

Metalogix[®] Archive Manager for Files 8.3

Auditing 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.

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Introduction

Auditing server – installed as a feature of Archive Manager for Exchange / Files – allows administrator to log all actions made in the Enterprise Manager console.

In case of Archive Manager for Exchange it logs also user actions in the email archive, i.e. administrator has an overview of user actions as archiving, retrieving, restoring and even performing fulltext searches (in Outlook and ArchiveWeb).

This manual describes step-by-step all actions you have to take to set up the Auditing correctly. The steps are as follows:

1. If installed with a light setup (not a package), it is necessary to manually create a separate database for Auditing.

NOTE: Archive Manager installation package creates the database automatically.

- 2. Install the Auditing component.
- 3. Configure Auditing in the Configuration tool.
- 4. Enable auditing in the Enterprise Manager. Ensure that the computer name and port, where the auditing service can be found, are correct.
- 5. Specify Audit users.
- 6. For version 4.2 and higher check the Auditing service configuration file

<Common Files>\PAM\Services\PAMAuditing\PAMAuditingSv.exe.config

Ensure that the service is using secure channels:

- 7. Start the Auditing service if not running. If you have made changes to its configuration in the previous step, you will have to restart it.
- 8. In case of Archive Manager for Exchange: Ensure that the ExchangePamWS has anonymous access turned off and Windows integrated authentication turned on.

The above listed points are describe in detail further in this manual.

Requirements

In case that Auditing is installed with the light Archive Manager for Exchange/Files setup (and NOT with the installation package), a separate database for Auditing must be available before installation of the Auditing feature. Supported databases:

- o SQL Server 2012 or higher
- o Oracle 12c or higher

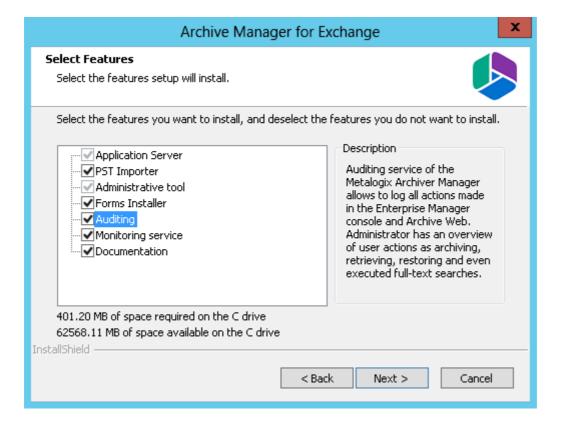
The database will be configured after the installation using the Configuration tool (as described later).

At the package installation, Auditing database is created automatically.

Installation

Auditing feature is installed when you select Auditing during the installation of Archive Manager for Exchange. In case of Files Archive Manager for Files Auditing feature is installed automatically.

Auditing can be installed on the Archive Manager server or on a separate machine.



Configuration

Auditing is configured in these steps:

- 1. Database and log targets configuration (in Configuration tool)
- 2. Enabling auditing (in Enterprise Manager)
- 3. Specifying audit users
- 4. Auditing service configuration (version 4.2 and higher)
- 5. Starting the auditing service
- 6. Configuring Exchange PamWS (only for Archive Manager for Exchange)

Database and Log Targets Configuration

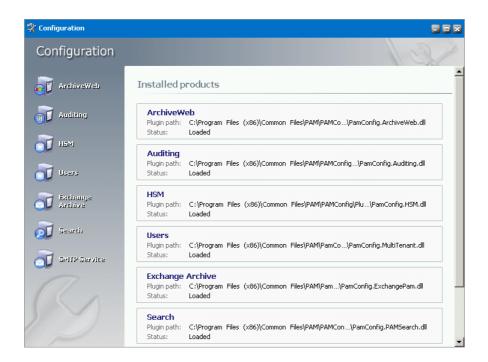
If the light setup was used at the installation, the auditing database has to be configured after installation in the **Configuration** tool.

NOTE: If the installation package was used, the database configuration is done automatically. You can use the Configuration tool to specify additional log targets (see the section "Log targets"). If you do not need additional log targets, proceed to the "Enabling auditing" section.

To open the **Configuration** tool, click **C:\Program Files (x86)\ Common Files \ PAM \ PAMConfig \ PAMConfig.exe**. The database **Configuration** tool pops-up. This tool administers the database(s) which your Archive Manager software uses to keep meta-data in.

In this manual we use auditDB (with the user srv_exchange) as an auditing database.

NOTE: The **Configuration** tool can contain several tabs for other databases used by Archive Manager products. However, you need to configure just the Auditing database.



You will notice that each tab of the tool has 2 subsections - the *Configuration* section and the *Run Scripts* section. Always start with the *Configuration* subsection, since you will first need to set the connection parameters in order to run the sql scripts.

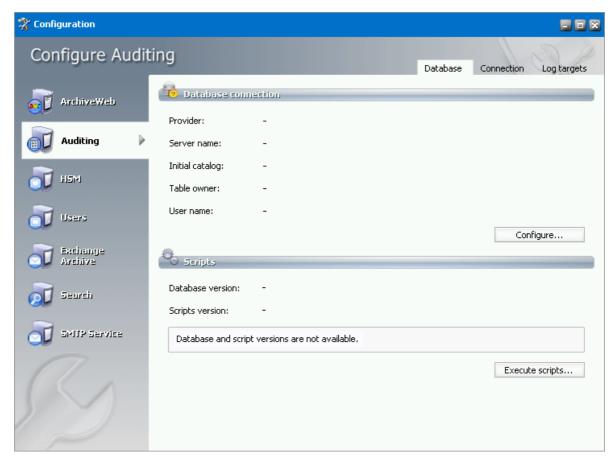
IMPORTANT NOTE: Once configured, you **must NOT change the following values in the Configuration tool** on any of the tabs:

- Initial Catalog: this is the default Database where the system is writing and reading from.
 This name should never be changed, unless you do not specifically restore all the prior archived data back in Exchange and decide to start all over with a fresh new database for the product. If by mistake another database is used the old archived data is no longer reachable.
- Table Owner: this is the default table owner used by the product. This SQL Table owner must be always the same, even if you move the SQL databases from one SQL server to another. If another SQL Table Owner name is created and used for the archiving product all the tables will be re-created as duplicate and the system will write in the new table set. As an end-effect the old archived data will not be reachable anymore. For SQL the Table Owner is the SCHEMA NAME of the database.
- **Server Name**: this is the name of the SQL server where the databases used by the Metalogix product are hosted. It is only allowed to change this name if the database(s) the Metalogix product uses are moved from one SQL server to another

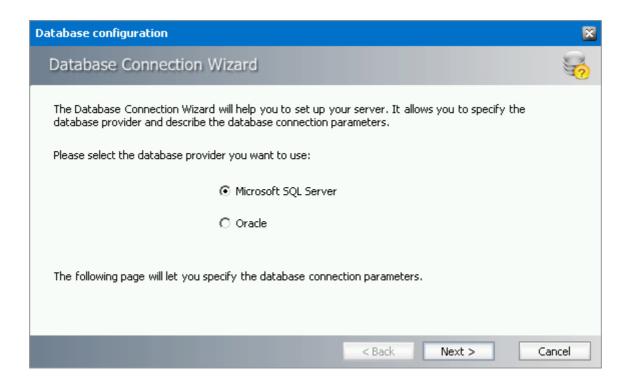
In case of an ORACLE database, do NOT change **ORACLE NET name** and **Schema**.

To configure the Auditing database:

1. On the database **Configuration** tool switch to the **Auditing** tab and then click **Configure**.



2. If you have an MS SQL server as a database provider, select the respective radio button and click **Next**. If you are using an Oracle database choose the other radio button and click **Next**.



- 3. In the next window you have to fill in the text fields as follows:
- If you have selected MICROSOFT SQL SERVER:

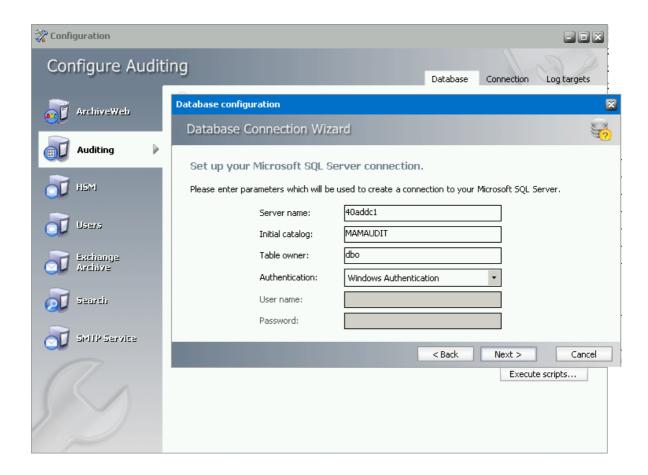
Server name - the name of the SQL server

Initial catalog - the name of the Auditing database (e.g. MAMAUDIT).

Table owner - the name of the SQL Login that is a Table Owner (or the name of the SQL Schema), e.g. *dbo*.

Authentication – authentication type used on your SQL server; Windows Authentication is default

User name & Password - database login user (the one you are using as a table owner) for SQL Server authentication type



IMPORTANT NOTE: When updating Archive Manager from one version to another you **must NOT** change the following values in the Configuration tool on any of the tabs:

- Server Name
- Initial Catalog
- Table Owner

In case of an ORACLE database, do NOT change **ORACLE NET name** and **Schema**.

• If you have selected **ORACLE**:

ORACLE NET Name - ORACLE NET name, TNS name

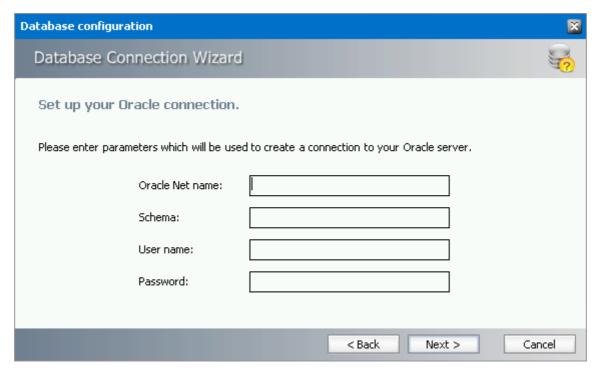
Schema - the name of the schema where Auditing tables will be created

User Name - log-on user for the Auditing database (with read and write rights to the tables)

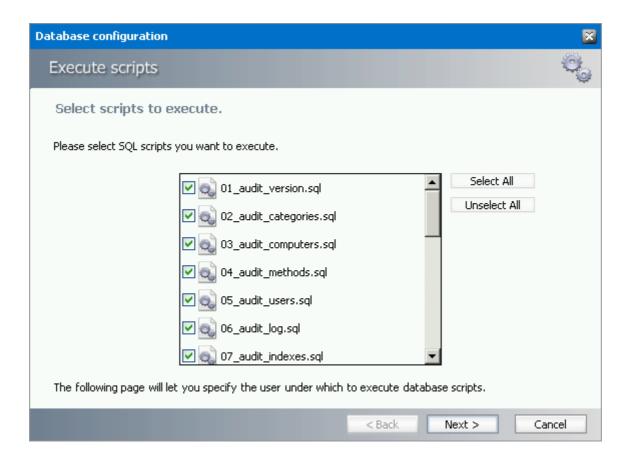
Password - log-on user's password

When you have finished, click Next. Then Finish.

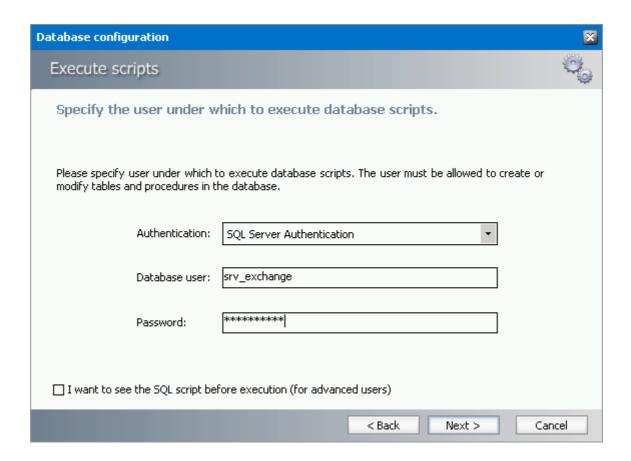
Configuration



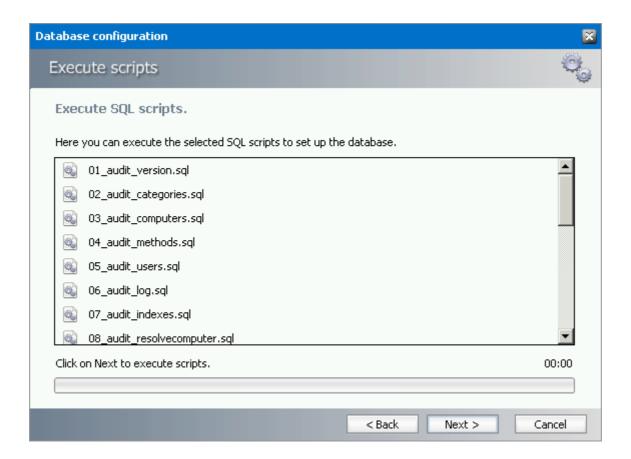
4. Back on the **Auditing** tab run the sql scripts by clicking **Run Scripts**. The list of the scripts will appear. Click **Next**.



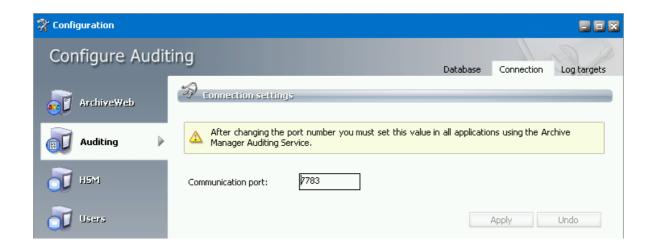
5. In case of SQL Authentication, click **Next** once more to accept the database login user and its password.



6. Click **Next** to run the scripts.

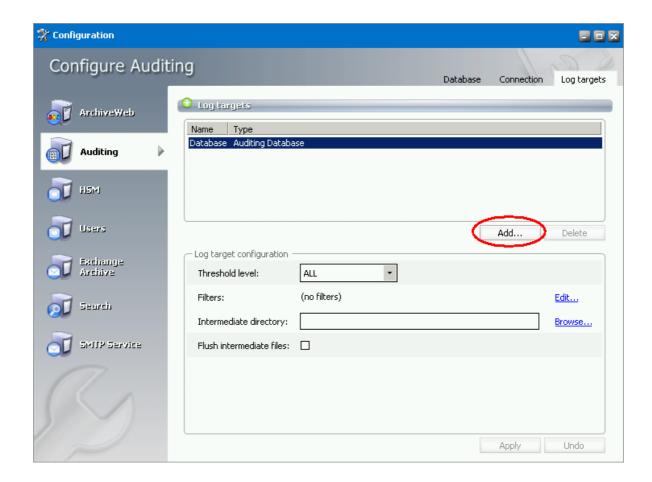


7. On the **Connection** tab it is possible to change the connection port for auditing. However, changing the port is not recommended as this value has to be then rewritten in all applications using the MAM Auditing Service.



8. In the **Log targets** tab you can configure multiple types of log targets. The default and obligatory logging target is the log database. Other targets are optional, depending on administrator's needs.

Multiple log targets can be defined; their usage can be conditioned. Logging events of different severity can be logged to different targets or entries containing a specific string can be omitted (see further).



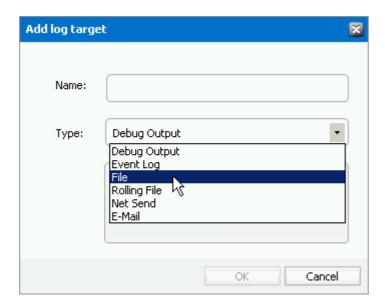
The target selected in the *Log targets* list can be configured in the lower part of the window. Click **Add** button to select a new log target. (Next section deals with log target configuration in detail.)

Log targets

As mentioned above, log database is default and mandatory log target. Any additional log targets are configured in the Configuration tool (*C:\Program Files \ Common Files \ PAM \ PAMConfig \ PAMConfig.exe*). Click **Auditing / Log targets**. Click **Add** (picture above) to define additional log targets:

• **Debug Output** - writes log entries into the debug output; it can be used only for debugging purposes, since it does not keep the entries

- **Event log** writes log entries into the system event log; it is recommended to use this target for critical errors and events only
- File writes log entries into the specified file
- Rolling File Writes log entries into files and rolls log files based on size or date or both
- **Net Send** sends log entries as network messages; it can be used for notification purposes in case of critical errors
- **Email** sends log entries as e-mails; it can be used for notification purposes in case of critical errors



In the pop-up window enter the name and select the type of the log target. After clicking **OK**, the log target is added in the *Log targets* list view. You can configure it in the *Log target configuration* section. For each log target you can define:

- Threshold level,
- Filters
- Layout (not applicable for database)

Additionaly, every log target has its specific properties as described further.

Threshold Level

Threshold level specifies the threshold level for the selected log target. All logging events with lower level than the threshold level are ignored.

NOTE: If "Off" is selected, nothing will be logged for the selected target.

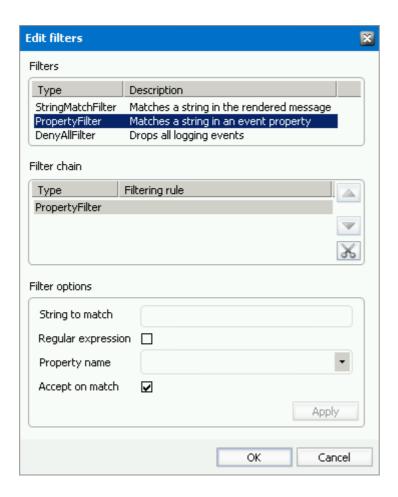
Filters

User can define a set of filters for each logging target. Filters form a chain that the logging event has to pass through. Any filter along the way can accept the event and stop processing, deny the event and stop processing, or allow the event on to the next filter. If the event gets to the end of the filter chain without being denied it is implicitly accepted and will be logged.

The available filter types are:

- > StringMatchFilter matches a string (or regular expression) in the rendered message
- ➤ PropertyMatchFilter matches a string (or regular expression) in the value for a specific event property
- ➤ DenyAllFilter this filter drops all logging events

To define a filter for a log target, select the log target in the **Configuration** tool list view. In the log target configuration displayed below, in the *Filters* section click **Edit**. The **Edit filters** dialog pops-up (see the picture below). Double-click the desired filter type. In the filters options specify filter settings. Finally click **Apply**.



Example:

If you want to allow through only messages that have a specific substring (e.g. 'database') then you need to specify the following filters:

- 1. StringMatchFilter, String to match: 'database', Accept on match: true
- 2. DenyAllFilter

If you do not want to log events having substring 'debug', you need to specify the following filter:

1. StringMatchFilter, String to match: 'debug', Accept on match: false

Layout

User can define the layout of a log entry (line) for log targets, except of the Auditing Database. The layout is the sequence of property values separated by arbitrary characters. The available properties are:

- o *Product* product generating the logging event
- o Category category of the logging event
- *Level* level of the logging event
- o Message application supplied message associated with the logging event
- o Method method name where the logging request was issued
- o Data data associated with the logging event
- o Computer name of the computer where the logging request was issued
- o *User* name of the user generating the logging request
- o Date date of the logging event
- o Newline platform dependent line separator character or characters

Specific log Target Properties

Auditing database	
Intermediate directory	For minimizing the logging overhead, this log target operates in asynchronous mode, i.e. the entries are not written into the database directly, but they are held in an internal list and continually written into the database. In case of crash or other unpredictable situations the entries from the memory are lost, so there is an option to persist them to a file. By specifying the intermediate directory the intermediate file creation is activated. For each logging event a file is created, holding the event data. These files are deleted after the log entry was written to the database.
Flush intermediate files	Determines whether to flush the intermediate files immediately. If this option is set to false, then the underlying stream can defer persisting the entry to a later time, so it is likely that not the whole log entry will be written to the disk when the application exits, thus becoming the entry unusable and lost.

Event log

Application name	Specifies the Application name. This appears in the event logs when logging.
Log name	Specifies the name of the log where log entries will be stored. This is the name of the log as it appears in the Event Viewer tree. The default value is to log into the Application log, this is where most applications write their events. However if you need a separate log for your application (or applications) then you should specify the log name.
Level mapping	Specifies the mapping between a logging level (severity) and an event log entry type.

File	
Log file	Specifies the path to the file that logging will be written to.
File creation	Indicates whether the file should be appended to or overwritten.
Locking model	Specifies the locking model used to handle locking of the file. When minimal locking is set, the system locks the file only for the minimal amount of time when logging each message. The exclusive locking locks the file from the start of logging to the end.
Immediate flush	Specifies whether to flush the log file immediately. Avoiding the flush operation at the end of each log writing results in a performance gain of 10 to 20 percent. However, there is safety tradeoff involved in skipping flushing. Indeed, when flushing is skipped, then it is likely that the last few log events will not be recorded on disk when the application exits.

Rolling File	
Log file	Specifies the path to the file that logging will be written to.
Backup file count	Specifies the maximum number of backup files that are kept before the oldest is erased
Rolling style	 Specifies the rolling style; the possible values are the following: Once - roll files once per program run Size - roll files based only on the size of the file Date - roll files based only on the date Composite - roll files based on both the size and date of the file

Roll log files by size	Specifies the maximum size in bytes that the output file is allowed to reach before being rolled over to backup files.
Roll log files every	Specifies the interval when a log file is being rolled over to backup files.
File creation	Indicates whether the file should be appended to or overwritten.
Locking model	Specifies the locking model used to handle locking of the file. When minimal locking is set, the system locks the file only for the minimal amount of time when logging each message. The exclusive locking locks the file from the start of logging to the end.
Immediate flush	Specifies whether to flush the log file immediately. Avoiding the flush operation at the end of each log writing results in a performance gain of 10 to 20 percent. However, there is safety tradeoff involved in skipping flushing. Indeed, when flushing is skipped, then it is likely that the last few log events will not be recorded on disk when the application exits.

Net Send	
Server	Specifies the DNS or NetBIOS name of the remote server on which the Net Send to run.
Recipient	Specifies the message alias to which the message should be sent.

Email	
То	Specifies the e-mail address of the message recipient by semicolon- separated list of e-mail addresses.
From	Specifies the e-mail address of the sender.
Subject	Specifies the subject line of the e-mail message.
Smtp host	Specifies the name of the SMTP relay mail server to use to send the e-mail messages.
Buffer size	Specifies the size of the cyclic buffer used to hold the logging events. When the specified buffer size is reached, oldest events are deleted as new events are added to the buffer. The buffer is used to keep the

logging context; when a message is sent, the whole content of the buffer is included.

If the buffer size is set to a value less than or equal to 1 then no buffering will occur and the messages are sent immediately.

Enable auditing

As a next step, Auditing has to be enabled in the Enterprise Manager.

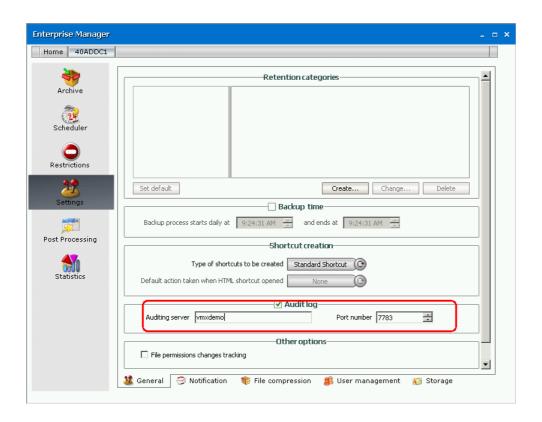
In the case of Archive Manager for Exchange Enterprise Manager:

 open Tools / Options / Server settings / Auditing. Check Enable Auditing check box. In the Server Name enter the name of the machine where the Auditing feature is installed and specify the Server Port. Click Apply.



In the case of Archive Manager for Files Enterprise Manager:

- On the **Settings** tab check **Audit** log and enter the name of the machine where Auditing is installed and specify the port; it is 7783 by default

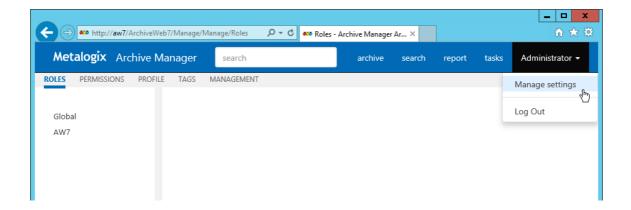


Specifying Audit Users

As the default, only the super-user has auditing rights, i.e. only the super-user can browse the auditing logs in ArchiveWeb.

If you want other users to have access to auditing logs in ArchiveWeb, they have to be granted specific auditing roles:

- 1. Log on to ArchiveWeb with super-user or other powerful user.
- 2. Click the logged on user name in the right upper corner. From the dropdown menu select **Manage settings**. Then click **Roles** on the grey sub-bar

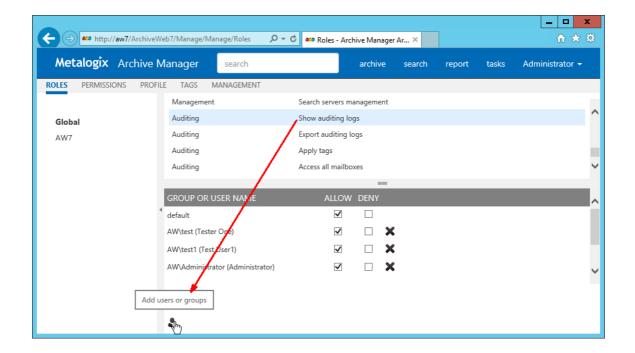


3. In the left pane select the server for which the roles should apply. Or select **Global** option. ArchiveWeb roles appear in the main pane.

List of roles is split into sections — Exchange Archive features are listed under **Exchange roles**, search features under **Search roles** etc. The **Auditing** roles are listed at the end.

Select the **Show auditing logs** role. All users with this role are displayed under the list. In case the desired user is not visible, click the *Add users and groups* icon () to add it to the list. Then click *Allow* check mark.

NOTE: For more information on roles management see the ArchiveWeb manual.



Auditing service configuration

Finally you need to make sure that the Auditing service is correctly configured. As default it can be found under

<Common Files>\PAM\Services\PAMAuditing\PAMAuditingSv.exe.config

Ensure that the service is using secure channels:

```
<channels>
<channel ref="tcp" name="PamAuditing" port="7783" secure="true" />
</channels>
```

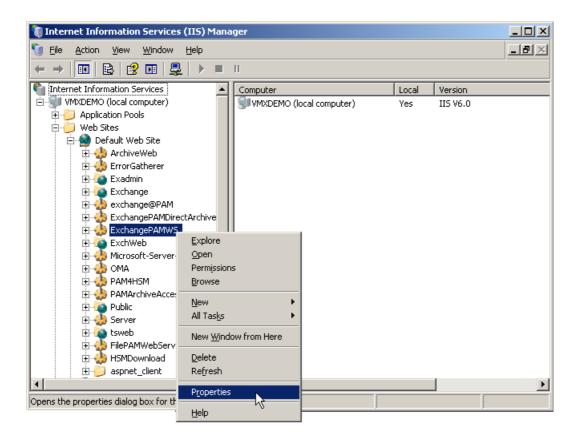
Starting the Auditing service

Open Services and start the Auditing service (MAM Auditing) if it is not running. In case you have made changes to its configuration in the previous step, you will have to restart it.

Configuring ExchangePamWS

In the case of Archive Manager for Exchange: Ensure that the ExchangePamWS has anonymous access turned off and Windows integrated authentication turned on on the Archive Manager Server. To do so:

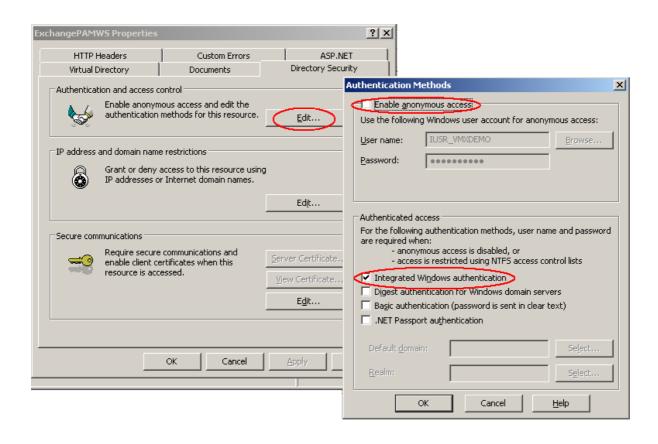
- 1. Open Start / All programs / Administrative tools / IIS Manager
- 2. In the IIS Manager expand the tree down to <ComputerName> \ Web Sites \ Default Web Site. Right-click the ExchangePamWS and from the context menu choose Properties.



For IIS 8

Locate the ExchangePamWS and in the main pain double-click Authentication. Then right-click Anonymous Authentication in the main pane and select Disable. For Windows Authentication select Enable. IIS 8 configuration is then finished.

3. In the **Directory Security** tab, **Authentication and access control** click **Edi**t. In the pop-up window make sure that the *Integrated Windows authentication* is checked and *Enable anonymous access* is NOT checked.

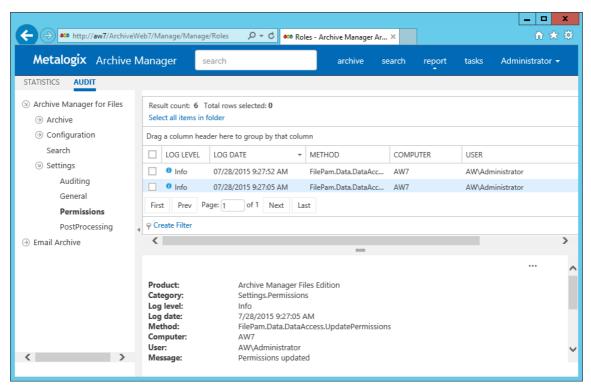


Auditing in ArchiveWeb

The Auditing tab is accessible in ArchiveWeb if Auditing is configured properly. Auditing feature allows administrator (or other users defined in web config) to log defined user actions in the email archive, i.e. the administrator has an overview of archived / restored / retrieved emails and performed fulltext searches. Even all actions made in Enterprise Manager console (Exchange / Files) are logged.

To view the logs, from the main pane click **Report**, then **Audit** from the grey sub-bar. Then unfold the **Email Archive** node to access the Archive Manager for Exchange logs or **Archive Manager for Files** node (or "Archive Manager Files Edition" node - both may be present in case older version has been upgraded) to access the Archive Manager for Files logs. Then you can browse through different types of logs – archive actions (Archive node), retrieve actions (Retrieve node) etc.

NOTE: Not all **Auditing** tab functions may be available for the logged-on user. The functions must be allowed for the user under **<LoggedOnUser>/ Manage Settings/ Roles** and **Permissions** sections. For instance, user sees by default only its own search result logs displayed under **Email Archive/ Search.** To make all users' search logs available for the user, s/he must have "Access all mailboxes" permission allowed for Auditing (under **<LoggedOnUser>/ Manage Settings/ Roles**).



NOTE: [OFFLINE] text next to the file server in the left tree-view indicates that the given server has been decommissioned in your environment and is accessible only via ArchiveWeb. This access must be configured under **Manage settings/Profile/File Archive Servers** section.

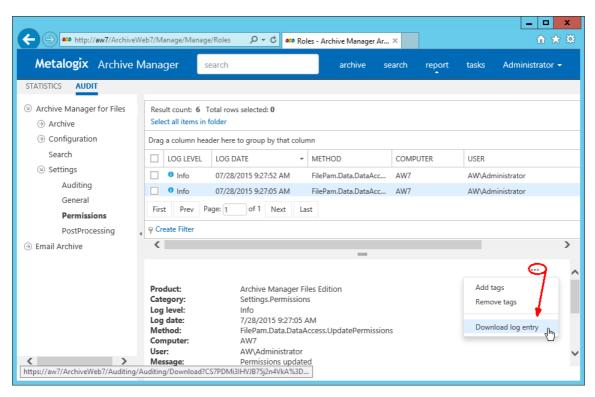
The log entries of the selected action are displayed in the main pane. Data of the log entry selected in the main pane are displayed below the list view (see the screenshot above).

List view functions are the same as in other ArchiveWeb lists:

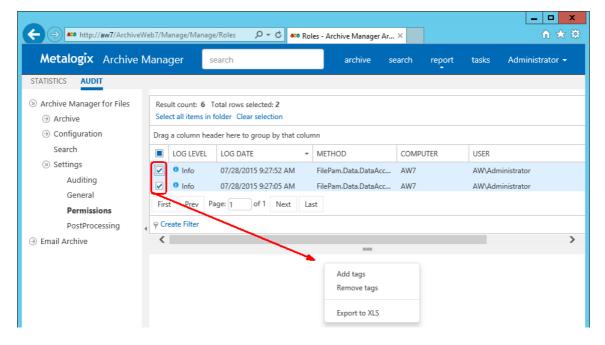
- > Change the column sorting order by selecting the given column header and clicking its down/up arrow on the right (in case the arrow is not visible adjust the width of the column by dragging the line)
- For Group table data by any column. To do so, drag the column header to the bar right above the table. Generated groups can be expanded by clicking the arrows next to them. As usual, the sorting order can be changed by clicking the little arrow in the dragged column header.
- > Create filters (as described in "Filter Builder" section of ArchiveWeb manual).

Any audit entry can be downloaded or tags can be added or removed from it. All tasks are available through the **More actions** menu. Click the **More actions** menu button located on the bottom right just below the list view. Then you can e.g:

- Add tags or Remove tags: these options allow you to add or remove tags from selected items (for more information on tags see the "Tagged items tab" section)
- Export results to ZIP (only for ArchiveWeb/Archive Manager for Exchange/Search or ArchiveWeb/Archive Manager for Files/Search entries); this option will export search result items with summary to Excel file and allow to download the created ZIP to user's local machine.
 - NOTE: This function is only available if the user has "Export results to ZIP" role allowed for Audit (under <LoggedOnUser>/ Manage Settings/ Roles).
- Export to XLS: this option will export the selected items to XLS file on the user's local machine and provide a download link to the same file.
 - NOTE: When downloading large amount of items it is reasonable to split the data in more XLS files. To do this value for the key "ItemsPerXLS" needs to be changed in ArchiveWeb's web.config file. The default value is "500000" and represents number of rows for single XLS file during the export. In order to set correct value for the key please refer to Excel limits on the page https://support.office.com/en-us/article/excel-specifications-and-limits-1672b34d-7043-467e-8e27-269d656771c3.
- **Download log entry**: this option will download single log entry in log file format on user local machine.



When two or more items be checked, the **More actions** menu appears automatically under the list view (see the screenshot below).



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- 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