

Quest[®] Change Auditor for Active Directory[®] Queries 7.3

User 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, NOTE, TIP, MOBILE, or VIDEO: An information icon indicates supporting information.

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Contents

Change Auditor for Active Directory Queries Overview4
Introduction
Deployment requirements
Client components/features
Configure AD Query Auditing
Introduction
AD Query Auditing page
AD Query Auditing wizard9
AD Query settings
Active Directory Query Searches/Reports12
Introduction
Run AD Query reports
Create custom AD Query search
AD Query Event Details16
About us
Our brand, our vision. Together
Contacting Quest
Technical support resources

Change Auditor for Active Directory Queries Overview

- Introduction
- · Deployment requirements
- · Client components/features

Introduction

Many applications use Active Directory as an LDAP directory to provide user credentials, group membership information, and other application data. During a directory migration or restructuring project, such as a corporate acquisition, it is important to understand the ways that applications use the directory *before* migrating the directory structure, to avoid unnecessary application downtime. Obtaining this information from Windows audit logs is extremely difficult, as it requires setting SACLs and aggregating security audit logs from all domain controllers in the environment.

Change Auditor monitors directory access across all domain controllers in the environment and aggregates that information in a central database identifying LDAP-enabled applications and how they use Active Directory. The LDAP access data gathered by Change Auditor can then be used during Active Directory forest migration and restructuring projects.

NOTE: Active Directory query auditing is only available if you have licensed Change Auditor for Active Directory Queries. If you do not have a valid license you can use the features, however, associated events are not captured. To verify that it is licensed, right-click the coordinator icon in the system tray and select **Licensing.**

This guide has been prepared to assist you in becoming familiar with Change Auditor for Active Directory Queries. It is intended for network administrators, consultants, analysts, and any other IT professionals using the product.

• For information on the core functionality available in Change Auditor regardless of the product license that has been applied, see the Change Auditor User Guide and the Change Auditor Installation Guide.

Deployment requirements

For a successful deployment, ensure that your environment meets the minimum system requirements. For information on system requirements, see the Change Auditor Release Notes. For details on installing Change Auditor, see the Change Auditor Installation Guide.

Client components/features

The following table lists the client components and features that require a valid Change Auditor for Active Directory Queries license. The product will not prevent you from using these features; however, associated events will not be captured unless the proper license is applied.

NOTE: To hide unlicensed Change Auditor features from the Administration Tasks tab (including unavailable audit events throughout the client), use the **Action | Hide Unlicensed Components** menu command. Note this command is only available when the Administration Tasks tab is the active page.

Table 1. Change Auditor for Active Directory Queries client components/features

Client page	Feature
Administration Tasks tab	Agent Configuration page:
	 Configuration Setup Dialog - AD Query Events settings
	 Discard query results less than nn records
	 Discard queries taking less than nn milliseconds
	 Discard duplicate queries occurring within nn minutes
	 AD Query auditing enabled
	Audit Task list:
	AD Query
	NOTE: See Configure AD Query Auditing for information on using these settings for Active Directory query auditing.
Event Details pane	What details:
	• Type
	• Scope
	Results
	SSL/TLS
	Kerberos
	Simple Bind
	• Port
	 Occurrences
	• Since
	Elapsed
	Filter
	Attributes
	NOTE: See the AD Query Event Details appendix for a description of these fields.
Events	Facilities:
	AD Query
Search Properties	What tab:
	Subsystem AD Query
	NOTE: See Active Directory Query Searches/Reports for information on using the What tab to create custom Active Directory query search queries.
Searches page	Built-in Reports:
	 All reports that include the event in the AD Query facility.

Table 1. Change Auditor for Active Directory Queries client components/features

Client page	Feature
Advanced tab/Search Results	Columns:
page	LDAP Attributes
	LDAP Elapsed
	LDAP Filter
	LDAP Occurrences
	LDAP Results
	LDAP Scope
	LDAP Since
	LDAP Type
Alert Body Configuration dialog - Event Details tab	Variables (email tags):
	LDAP_ATTRIBUTES
	LDAP_ELAPSED
	LDAP_FILTER
	LDAP_OCCURRENCES
	LDAP_RESULTS
	LDAP_SCOPE
	LDAP_SINCE
	• LDAP_TYPE

NOTE: See the *Change Auditor User Guide* for a description of these email tags and how to configure alert email notifications.

Configure AD Query Auditing

- Introduction
- AD Query Auditing page
- AD Query Auditing wizard
- AD Query settings

Introduction

Because the overhead of recording each Active Directory query read operation is likely to be high, you can optimize the process by summarizing similar operations from the same client, and only record the summary periodically. Quest highly recommends that you perform the following steps to optimize the Active Directory query auditing/reporting process to reduce the number of events being generated:

- Use the AD Query Auditing page to specify the containers to include and exclude from Active Directory query auditing.
- Use the AD Query settings to optimize the auditing process and define the interval to be used for recording Active Directory query operations.

This section provides instructions for specifying the containers to include and exclude from Active Directory query auditing, as well as a description of the AD Auditing page and AD Query Auditing wizard. It also explains the AD Query settings available on the Configuration Setup dialog which you can use to summarize Active Directory query activity and reduce the number of events generated. For a more detailed description of the dialogs mentioned in this chapter, refer to the online help.

AD Query Auditing page

The AD Query Auditing page displays when you select **AD Query** from the Auditing task list in the navigation pane of the Administration Tasks tab. From this page you can specify the Active Directory containers to include and exclude in Active Directory query auditing.

NOTE: Authorization to use the administration tasks on the Administrations Tasks tab is defined using the Application User Interface page under the Configuration task list. If you are denied access to the tasks on this page, refer to the Change Auditor User Guide for more information on how to gain access.

NOTE:

- · By default, all containers are included
- Due to the high volume of Active Directory queries performed against the Schema, RootDSE, and the Configurations containers, Quest recommends that you add these to the exclusion list.

Inclusion and exclusion rules

Only objects that are included (and not excluded) are monitored. For example:

• When an object is included and excluded at the same time, it will not be monitored.

- When an object is included and some of its child objects are excluded, only child objects that are not
 excluded will be monitored.
- When an object is excluded and some of its child objects are included, none of the child objects will be monitored.

AD Query Auditing page

The AD Query Auditing page contains an expandable view of Active Directory containers included and excluded from Active Directory query auditing.

Added containers display the following information:

Type

Displays the type of container.

Status

Indicates whether the container is temporarily included\excluded (enabled) or not included\excluded (disabled) from Active Directory query auditing.

Scope

Displays the scope of coverage:

- Object excludes this object only
- Subtree excludes this object and all child objects

Included Container

Displays the name of the container selected for inclusion.

Excluded Container

Displays the name of the container selected for exclusion.

To include a container to the AD Query audit list:

- 1 Open the Administration Tasks tab.
- 2 Click Auditing.
- 3 Select AD Query (under the Forest heading in the Auditing task list) to open the AD Query Auditing page.
- 4 Click Add to open the AD Query Auditing wizard.
- 5 Select the scope:
 - RootDSE select this to include the RootDSE object.
 - This Object and All Child Objects select this to specify the containers to include. (Selecting a container will also include any child objects.)
- 6 If the **This Object and All Child Objects** option is selected, use the Browse and Search pages to locate and select a directory object. Click **Add** to add the selected directory object to the inclusion list.

Repeat this step to add additional directory objects.

7 Click Finish to close the wizard and return to the AD Query Auditing page, where your selections will now be listed.

To exclude a container to the AD Query audit list:

- 1 Open the Administration Tasks tab.
- 2 Click Auditing.
- 3 Select **AD Query** (under the Forest heading in the Auditing task list) to open the AD Query Auditing page.

- 4 Click Add to open the AD Query Auditing wizard.
- 5 Select the scope:
 - RootDSE select this option to exclude the RootDSE object. (Selecting this container will not
 exclude child objects.)
 - This Object and All Child Objects select this option to specify the containers to exclude. (Selecting a container will also exclude any child objects.)
- 6 If the **This Object and All Child Objects** option is selected, use the Browse and Search pages to locate and select a directory object. Click **Add** to add the selected directory object to the exclusion list.
 - Repeat this step to add additional directory objects.
- 7 Click Finish to close the wizard and return to the AD Query Auditing page, where your selections will now be listed.

To disable the inclusion or exclusion of a container:

The disable feature allows you to temporarily stop including or excluding an individual container from Active Directory query auditing without having to remove it from the AD Query Auditing list.

- 1 On the AD Query Auditing page, use one of the following methods to disable the exclusion of a container:
 - Place your cursor in the Status cell for the container to be disabled, click the arrow control and select Disabled.
 - Right-click the container to be disabled and select **Disable**.

The entry in the **Status** column for the container will change to 'Disabled'.

2 To re-enable the exclusion or inclusion of the selected container, use the **Enable** option in either the **Status** cell or right-click menu.

To delete a container from the inclusion or exclusion list:

- 1 On the AD Query Auditing page, select the container to be deleted and click **Delete**.
- 2 Click Yes to confirm to deletion.

AD Query Auditing wizard

The AD Query Auditing wizard is displayed when you click **Add** on the AD Query Auditing page. This wizard enables you to locate and select Active Directory containers to include and exclude from Active Directory query auditing.

Only objects that are included and not excluded are monitored. For example:

- When an object is included and excluded at the same time, it will not be monitored.
- When an object is included and some of its child objects are excluded, only child objects that are not excluded will be monitored.
- When an object is excluded and some of its child objects are included, none of the child objects will be monitored.

The following table provides a description of the fields and controls in the AD Query Auditing wizard.

Table 2. AD Query Auditing wizard

Add Objects to include from AD Queries page

Table 2. AD Query Auditing wizard

RootDSE	Select this option to include the RootDSE container.
This Object and All Child Objects	Select this option to specify the containers to include. When this option is selected, use the Browse and Search page to locate and select a container.
Browse page	Displays a hierarchical view of the containers in your environment allowing you to locate and select the required containers. Once you have selected a container, click Add to move the entry to the list at the bottom of the page.
Search page	Use the controls at the top of the Search page to search your environment to locate the required containers. Once you have selected a container, click Add to move the entry to the list at the bottom of the page.
Options page	Use the Options page to modify the search options used to retrieve directory objects.
NOTE: For more information on using the Browse, Search or Options pages, refer to Directory Object Picker in the online help or Change Auditor User Guide.	
Included Containers List	The containers selected for inclusion for Active Directory query auditing are displayed in the list box located across the bottom of this page. Use the buttons located above this list box to add and remove containers.
	 Add - Select a container in the Browse or Search page and click Add to add it to the list.
	Remove - Select an entry in the list and then click Remove to remove it.

Add Objects to exclude from AD Queries page

RootDSE	Select this option to exclude the RootDSE container. NOTE: Selecting this option will NOT exclude any child objects.
This Object and All Child Objects	Select this option to specify the containers to exclude. When this option is selected, use the Browse and Search pages to locate and select a container.
Browse page	Displays a hierarchical view of the containers in your environment allowing you to locate and select the containers to exclude from Active Directory query auditing. Once you have selected a container, click Add to move the entry to the list at the bottom of the page.
Search page	Use the controls at the top of the Search page to search your environment to locate the containers to exclude from Active Directory query auditing. Once you have selected a container, click Add to move the entry to the list at the bottom of the page.
Options page	Use the Options page to modify the search options used to retrieve directory objects.

NOTE: For more information on using the Browse, Search or Options pages, refer to Directory Object Picker in the online help or Change Auditor User Guide.

Excluded Containers List

The containers selected for exclusion from Active Directory query auditing are displayed in the list box located across the bottom of this page. Use the buttons located above this list box to add and remove containers.

- Add Select a container in the Browse or Search page and click Add to add it to the list.
- Remove Select an entry in the list and then click e Remove to remove it

AD Query settings

From the Agent Configuration page on the Administration Tasks tab you can define how to optimize the Active Directory query auditing process, summarizing similar operations from the same client.

Use the AD Query tab at the top of the Configuration Setup dialog to define the settings for summarizing similar operations from the same client and only record the summary in the Active Directory query event:

Discard query results less than nn records

This setting instructs Change Auditor to only generate an event if an Active Directory query returns more or equal to the number of results specified.

The default value is 0; therefore Change Auditor will generate an event even if the Active Directory query returns no results.

Discard queries taking less than nn milliseconds

This setting instructs Change Auditor to only generate an event if the Active Directory query takes longer than or equal to the specified number of milliseconds.

The default value is 20 milliseconds.

Discard duplicate queries occurring within nn minutes

This setting defines how long Active Directory query events are to be 'held' to determine if duplicates have occurred before they are forwarded to the Change Auditor client.

The default is 15 minutes meaning Change Auditor will gather Active Directory query events and hold them in a queue to determine if any duplicate queries have been generated during the specified interval. Change Auditor will then forward the AD Query event to the client specifying how many occurrences of that query were performed during the 15 minute interval.

AD Query auditing enabled

This check box is selected by default which enables AD Query auditing. Clearing this check box disables all AD Query auditing on the agents using the agent configuration selected in the left pane, which is often times desired for busy agents.

To set the AD Query settings:

- 1 Open the Administration Tasks tab.
- 2 Click Configuration.
- 3 Select **Agent** in the Configuration task list to display the Agent Configuration page.
- 4 Click Configurations.
- 5 On the Configuration Setup dialog, select an agent configuration from the left pane.
- 6 Open the AD Query tab and set the Active Directory query event settings as defined above.
- 7 Once you have set these settings, click **OK** to save your selections, close the dialog and return to the Agent Configuration page.
- 8 On the Agent Configuration page, select the agents assigned to the selected agent configuration and click **Refresh Configuration** to ensure the agent are using the latest configuration.
 - NOTE: If you do not refresh the agent's configuration, the agent will automatically check for a new agent configuration based on the polling interval setting (located on the System Settings tab of the Configuration Setup dialog). The default is every 15 minutes.

Active Directory Query Searches/Reports

- Introduction
- Run AD Query reports
- · Create custom AD Query search

Introduction

You can search, report and alert on LDAP-enabled applications and how they use Active Directory. This section explains how to run the built-in AD Query reports and how to create a custom AD Query search using the What tab. For a description of the dialogs mentioned in this chapter refer to the online help.

Run AD Query reports

Running the **All AD Query Events** report will retrieve all the AD Query events captured for Active Directory[®] containers being audited.

To run the All AD Query Events report:

- 1 Launch the Change Auditor client and open the Searches tab.
- 2 In the explorer view (left pane), expand the Shared | Built-in | All Events folder.
- 3 Locate and double-click All AD Query Events in the right pane.
- 4 A new Search Results page appears displaying the AD Query events captured over the last seven days.

In addition to the **All AD Query Events** report, Change Auditor for Active Directory Queries ships with some additional Active Directory Query reports, which are located in the AD Query folder in the explorer view.

To run a more specific AD Query report:

- 1 Open the Searches tab.
- 2 In the explorer view, expand the Shared | Built-in | AD Query folder.
- 3 Locate and double-click one of the AD Query searches in the right-hand pane.
- 4 This will display a new Search Results page displaying the AD Query events that meet the search criteria defined in the selected search.
 - NOTE: By default, the AD Query reports display additional LDAP details (such as, LDAP Occurrences, LDAP Results, etc.) in the Search Results page.

Create custom AD Query search

The following scenario explains how to use the What tab to create custom AD guery searches.

- NOTE: If you wanted to, you can use the other search properties tabs to define additional criteria:
 - Who allows you to search for events generated by a specific user, computer or group
 - Where allows you to search for events captured by a specific agent or within a specific domain or site
 - · When allows you to search for events that occurred within a specific date/time range
 - Origin allows you to search for events that originated from a specific workstation or server

To search Active Directory containers for AD queries:

- 1 Open the Searches page.
- 2 In the explorer view, expand and select the folder where you want to save your search.
 - Selecting the **Private** folder will create a search that only you can run and view, whereas selecting the **Shared** folder will create a search which can be run and viewed by all Change Auditor users.
- 3 Click New.
- 4 On the Info tab, enter a name and description for the search.
- 5 Open the What tab, expand **Add** and select **Subsystem | AD Query**. This opens the Add Active Directory Container dialog.
- 6 On the Add Active Directory Container dialog, select one of the following options to define the scope of coverage:
 - All Active Directory Objects select to search all objects.
 - This Object select to search the selected objects only.
 - This Object and Child Objects Only select to search the selected object) and its direct child objects.
 - This Object and All Child Objects select to search the selected objects and all subordinate objects (in all levels).
 - Members of this group select this option to show changes made to users in a specified group.
 Nested groups are not supported.
 - NOTE: You cannot exclude selections or use the *Like wildcard option when the scope is specified as Members of this group.
- 7 When a scope other than **All Active Directory Objects** is selected, the directory object picker will be activated allowing you to select the objects to include in the search definition.
 - Use the Browse or Search page to search your environment to locate and select the Active Directory containers to include.
 - If required, use the Forest drop-down box to select in which forest the objects reside. Foreign agent forests may require foreign forests credentials which can be entered on the Credentials Required dialog.
 - Use the Options page to view or modify the search options to be used to retrieve directory objects.
- 8 In addition, you can optionally enter one or more AD query parameters to be included in the search definition:
 - Filter allows you to search for a filter string used in a query. This field uses the Like operator;
 therefore, you can enter a partial string of characters to have Change Auditor return any queries
 that use a filter string that contains the characters entered.

- Attributes allows you to search for attributes that are being queried. This field uses the Like
 operator; therefore, you can enter a partial string of characters to have Change Auditor return any
 queries that query attributes that contain the characters entered.
- Results >= allows you to search for queries that have returned a specific number of results. Enter
 (or use the arrow controls to specify) the number of results to be included in the search definition
 and Change Auditor will display the queries that have returned results equal to or greater than the
 number entered.
- Elapsed (ms) >= allows you to search for queries that take a certain amount of time to complete.
 Enter (or use the arrow controls to specify) the number of milliseconds to be included in the search definition and Change Auditor will display the queries that took the specified number of milliseconds or longer to run.
- Transports allows you to specify the type of transport protocols used to secure LDAP operation or LDAP queries. To include a specific transport, clear the All Transports check box.
 - All Transports select to include LDAP operation or LDAP queries regardless of the transport protocol used (Default)
 - SSL/TLS select to include LDAP operation or LDAP queries that are secured using SSL or TLS technology
 - Kerberos- select to include LDAP operation or LDAP queries that are signed using Kerberos-based encryption
 - Simple Bind select to include LDAP operation or LDAP queries that are secured using simple bind authentication (neither SSL\TLS or Kerberos used)
 - Port select to identify a specific port used for communication
 - NOTE: When you clear the All Transports check box and select both the SSL/TLS and Kerberos check boxes, only AD queries using both of these transport protocols will be included in the search results.
 - NOTE: For pre-5.5 LDAP Query events, this field is NULL in the database; therefore, 'All Transports' will be included regardless of this setting.

When you specify more than one AD query parameter, Change Auditor uses the 'OR' operator and will return AD Query events that meet any of the AD query parameters specified for the selected Active Directory container.

- 9 Once you have selected an Active Directory container (and any AD query parameters) to be included, click the **Add** button to add it to the Selection list at the bottom of the dialog.
- NOTE: Select the Exclude the Above Selection(s) check box if you want to search for changes to all Active Directory containers EXCEPT those listed in the 'what' list.
- NOTE: Select the **Runtime Prompt** check box on this dialog to prompt for an Active Directory container every time the search is run.
 - 10 Once you have selected the Active Directory container(s) to be included in the search, click the **OK** button to save your selection and close the dialog.
 - 11 Once you have defined the search criteria, you can either save the search definition or run the search.
 - To save the search definition without running it, click **Save**.
 - To save and run the search, click **Run**.
 - 12 When this search is run, Change Auditor will search for AD Query events based on the search criteria specified on the What tab and display the results in a new search results page.

To search for an object that already has an audited AD Query event in the database:

- 1 Open the Searches page.
- 2 In the explorer view, expand and select the folder where you want to save your search.

Selecting the **Private** folder will create a search that only you can run and view, whereas selecting the **Shared** folder will create a search which can be run and viewed by all Change Auditor users.

- 3 Click the New tool bar button at the top of the Searches page (or right-click a folder and select the New | New Search menu command).
- 4 On the Info tab, enter a name and description for the search.
- 5 Open the What tab, expand Add with Events and select Subsystem | AD Query.
- 6 On the Add Active Directory Container dialog, select an object from the list.

If required, use the Forest drop-down box to select in which forest the objects reside. Foreign agent forests may require foreign forests credentials which can be entered on the Credentials Required dialog.

- 7 Click the **Add** button to add it to the selection list at the bottom of the page.
- 8 Click **OK** to save your selection and close the dialog.
- 9 Once you have defined your search, you can either save the search definition or run the search.
 - To save the search definition without running it, click Save.
 - To save and run the search, click Run.

When this search runs, Change Auditor searches for the AD Query events based on the search criteria specified on the What tab and display the results in a new search results page.

AD Query Event Details

This section provides a description of the 'What' details that are provided on the Events Details pane for an AD Query event.

Table 3. AD Query monitored event

Event	Description	Severity
AD Query Performed	Created when an AD query is performed on a container.	Low

Table 4. Event Details pane: AD Query events

What Fields	Description
What	Shows the container that was queried. For example, on LDAP bind operations, this displays the name (DN) being bound to; on LDAP search operations, this displays the baseObject of the search; and on LDAP compare operations, this displays the entry (DN) of the object being compared.
Subsystem	Displays 'AD Query'
Action	Displays 'Other'
Facility	Displays 'AD Query'
Туре	Displays the type of query: • LDAP • GC
Scope	Displays the scope of coverage: This object only This object and all children Child objects only
Results	Displays the number of results returned as a result of the query.
Authentication	Indicates whether the LDAP operation is secured using the SSL (Secure Socket Layer)/ TLS (Transport Layer Security) technology, simple bind authentication, or signed using Kerberos-based encryption.
	NOTE: If changes are initiated within LSASS and not through the LDAP protocol itself, this field will not be captured.
Port	Indicates the port used for authentication.
Occurrences	Displays the number of times the query occurred during the specified interval.
Since	Displays the date and time when the query was first initiated.
Elapsed	Displays how long the query took to run. Zero (0) indicates that it took less than a millisecond to complete.
Kerberos	Indicates whether the LDAP operation or AD query is signed using Kerberos-based encryption.
	NOTE: If changes are initiated within LSASS and not through the LDAP protocol itself, this field will not be captured.

Table 4. Event Details pane: AD Query events

What Fields	Description
Filter	Displays the filter string used in the query.
Attributes	Displays the attributes that were queried.

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