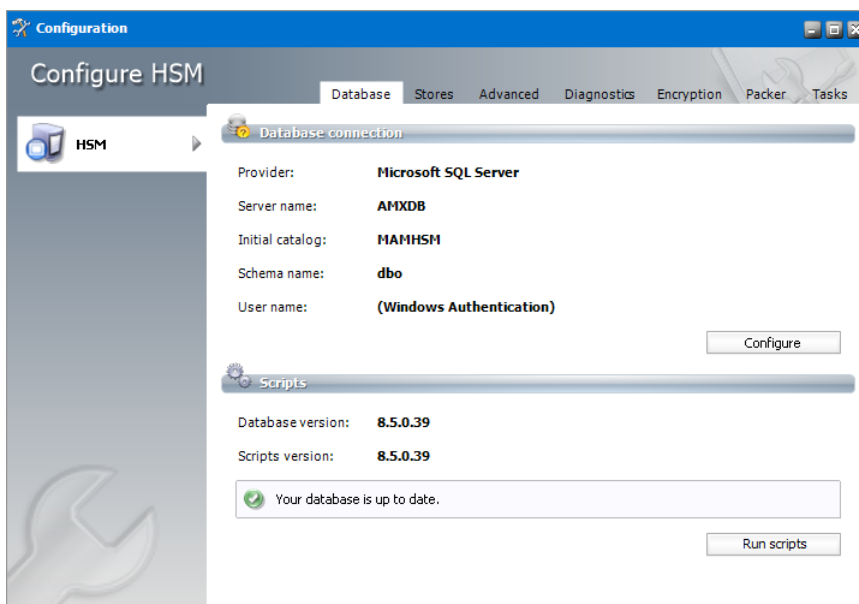
Select both check boxes after you run scripts and click **OK**.

7. If the installation is successful, the confirmation dialog opens. Click **OK** to close the dialog. The database setup completion window opens.





8. Click **Finish** to close the script installer. The *Scripts* section of the *Configuration* tool displays the status and version of the scripts (the version of the scripts you install may differ from the version shown in the image below).



9. Keep the *Configuration* tool open for next steps.

## Stores

In this topic:

- [Steps to configure a media store](#)
- [Steps to configure a schema](#)
- [Steps to test the HSM and Media Store connectivity](#)

## Steps to configure a media store



**NOTE:** A large selection of supported media store types are described in the *Media Store Guide*.


1. From the feature panel on the left of the *Configuration* wizard, click **HSM** and select the **Stores** tab.
2. From the *Stores* section click **New Store**. The *Create a new media Store* window opens.

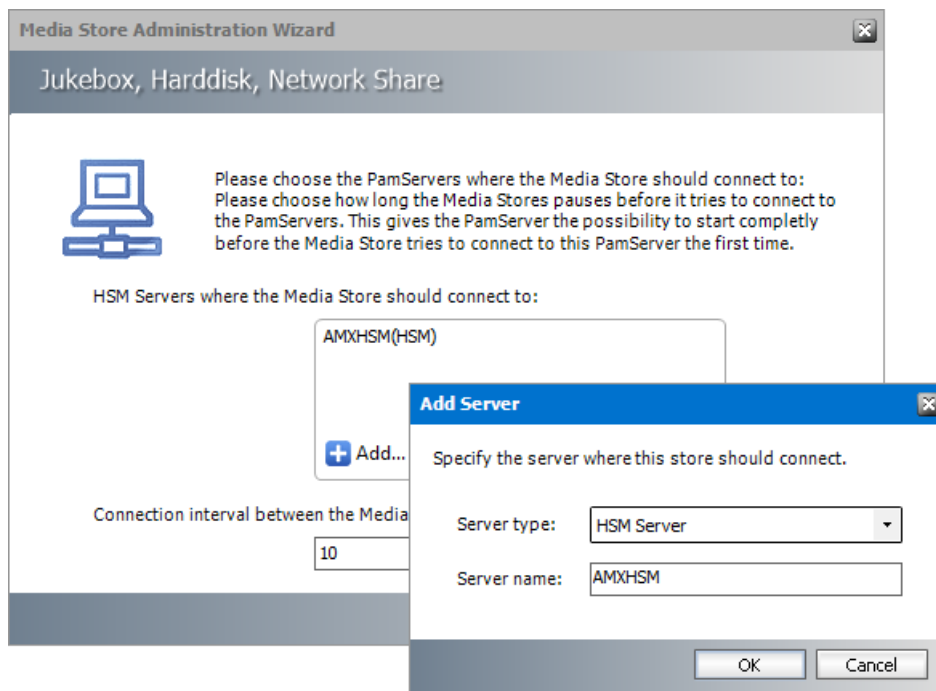
The screenshot shows the 'Media Store Administration Wizard' window with the title 'Create a new Media Store'. It features a database icon and the instruction 'Choose a name and type for the Media Store.' Below this, there are two input fields: 'Media Store type:' with a dropdown menu showing 'Jukebox, Harddisk, Network Share', and 'Name of the new Media Store:' with a text box containing 'FILESTORE'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

3. Click **Next**. The location information window opens.

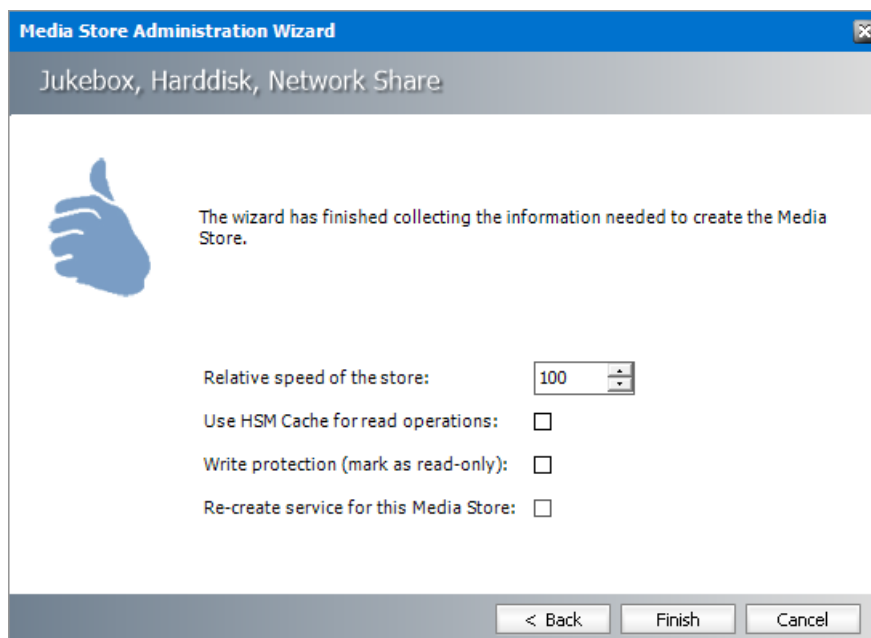
The screenshot shows the 'Media Store Administration Wizard' window with the title 'Jukebox, Harddisk, Network Share'. It features a database icon and the instruction 'Choose a location where the archived files should be saved. Use a supported storage provider for this Media Store.' Below this, there are several input fields: 'Storage provider:' with a dropdown menu showing 'Hard disk, UNC Path'; 'Path for the Media Store:' with a text box containing 'C:\HSM' and a 'Browse...' link; 'Allow multiple saving:' with an unchecked checkbox; 'Path for multiple saving:' with a text box and a 'Browse...' link; 'Path for fast file access:' with a dropdown menu; and 'Retention time support:' with a dropdown menu showing '<None>'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Enter the information as described below;

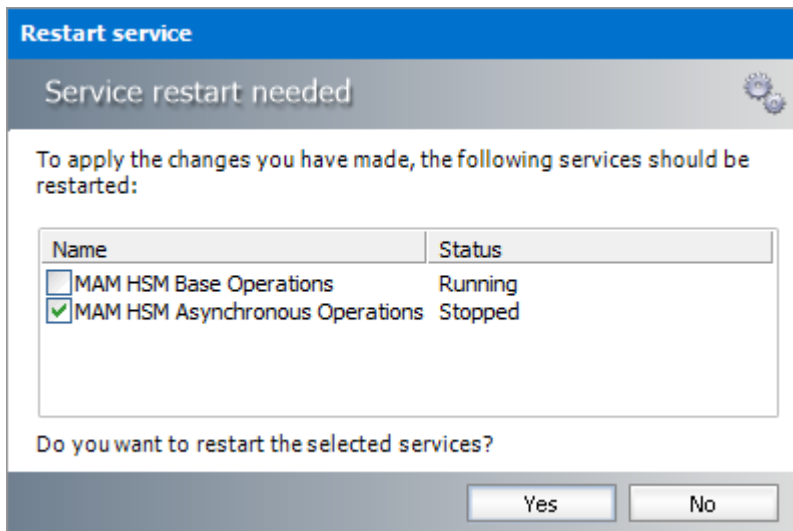
- a. **Storage Provider** - select Hardisk, UNC Path because we are going to setup a media store in folder on the local hard drive.
  - b. **Path for the media store** - browse and create the folder if it does not exist (eg. **C:\HSM**). You could specify a UNC path to a shared folder as well.
  - c. **Allow multiple saving** - select this check box if you want to archive the file in an alternate location. For example **C:\HSM-Backup**.
  - d. **Path for multiple saving** - alternate media store location. Browse and create the folder if it does not exist (eg. **C:\HSM**). You could specify a UNC path to a shared folder as well. This field is available if **Allow multiple saving** selected.
  - e. **Path for fast file access** - choose between the **Path for the media store** and **Path for multiple saving** that are listed in the drop-down. Typically, if the first path is a slow media store like Pegasus Jukebox, and the second path is a large SAN like a local RAID or Harddisk, then you should use SAN because it is much faster. This field is available if **Allow multiple saving** selected.  
  
 **NOTE:** If archiving to one path fails, file store operation will result in an error.
  - f. **Retention time support** - from the drop-down box, select one of two predefined retention time support options:
    - **NetApp SnapLock** - if you are using NetApp and want to use SnapLock for compliance with law regulations about archiving of electronic documents. (e.g. HIPAA, OFRS, COSO etc.)
    - **EMC Celerra** - if you use EMC Celerra.
4. Keep clicking **Next** to accept the default settings on each window until you reach the HSM server connection information window. Every media store must provide this information so the HSM server can connect to it. For more information about various media stores see the *Archive Manager for Exchange - Media Store Administration Guide*.



5. Click **Add**. The *Add Server* window opens. Enter the following information:
  - a. **Server type** - select **HSM Server**
  - b. **Server name** - name of the server where HSM is installed (eg. **AMXHSM**)
6. Click **OK** to close the window and add the the HSM Server to the list.
7. Click **Next**. The final configuration window appears.

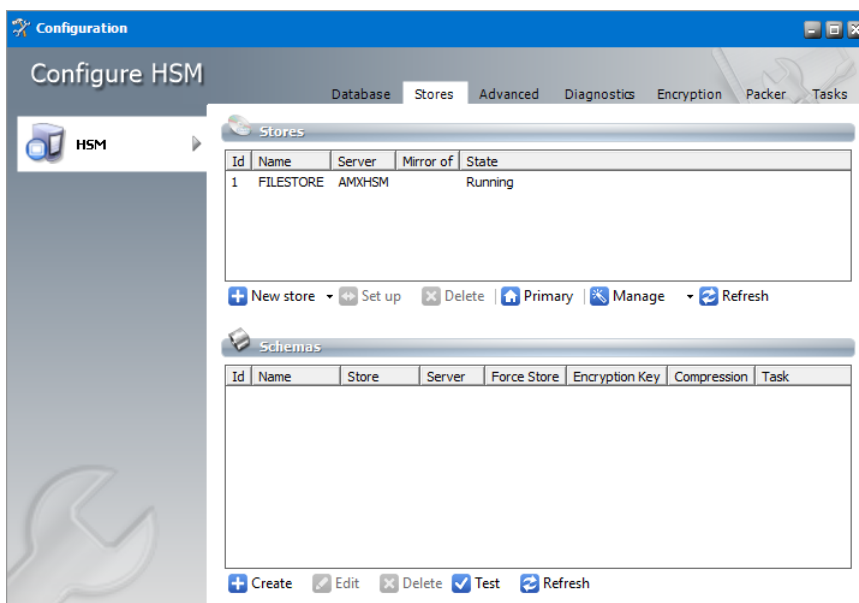


8. Accept the defaults and click **Finish**. The *Service Restart* window opens.



Select one or more check boxes where the **Status** indicates **Stopped**. Click **Yes** to restart the service so that the HSM service is aware of the media store configuration.

9. Verify that the media store information appears in the *Stores* tab of the *Configuration* wizard.

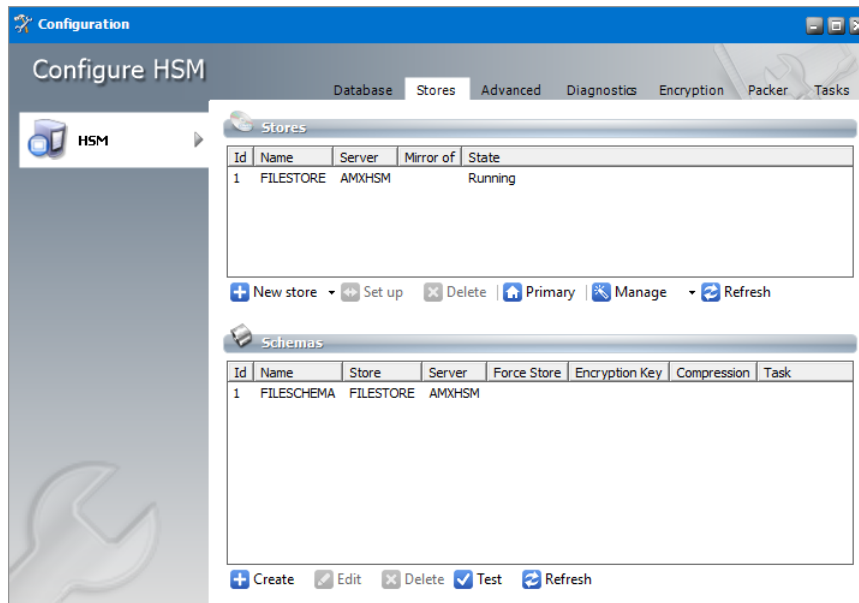


## Steps to configure a schema

1. From the *Schemas* section in the *Stores* tab of the *Configuration* wizard, click **New Schema**. The *Create new schema* window opens.

2. Enter the following information:
  - a. **Store field** - select a media store from the drop-down list that must be linked to this schema.
  - b. **Schema name** - enter a name for the schema (eg. **FILESHEMA**)
  - c. **Allow duplicate** - select the check box to activate duplicate archiving. For example, when you archive a file in in Store A (linked to schema 1) and then archive it again in store B (linked to schema 2), the file is recognized as a duplicate and is archived to both stores.
  - d. **Encryption** - choose the appropriate encryption from the drop down list
  - e. **Task** - select a task from drop-down list that you want to assign to the schema. The task will run when the file is archived with the schema, e.g. copying the file to another media store. You must first create a task in the [Tasks](#) tab, but tasks with a delete operation are not displayed in the drop-down list.
  - f. **Compression** - select this check box to compress files as they are archived.
  - g. **Exclude files** - file types that you do not want to compress are listed here. This field is activated only if **Compression** is selected. List the desired files extensions by using a semicolon (;) to separate each extensions and prefix each file extension with a dot (.).
  - h. **Packer** - select a packer from the drop-down list. Packers join multiple files stored in HSM into large ZIP archives. Several large files as opposed to small ones increases disk space utilization and avoids internal disk fragmentation. Packers must be created in the [Packer](#) tab. It is not possible to have packer and task selected at once. If you must use a packer together with some other task operations, a packer operation can be defined directly as a task operation.
3. Click **OK** to save the schema information. In the *Service Restart* window that opens, select one or more check boxes where the **Status** indicates **Stopped**. Click **Yes** to restart the service so that the HSM service is aware of the schema information.

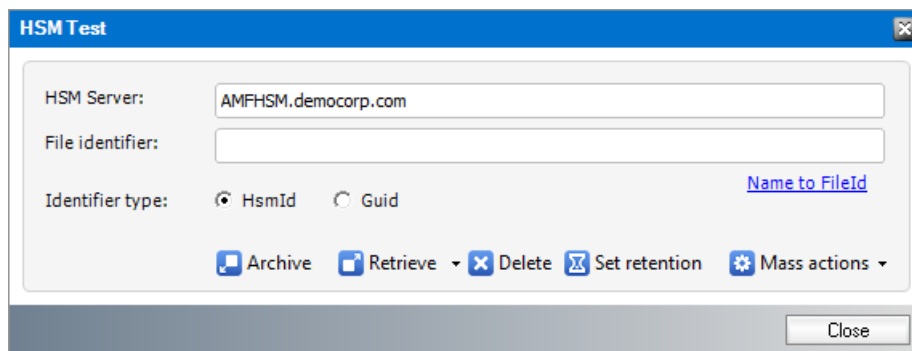
4. Verify that the schema information appears in the *Schemas* section of the *Stores* tab in the *Configuration* wizard.



5. Close the *Configuration* wizard.



## Steps to test the media store connectivity

1. Open the *Configuration* wizard and select HSM from the feature panel.
2. Click the **Stores** tab. Then click **Test** from the **Schemas** section. The *HSM Test* window opens.



3. Click **Archive**. The *Archive* window opens.

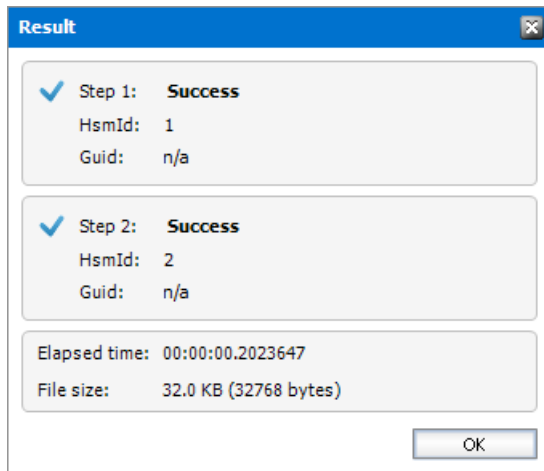
Enter the following information as necessary:

- a. **Target Schema** - select the schema and media store pair from the drop-down list.
  - **Retention time** - select from one of three retention time options to test how long an archived file will be retained in the media store:
    - **Fixed value** - file will be retained for the number of months specified in the field.
    - **Infinite** - file will be stored for ever.
    - **Indefinite** - no specific retention time but it can be defined later.
- b. **Use generated test files** - select this option if you want the system to generate a test file.
  - **Unique content** - click  to let the system generate a unique content for the system-generated test file. Copy the value in the **Unique content** field if you wish to test the retrieve process.
  - **Original filename** - name of the file that will be tested. You can keep the default file name or specify a different file name.
- c. **Use a specific test file** - select this option if you want to use you own file to test. Enter the full file path in the **Path to test file** field or click  to browse for the file.
- d. **Options** - select one or more of the following to test additional archiving features.
  - **Make each file unique** - new unique string is generated after each test archiving
  - **Use invalid checksum** - select to test checksum verification.
  - **Archive empty file** - select to test empty file archiving.
  - **Compress** - select to compress test files.
  - **Do not compress** - select for no compression even if the compression is activated.

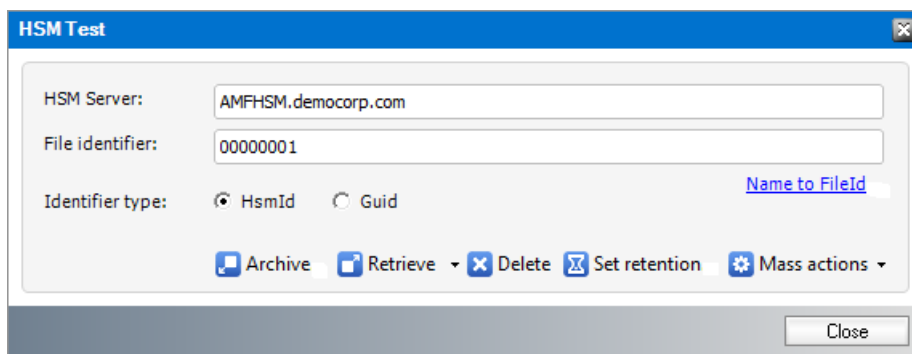


- **Activate logging** - select to log the test operation.

4. Click **Archive**. The *Result* window opens.

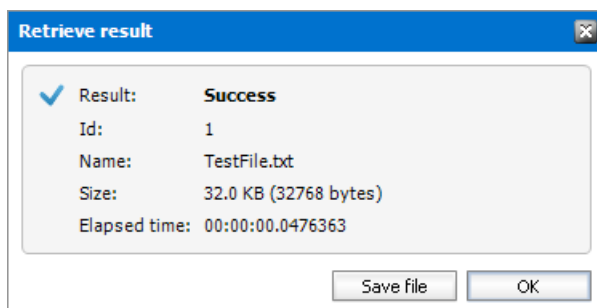


5. Verify that the result indicates success. Then click **OK** to close the *Result* window. Then close the *Archive* window.
6. In the *HSM Test* window, enter the name of the file that was archived in the Media Store during the archive test.



For example if the TestFile.txt was archived as 00000001.txt, enter **00000001** in the **File Identifier** field.

7. Click **Retrieve**. The *Result* window opens.



8. Verify that the result indicates success. Then click **OK** to close the *Result* window. Then close the other windows.

# Optional Configuration

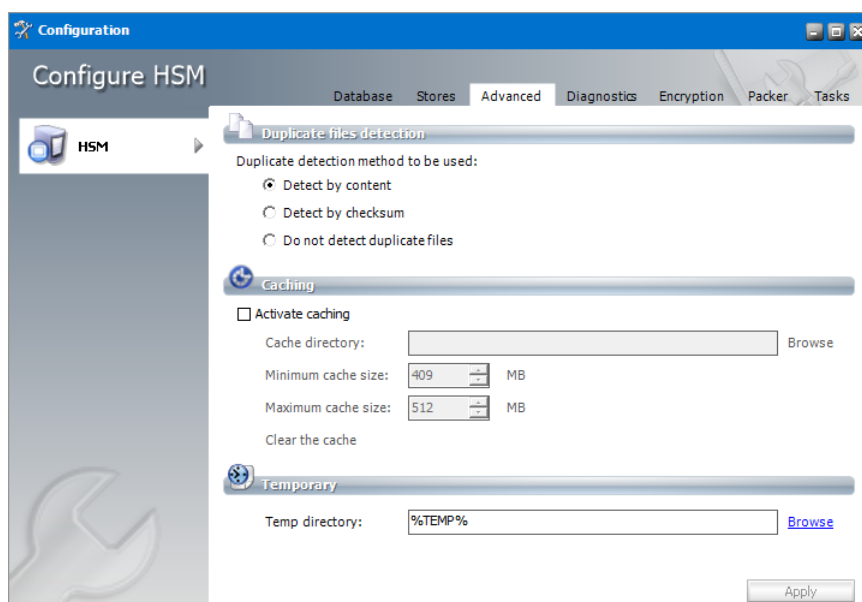
Configuration options described in this chapter are optional. They provide administrator with diagnostic, encryption, compression and async task possibilities.

In this chapter:

- [Advanced](#)
- [Diagnostics](#)
- [Encryption](#)
- [Packer](#)
- [Tasks](#)

## Advanced

This tab is used to configure the more advanced settings of HSM as single instancing, cache settings and temporary folder. After configuring all options press the **Apply** button.



### Duplicate files detection

Since the HSM system includes the Duplicate Files Detection service, it means that identical files are stored only once. In the **Duplicate files detection** section you may specify the detection method:

1. Select the **Detect by content** option, should you wish to use the size, checksum and content for detection.
2. Select the **Detect by checksum** option, should you wish to use the size and checksum for detection;
3. Select **Do not detect duplicate files** option, should you wish to deactivate this detection

If **Allow duplicate** in the Advanced tab is checked, the file is stored in both stores.

## Caching

Use caching in case of slow storages (tape etc.). HSM will cache the recently used files to speed up the retrieving process.

If **Activate caching** is checked, HSM will copy all retrieved files to an HSM internal cache. To set the **Cache directory** (which should be a local hard disk), use the **Browse** button next to the respective text box. If you have a cluster, the HSM will know that each installation has its own path.

Set the **Minimum cache size** and **Maximum cache size** as well. The **Minimum size** should be about 80% of the cache size. If the cache is full, HSM will delete files (the oldest first) until the cache reaches the “minimum size”.

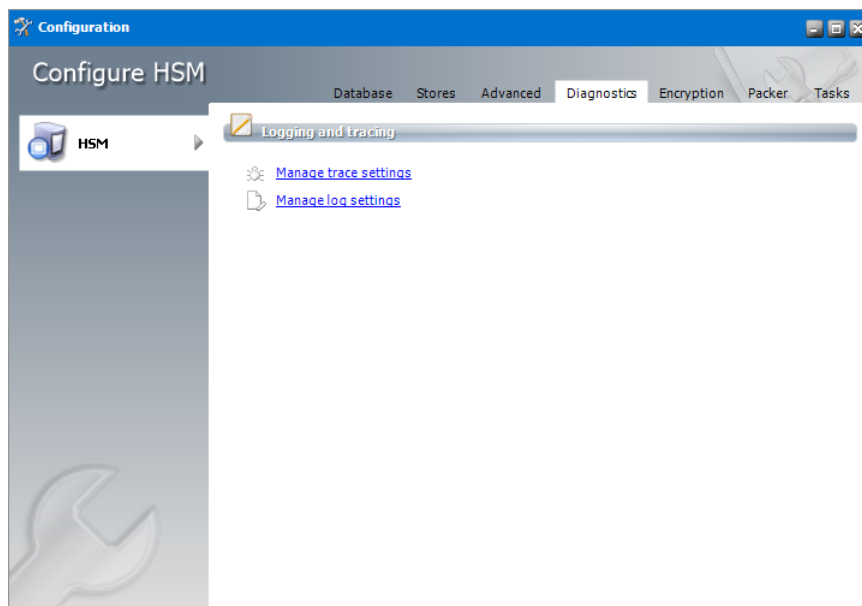
**NOTE:** To choose which Media Store should be cached, use the MediaStoreAdministrator tool. It is started when you click Launch on the Stores & Schemas tab.

## Temporary

The HSM stores temporary files created during duplication detection, compression etc. in temporary directory. Its location can be set in **Temp directory** text box. Usage of environment variables is allowed in this box (e.g. %TEMP% denotes the temp folder of the currently logged on user).

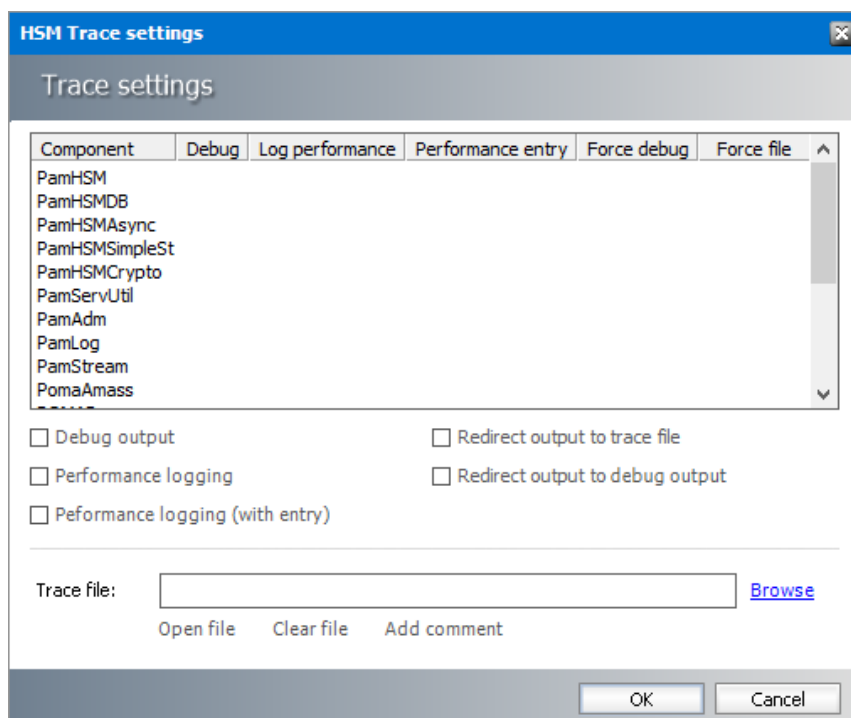
## Diagnostics

From time to time administrators need to check systems they manage, examine and analyze their behavior. This tab provides access to features that facilitate this task. Logs and tracing record HSM actions specified by the administrator at the defined extent.



## Manage trace settings

In the HSM Trace Settings configuration you can activate various kinds of loggings for the specific HSM components. Select the component in the list and then configure it by checking/unchecking the desired check boxes. Multi-select is possible.



You can activate verbose logging (**Debug Output**), two kinds of performance loggings (logging information after a specific operation is completed or before a specific operation begins – **Performance logging** and **Performance logging (with entry)** and choose whether you want to redirect outputs either to debug output (**Redirect output to debug output**) or to the given trace file (**Redirect output to trace file**). In the case of **Redirect output to trace file** the path has to be

specified in the **Trace File box**. The trace information will be logged there. You can also Open the trace file with the **Open file** button or delete its contents with the **Clear File** button. If you clear the file then the file itself won't be deleted. Use **Add comment** in case you wish to add some text to the file.

After changing the settings you want click the **OK** button. If you want to discard them click the **Cancel** button.

## Manage log settings

In the Log settings dialog configure the overall HSM logs to your needs:

**Include message levels** – define which information should be logged

- **Errors only**
- **Errors and warnings**
- **Errors, warnings and Information**

**Debug output** – check to activate verbose logging

**Log file** – check to save the messages in log files

**Path** – set logs location

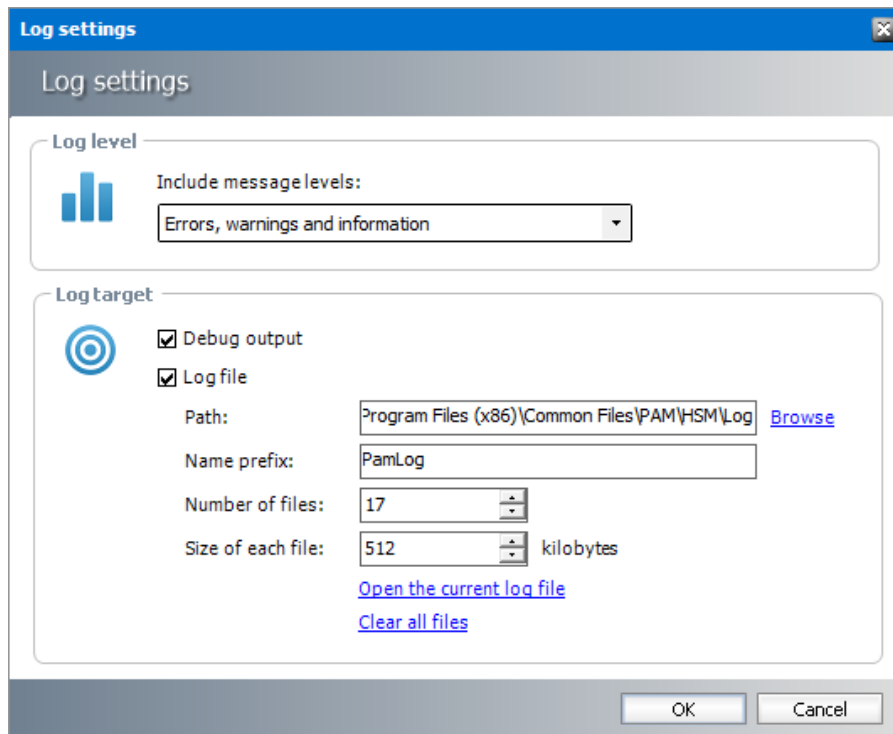
**Name prefix** – define naming convention; log file name will include this prefix and a number

**Number of files** – if a new log file should be created when the limit is reached, the oldest log file will be deleted

**Size of each file** – when the defined size is reached, new log file will be started

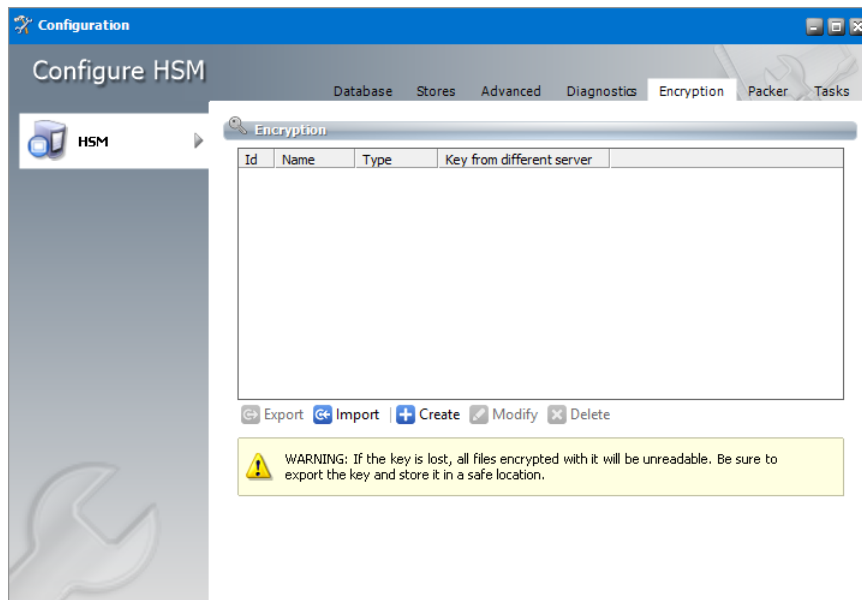
Click **Open the current log file** to open it.

Clicking the **Clear all files** will delete all logs.



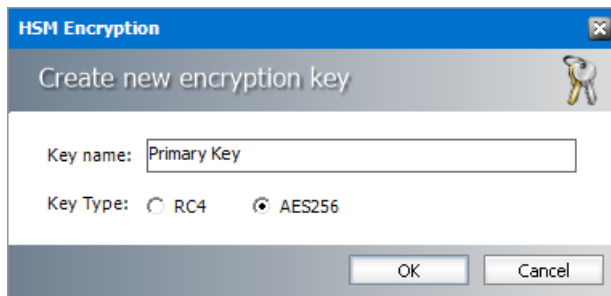
## Encryption

The Encryption tab allows you to manage encryption keys that are used to safeguard your archived items stored in HSM.



### Steps to create an encryption key

1. In the *Encryption* tab, click **Create**. The *Create new encryption key* window opens.

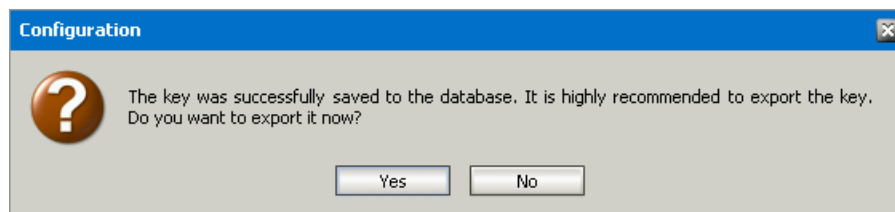


Enter the information as described below:

**Key name** - display name of the encryption key.

**Key type** - Select one of the industry standard encryption ciphers **RC4** or **AES256**. Between the two, AES256 is a relatively new and very complex 256-bit block cipher, and RC4 is a very old and simple stream cipher.

2. Click **OK** to create the encryption key. The *Configuration* window opens.



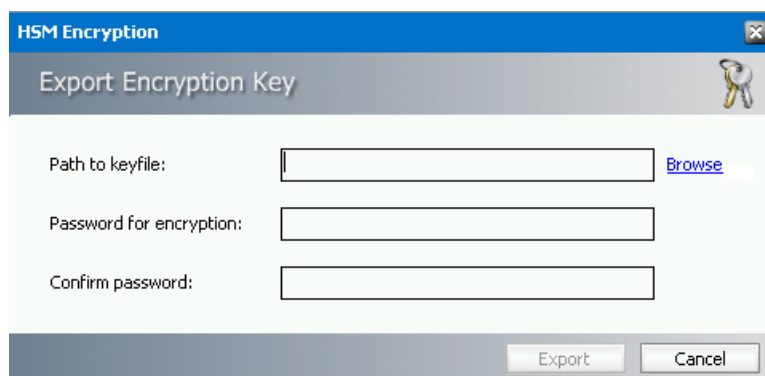
3. Click **Yes** to export the key or click **No** to export it later. If you click **Yes**, the *Export Encryption Key* window opens. See the section below for steps to export the encryption key.



**NOTE:** Always export and store encryption keys in a safe location. If the key is lost, it will not be possible to read the encrypted files.

## Steps to export an encryption key

1. There are two ways to export an encryption key:
  - a. Select an encryption key from the encryption key list and click **Export**.
  - b. Create a new encryption key and click **Yes** in the *Configuration* window that opens after you have created the key.
2. In the Export Encryption Key window, enter the information as described below.



- a. **Path to key/file** - location where the key will be exported. Click **Browse** to open the *Save As* window. The default location is `C:\Program Files (x86)\Common Files\PAM\HSM\Keys`. Keep the default or choose a location. Then enter a name for the encryption key file and click **Save**.
  - b. **Password for encryption** - enter a password for the encryption file.
  - c. **Confirm password** - enter the password again to confirm the password entry.
3. Click **Export** to export the encryption key.

## Steps to import an encryption key

1. In the *Encryption* tab, click **Import**. The *Import Encryption Key* window opens.

2. Enter the information as described below:
  - a. **Path to key/file** - location from where the key will be imported. Click **Browse** to select a location.
  - b. **Password for encryption** - enter a password for the encryption file.
  - c. **Key name** - name of the encryption key file.
3. Click **Import** to add the encryption key to the HSM encryption key list.

## Steps to modify an encryption key

1. Select an encryption key from the encryption key list and click **Modify**. The *Edit Encryption Key* window opens.

2. You can change the *Key name* of the encryption key but you cannot change the *Key Type*.
3. Click **OK** to save the change.

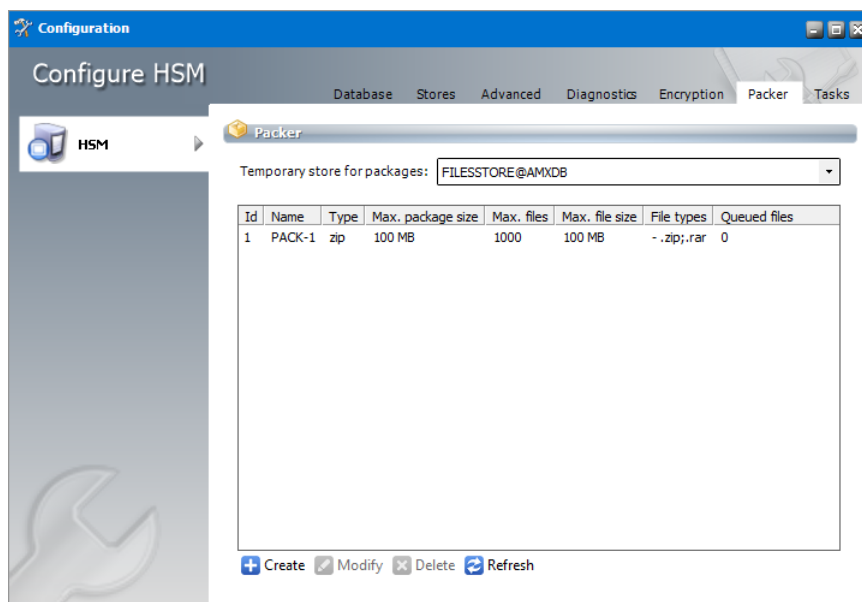


## Steps to delete an encryption key

1. Select an encryption key from the encryption key list
2. Click **Delete**. A *confirmation* window opens.
3. Click **Yes** to confirm the deletion of the encryption key.

## Packer

Packers are joining multiple files stored in HSM into large ZIP archives. It is better to have several large files than a plenty of small ones – the disk space utilization is more efficient in this case, because it helps to avoid internal disk fragmentation. Packers can be created and managed on the **Packer** tab. Created packers can then be assigned to specific schema on the **Stores** tab.



First select the store in **Temporary store for packages** dropdown. It will be the temporary store for archived files before they got packed. Then the packed files will be moved to the final store (it can be the same store as well).

To create a packer, click **Create**. The HSM Packer dialog pops-up. Configure the settings:

**Name** – enter packer name

**Type** – the file to be used by the packer

**Max. package size** – if the specified limit is reached, new package will be created

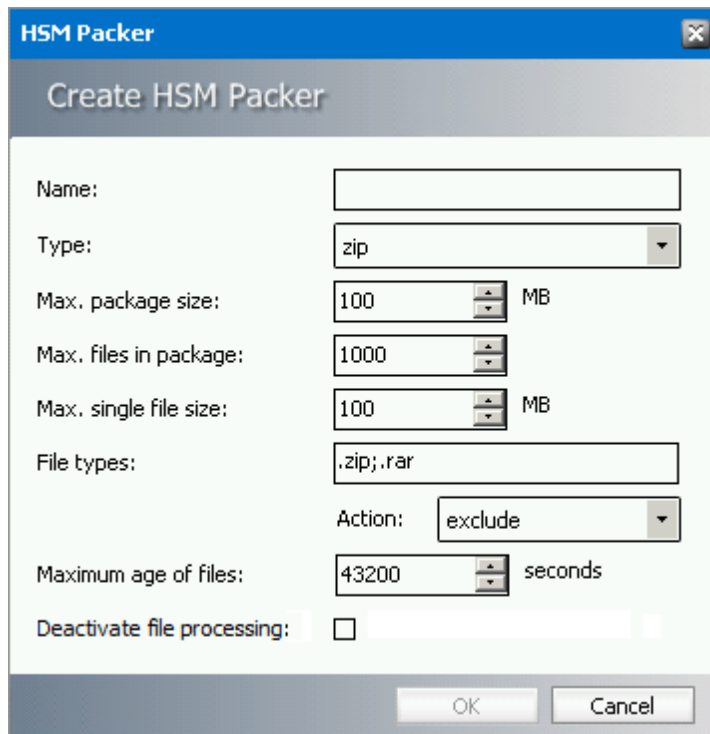
**Max. files in package** – package starts to be created when the specified number of files is reached

**Max single file size** – if the file size is bigger than the specified value, the file will not be included in the package (otherwise it would be much time consuming)

**File types & Action** – allow specifying file types to be included / excluded in/from the package

**Max age of files** – is files to be packed are waiting in the packer queue longer than the specified value, a new package will be created

**Deactivate processing of files** – deactivate processing of files in the packer queue



Following table displays how archived files in HSM are handled during 'Asynchronous packer' task process:

Temporary store for packages	Source Store result	Target store result
Same as Source store (*)	Original archived files are deleted after they are compressed and stored in Temporary store for packages.	ZIP container with archived files
Different as Source store (*)	Original archived file remains at store after they are compressed and stored in Temporary store for packages.	ZIP container with archived files

*Temporary store for packages:* HSM store that is used by packer process to store compressed temporary files that are subsequently stored in ZIP container. Current version of HSM uses only GZ compression.

*Source store:* HSM store that is processed by 'Asynchronous packer' task.

*Target store:* HSM store where ZIP containers are stored as a result of 'Asynchronous packer' task

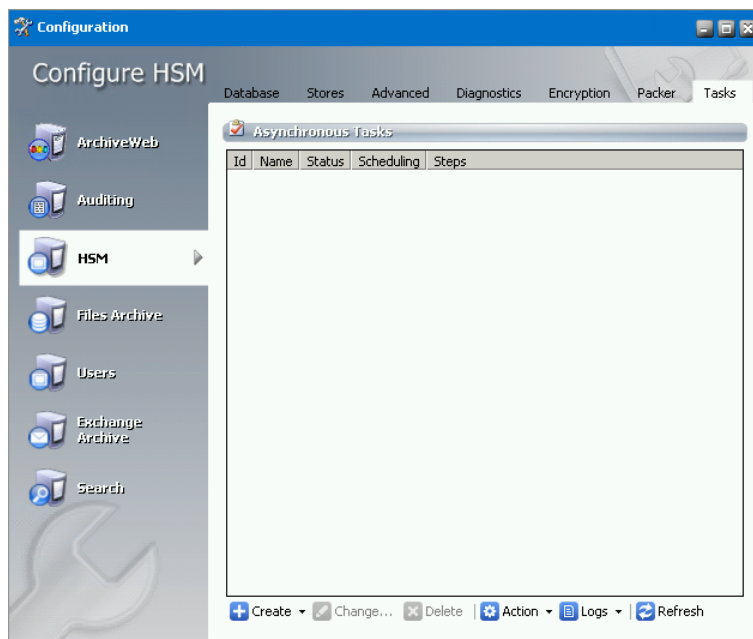


**NOTE:** Files archived into HSM with compress option activated at schema always remains at source store regardless settings of temporary store for packages. These files also do not use 'Temporary store for packages' since they are already compressed. This behavior is by HSM design.

## Tasks

On this tab you can create asynchronous tasks for HSM. An *asynchronous* task can be performed at a later time and not immediately after its creation. Basic tasks are the following:

- **Copy** - copies archived items from a source store to a destination store.
- **Move** - moves archived items from a source store to a destination store.
- **Encrypt** - encrypts files in the specified store with a selected encryption key.
- **Advanced** - define multiple tasks or sequence tasks based on specific criteria.



### Creating Move / Copy task



**NOTE:** Before creating any asynchronous task, stores must be created under the **Stores** tab.

1. Click **Create > Move task** (or **Copy task**). The *Move files* (or *Copy files*) window opens.

**New task**

Move files

Create task moving all files from the selected store to another.

Source store: FILESSTORE@40ADD01

Target store: NEW STORE@40ADD01

Name: [Generate](#)

Description:

Resume at FILEID: ☐ 0

Active: ☐

Auto-deactivate: ☐

Scheduling:

Id	Start	Stop
0	anytime	never
1	10:38 AM	10:38 AM

+ Define Modify Delete

OK Cancel

Enter the configuration details as described below:

- Source store** dropdown menu select the store from which the files will be moved (copied).
- Target store** dropdown menu select the store to which the files will be moved (copied).
- Name** text box type the task display name or click *Generate* to fill in the text box with generic name.
- Description** - add a description about the task.
- Resume at FILEID** - select the check box if you want the task to “remember” the last processed file and resume at the next one when it starts again after a pause. (The textbox displays the file ID of the latest processed file.)
- Activate** - select the check box to activate the task.
- Auto-deactivate** - select the check box to deactivate the task when it completes. The check box is available only when **Resume at FILEID** is checked.
- Scheduling** - Sets the task run time. Besides the default perpetual unlimited scheduling, you can add your own start time and stop time by clicking **Define**. There can be several schedulers defined. Then select the actual scheduling time. The task will be started every day at the defined time.

**i NOTE:** Task scheduling can be modified when you select the task from the list and click **Modify**. If *anytime* is selected the task starts whenever the MAM HSM Asynchronous Operations service starts.

- Once the task is configured, click **OK**. The task displays in the *Tasks* list.

## Creating Encryption Task

**i NOTE:** Before creating any asynchronous task, stores must be created under the Stores tab.

- Click **Create > Encrypt task**. In the *Encryption Task* window opens.

**New task**

**Encryption Task**

Encrypt store with given encryption key

Source store:

Encryption Key:

Name:  [Generate](#)

Description:

Resume at FILEID: ☐

Active: ☐

Auto-deactivate: ☐

Scheduling:

Id	Start	Stop
0	anytime	never

[+ Define](#) [Modify](#) [Delete](#)

[OK](#) [Cancel](#)

Enter the configuration details as described below:

- Source store** dropdown menu select the store to which the files will be encrypted
- Name** text box type the task display name or click Generate to fill in the text box with generic name.
- Description** - It is a good practice to add a short Description of the task.
- Resume at FILEID** - Select the check box if you want the task to *remember* the last processed file and resume at the next one when it starts again after a pause. (The text box displays the file ID of the latest processed file.)
- Activate** - Select the check box to activate the task.
- Auto-deactivate** - Select the check box if you wish to deactivate the task as soon as it completes. The check box is available only when **Resume at FILEID** is checked.
- Scheduling** - specify the task run time. Besides the default perpetual unlimited scheduling, you can add your own start time and stop time by clicking **Define**. There can be several schedulers defined. Then select the actual scheduling time. The task will be started every day at the defined time.

**i NOTE:** Task scheduling can be modified when you select the task from the list and click **Modify**. If *anytime* is selected the task starts whenever the MAM HSM Asynchronous Operations service starts.

- Once the task is configured, click **OK**. The task displays in the *Tasks* list.

## Creating Advanced Task

Advanced task allow configuration of specific task criteria. To create the Advanced task:

- Click **Create / Advanced** option from the menu. Task wizard opens.

**Task**

Asynchronous task

Enter the general properties for the asynchronous task.

Store: FILESSTORE@40ADDC1

Task name: Custom task

Description:

< Back Next > Cancel

In the first dialog enter the general task configuration:

- a. **Store** – select the source store for which the task should apply
  - b. **Task name** – enter tasks display name
  - c. **Description** – it's a good practice to add short task description
  - d. Click **Next**.
2. Advanced task can consist of several operations. This dialog allows you to define the operations and the sequence in which they should be performed. To do so, select the operation in the **Operations** list and click the arrow to add the operation to the **Task operations** list. The operation sequence can be customized easily by selecting the desired operation and moving it up or down by clicking the **Move up** / **Move down** arrows under the list.

**Task**

Asynchronous task

Define store operations and build the sequence of operations to be performed by the asynchronous task.

Operations:

Id	Name	Type	Source
1	Move from FILESSTORE to NEW STORE	Move	FILESSTORE
3	Copy from FILESSTORE to NEW STORE	Copy	FILESSTORE
1	Packer test (1) to NEW STORE	Packer	

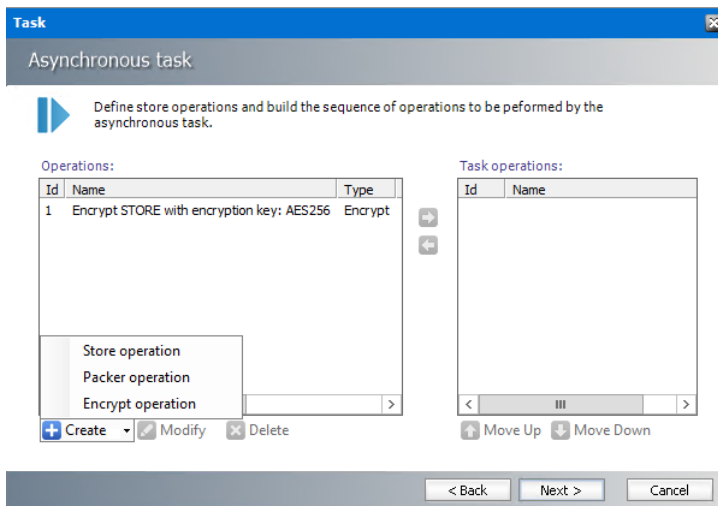
Task operations:

Id	Name
1	Move from FILESSTORE to NEW STORE
3	Copy from FILESSTORE to NEW STORE

Create Modify Delete Move Up Move Down

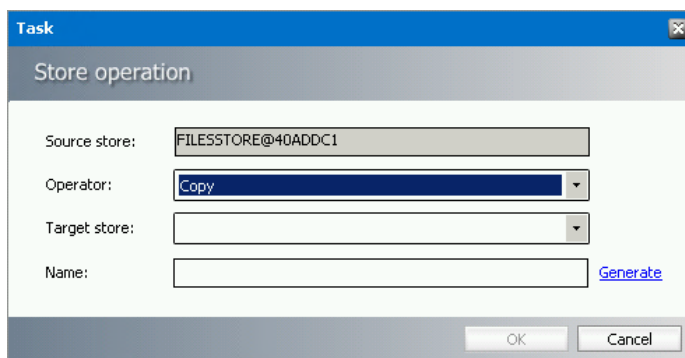
< Back Next > Cancel

3. In case no operation is created in the **Operations** list or you wish to create a new one, click the **Create** button. You will be able to create:
  - a. Store operation (Copy, Move and Delete) or
  - b. Packer operation
  - c. Encrypt operation



### Store operation

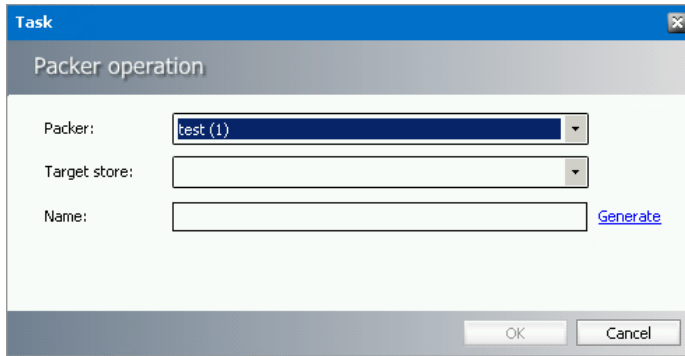
- a. In case the **Create/Store operation** has been selected, the Store operation configuration dialog opens. The source store will be the store you have selected in the previous dialog. In the dialog enter the operation configuration:



- i. **Operator** – select the type of store operation you wish to create (Copy, Delete, Move)
  - ii. **Target store** – target store where ZIP archives are stored
  - iii. **Name** – Name of the operation. To generate the name automatically click **Generate** button.
- b. To confirm, click **OK**.

### Packer operation

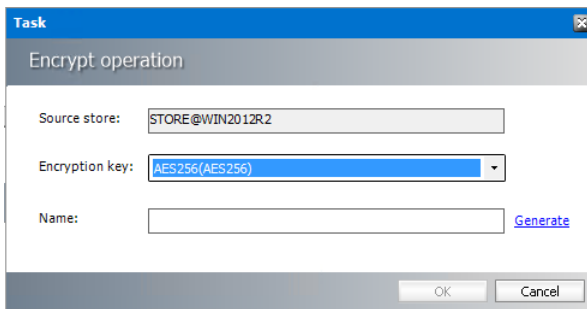
- a. In case the **Create/Packer operation** has been selected, the Packer operation configuration dialog opens. In the dialog enter the operation configuration:



- i. **Packer** – select the packer which the task should apply. Packers are defined in **Packer** tab.
  - ii. **Target store** – target store where ZIP archives are stored.
  - iii. **Name** – Name of the operation. To generate the name automatically click **Generate** button.
- b. To confirm, click **OK**.

### Encrypt operation

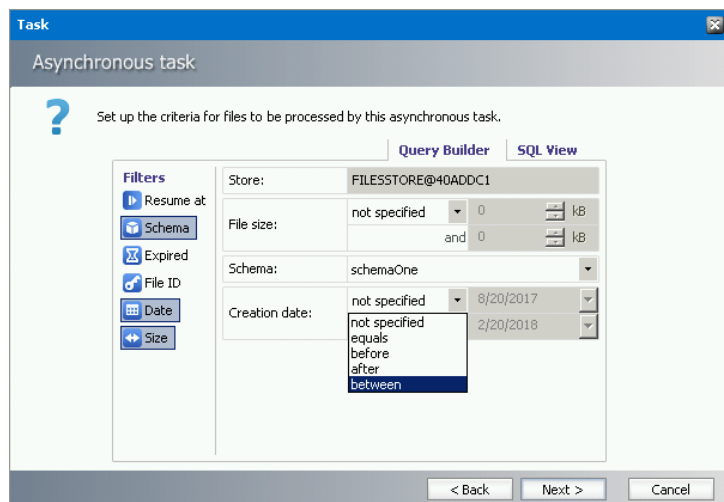
- a. In case the Create/Encrypt operation has been selected, the Encrypt operation configuration dialog opens.



- i. **Source store** - will be the store you have selected in the previous dialog.
  - ii. **Encryption key** – select the encrypt which the task should apply. Encryption key is defined in Encryption tab.
  - iii. **Name** – Name of the operation. To generate the name automatically click **Generate** button.
- d. To confirm, click **OK**.
4. Click **Next**. Set up filters defining files to be processed from the source store. To do so, click the filter you want to use from the left pane:
    - a. Resume at – the task will start from the specified file
    - b. Schema – specifies the schema under which the files are store
    - c. Expired – (yes/no) – specifies whether files where retention time has expired should be processed
    - d. File ID – specifies the ID of files



- e. Date – specifies the archive date
  - f. Size – specifies the file size
5. The filter displays in the main pane where you can configure it. To remove the selected filter, click its name again.



**SQL View** tab – displays the defined filter criteria in SQL View. When you are modifying already existing task it is not possible to edit the query using the Query Builder directly. You have to edit your query in the SQL view. Should you want to use the Query Builder, you have to create a completely new query.

6. Click **Next**. Set the task scheduling. Make sure to check the **Active** check box to activate the task.
  - a. To set **Run interval** when the task will be performed, select the desired option from the list or click **Define** button to set up custom interval.
  - b. Check **Auto-deactivate** should you wish the task to become inactive as soon as it carries its work out. The check box is available only when **Resume at FILEID** filter is defined.
7. Click **Finish**.

Once the task is created, it displays in the Asynchronous task list view. Menu under the Asynchronous Tasks list provides access to the following functions:

- **Create** – create a new asynchronous task; two most common tasks can be created directly:
  - **Move task**
  - **Copy task**
  - **Encrypt task**
- **Advanced** - specific tasks can be created via wizard that is launched.
- **Change** – change settings of the task selected in the list view (for detailed description see the section “Creating Advanced Task”)
- **Delete task** – delete the selected asynchronous task

- **Action** – access to immediate Start, Stop or Restart of the selected task
- **Logs** – view log of the selected task or clear the respective log or logs of all tasks
- **Refresh** – refresh the tasks list

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# Addendum

In this chapter:

- [Remote HSM Server](#)
- [HSM configured for Windows Server firewall](#)

## Remote HSM Server

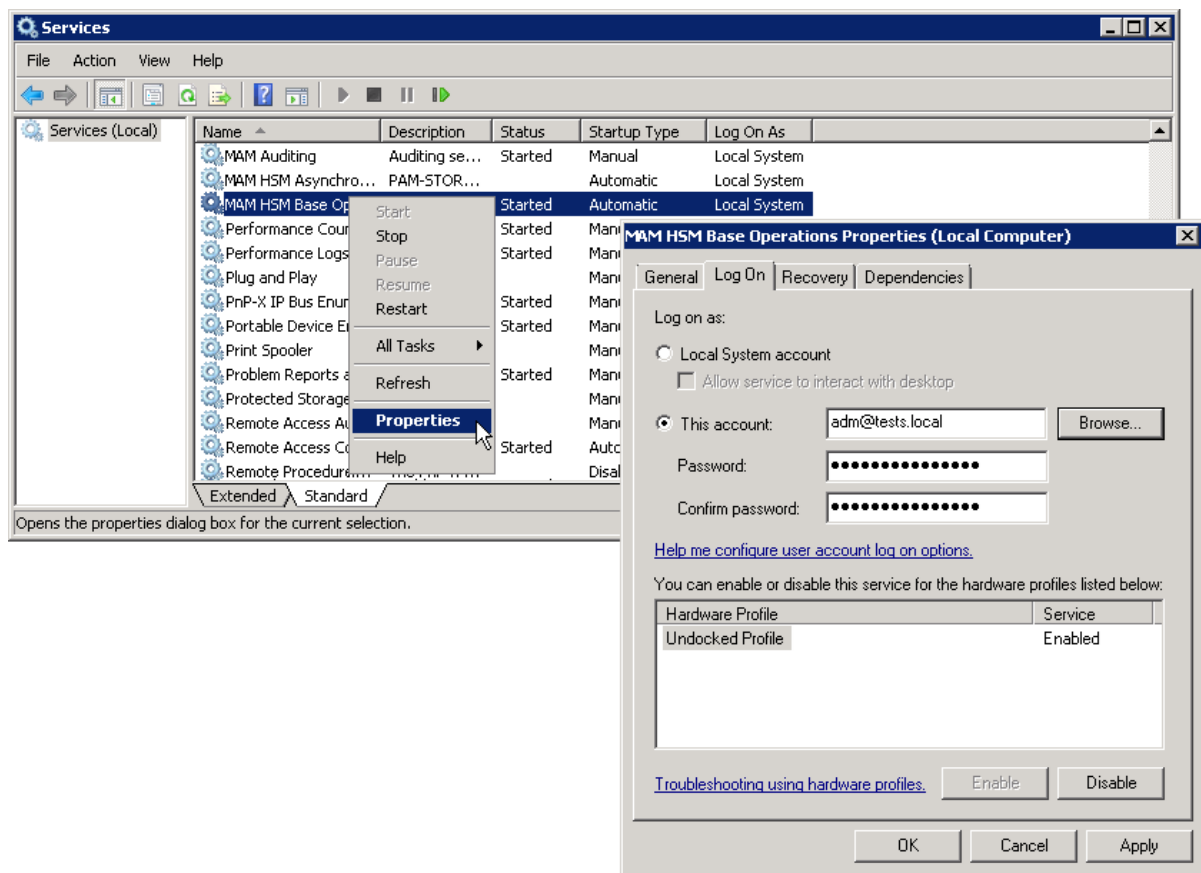
In case of a remote HSM Server, i.e. if the HSM Server is installed on a separate machine, it is necessary that:

- a) the *HSM Base service* runs under the Archive Manager super-user account
  - b) DCOM Rights are reduced
- 
- a) The Archive Manager super-user account is an account under which our MAM services (MAMfsaHandlerSv, MAMfsaRemoteSV, MAMfsaArchiverSv) run on the Archive Manager server.

On the HSM server, follow these steps:

1. **Open Start / Administrative tools / Services and locate the *MAM HSM Base Operations service*.**
2. **Right-click it and open its Properties. On the Log On tab check This account option and enter the super-user account with its password. (Super-user account is an account which our MAM services (MAMfsaHandlerSv, MAMfsaRemoteSV, MAMfsaArchiverSv) run under.)**

Finally click **OK**.



b) DCOM Rights has to be reduced in two locations to

AuthenticationLevel="None"

ImpersonationLevel="Anonymous"

and after that the IIS have to be reset.

On the HSM Server follow these steps:

1. **Open machine.config from:**

**C:**

**\WINDOWS\Microsoft.NET\Framework\v2.0.50727\CONFIG\machine.config**

**In case the 64-bit .NET Framework open:**

**C:**

**\WINDOWS\Microsoft.NET\Framework64\v2.0.50727\CONFIG\machine.config**

2. Locate the entry for "processModel" and add:

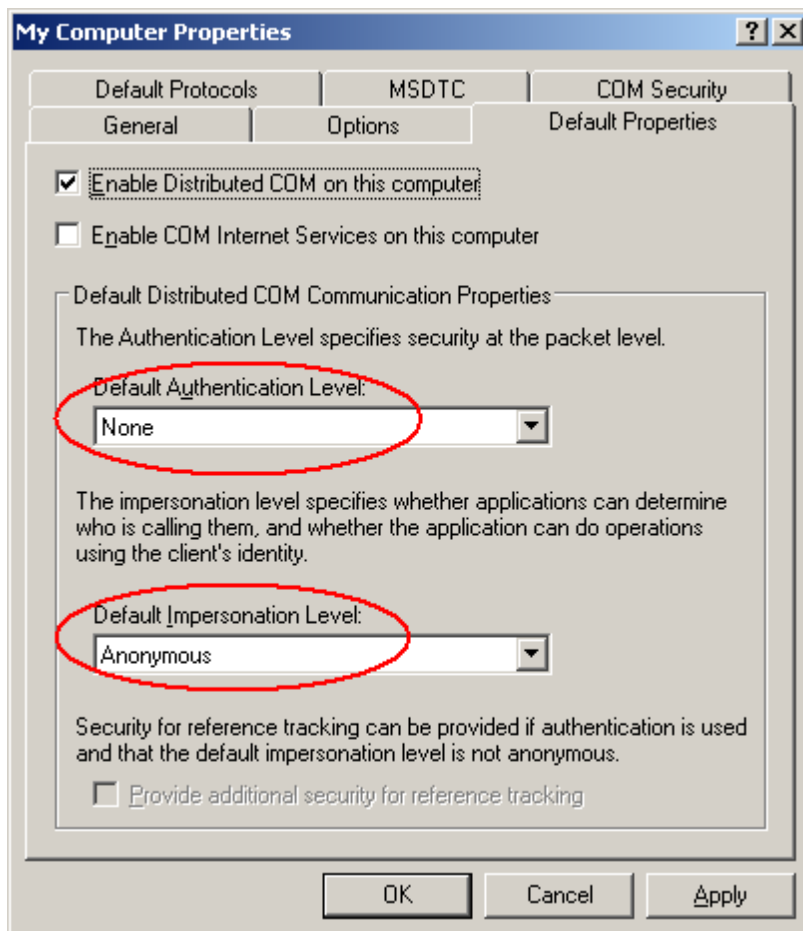
```
comAuthenticationLevel="None" comImpersonationLevel="Anonymous"
```

The entry then looks as follows:

```
<processModel autoConfig="true" comAuthenticationLevel="None"  
comImpersonationLevel="Anonymous" />
```

3. Close the config.
4. Now run **Component Services** (click **Start /Settings /Control Panel /Administrative Tools /Component Services**).
5. In the **Component Services** window expand the **Component Services** tree down to **Component Services \Computers \My Computer** and then right-click **My Computer** to open its **Properties** window.
6. Switch over to the **Default permissions** tab. Check **Enable Distributed COM** on this computer. Then in the **Default Authentication Level** dropdown box select **None** and in the **Default Impersonation Level** select **Anonymous**.

Click **Apply**, then **OK**.



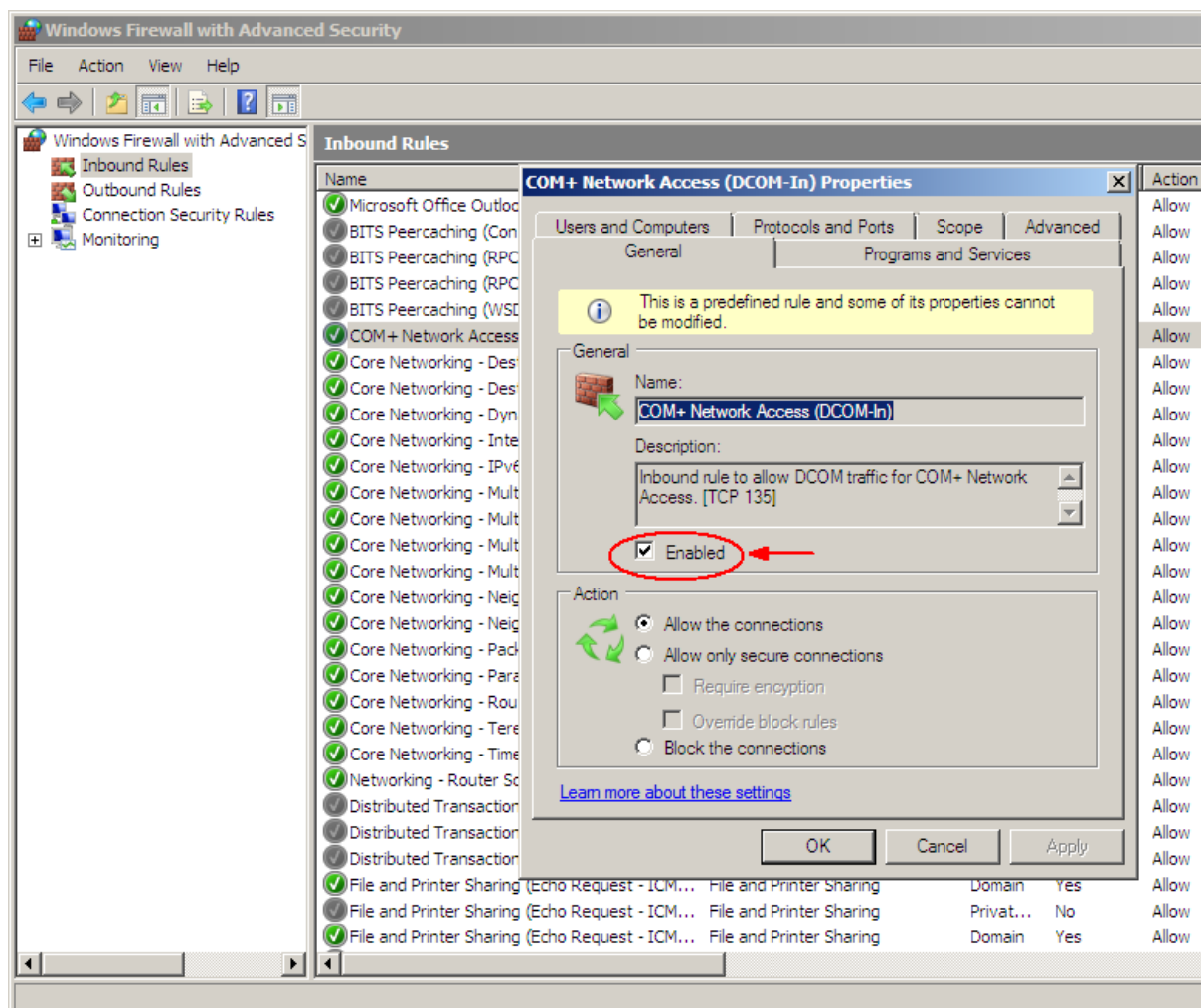
7. Finally reset IIS.

# HSM configured for Windows Server firewall

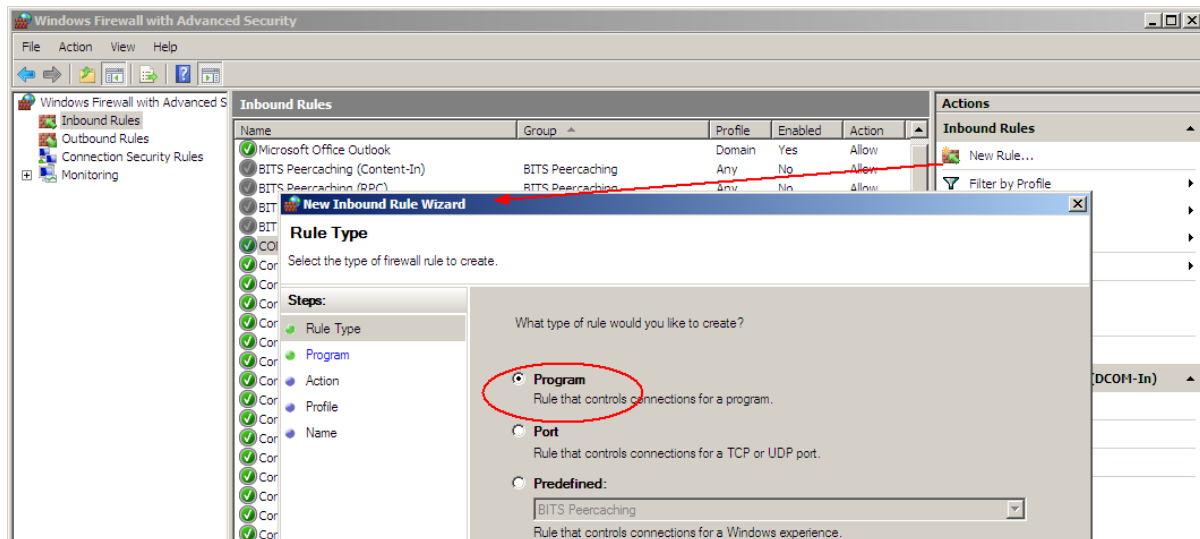
Active Firewall on the **remote** HSM server can cause issues at file retrieving from the archive. To avoid it, the HSM has to be configured properly.

Here are the steps you have to do on Windows Server 2012 / 2016 / 2019 hosting HSM while the Firewall is turned on:

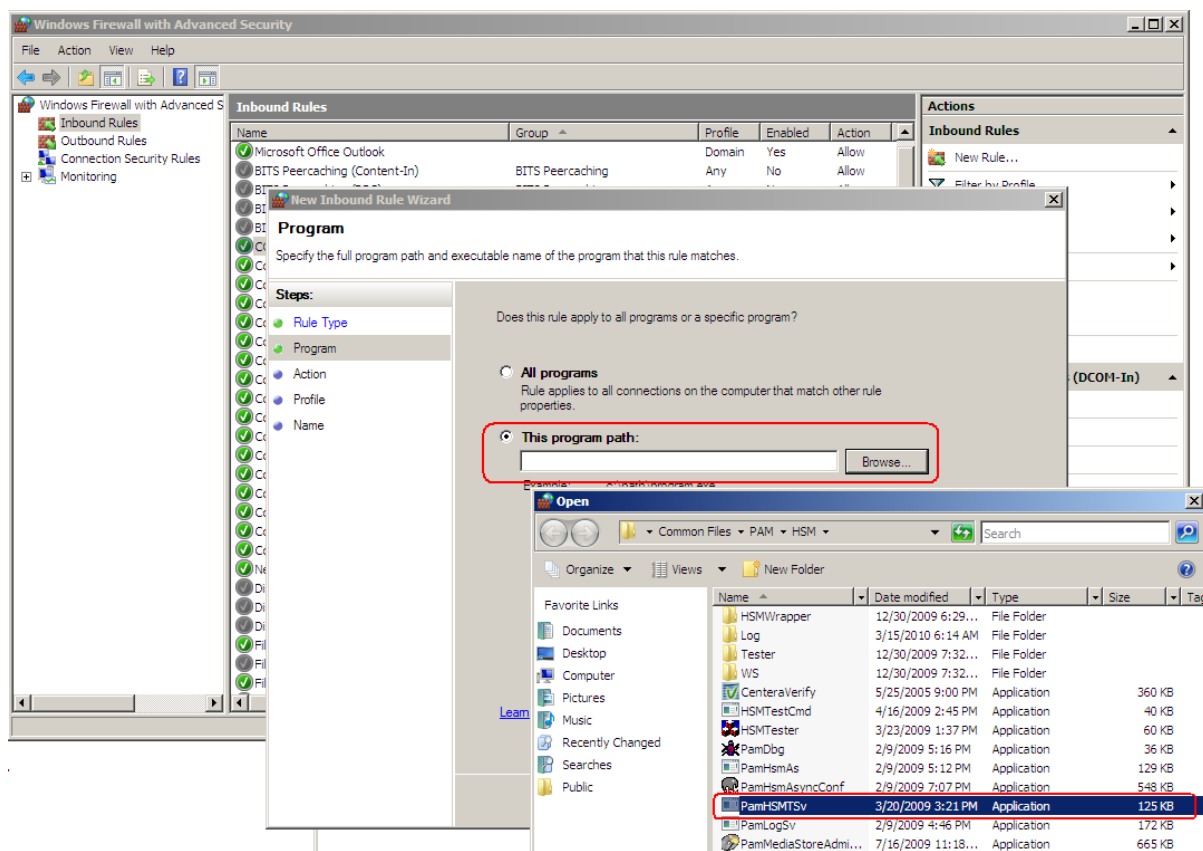
1. You need to allow DCOM traffic for COM+ Network Access. Open Start / Programs / Administrative tools / Windows Firewall. In the **Windows Firewall** under **Inbound Rules** locate COM+ Network Access and right-click it to open its **Properties**. On the **General** tab check **Enabled** and then click **OK**.



2. Now create a New Inbound Rule. To do so, click the **New Rule** in the right upper corner. The wizard opens. Select **Program** and click **Next**.

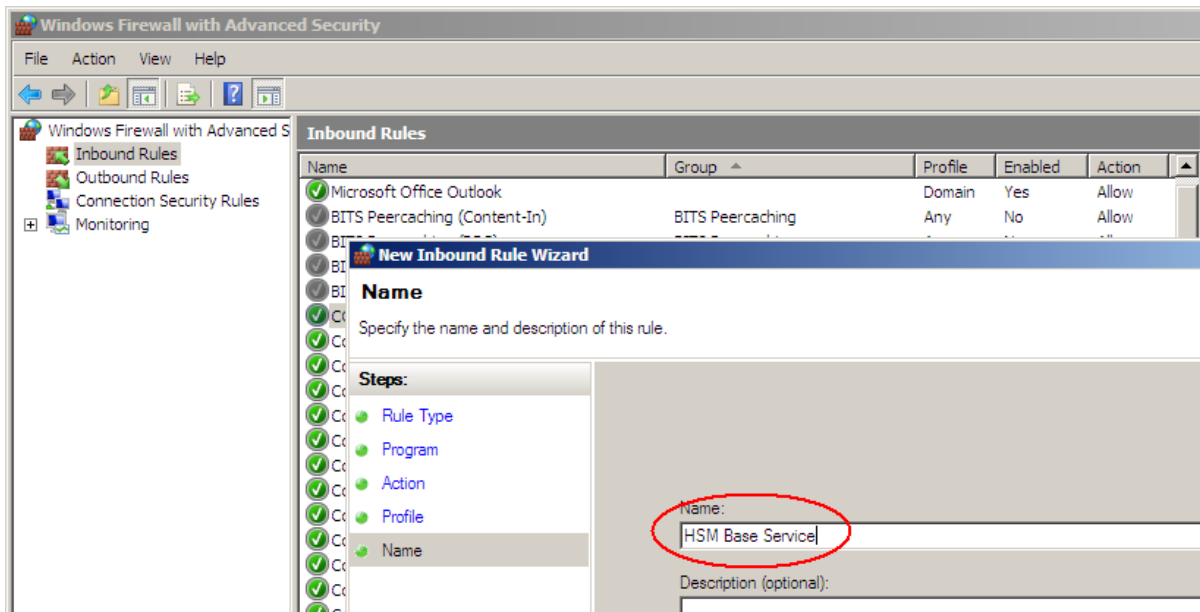


3. On the next page select **This program path** and browse `<installDir>\Common Files\PAM\HSM\PamHSMTsv`. Click **Next**.

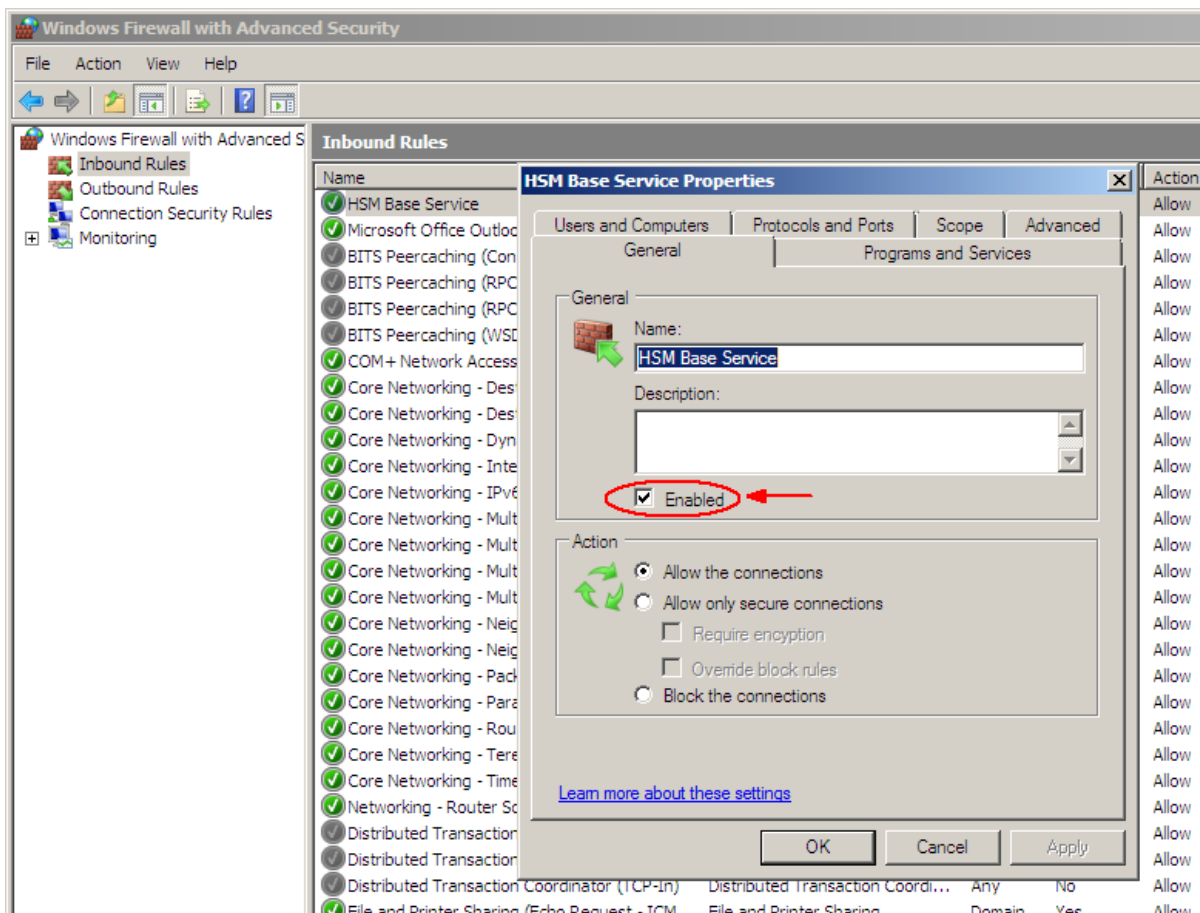


4. Select **Allow the connection** and click **Next**. Then click **Next** again.

5. On the next page name it e.g. **HSM Base Service** and click **Finish**.



6. Open the **Properties** of the new created Inbound Rule and on the **General** tab click **Enable**. Then click **OK**.



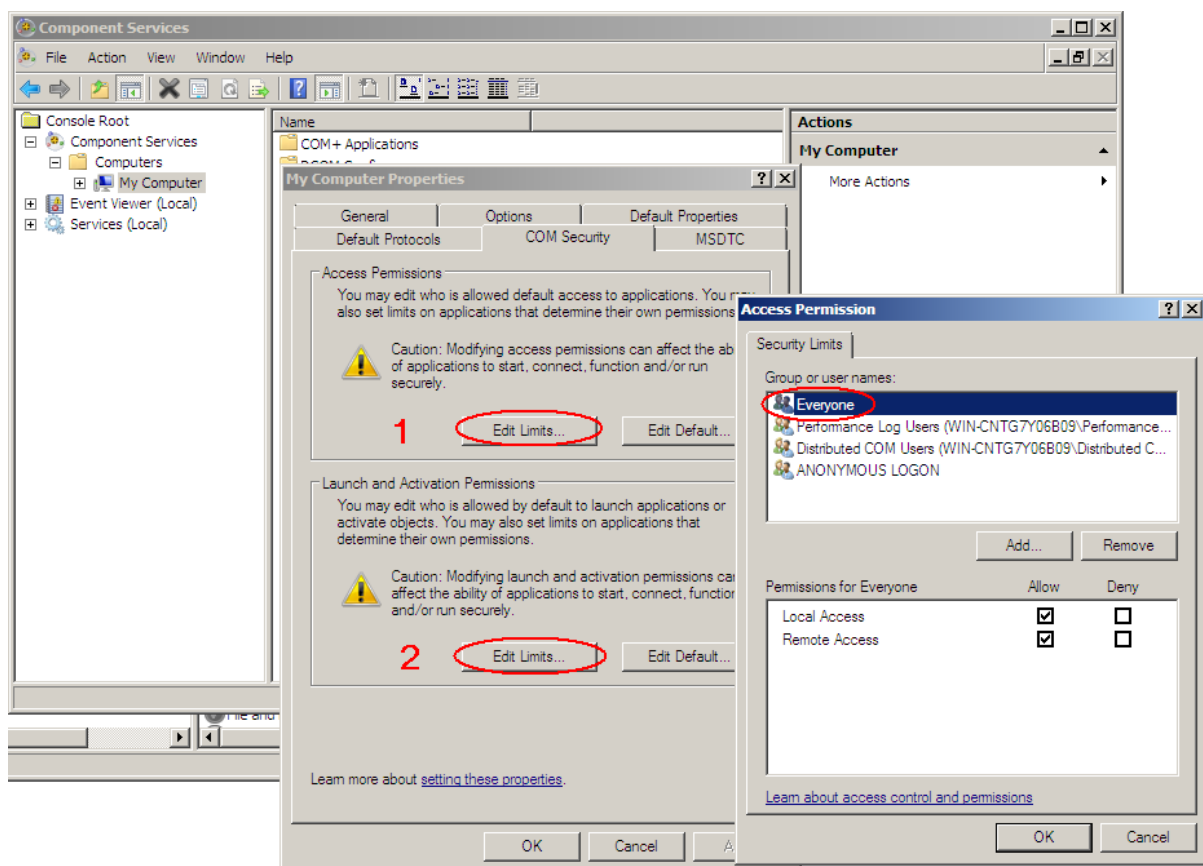


7. Now allow Remote Access and Remote Activation for Everyone in DCOMs. To do so, open **Component Services** (e.g. unfold the tree down to **Component Services \ Computers \ My Computer**). Open **My Computer Properties**. On the **COM Security** tab:

- In the **Access Permissions** section click **Edit Limits**. In the pop-up dialog make sure to select **Remote Access** for **Everyone**. Finish by clicking **OK**.

then

- In the **Launch and Activation Permission** section click **Edit Limits**. In the pop-up dialog make sure to select **Remote Activation** for **Everyone**. Finish by clicking **OK**.



8. Finally, you can test the connection with HSM tester from the Archive Manager Server.

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## About Us

Quest creates software solutions that make the benefits of new technology real in an increasingly complex IT landscape. From database and systems management, to Active Directory and Office 365 management, and cyber security resilience, Quest helps customers solve their next IT challenge now. Around the globe, more than 130,000 companies and 95% of the Fortune 500 count on Quest to deliver proactive management and monitoring for the next enterprise initiative, find the next solution for complex Microsoft challenges and stay ahead of the next threat. Quest Software. Where next meets now. For more information, visit [www.quest.com](http://www.quest.com).

## Contacting Quest

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## Technical Support Resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal activates you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product