



## **Auditing UML Models**

*Enterprise Architect is an intuitive, flexible and powerful UML analysis and design tool for building robust and maintainable software.*

*This booklet explains the Auditing feature of Enterprise Architect.*



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# Enterprise Architect - Auditing UML Models

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## **Managing Editor**

*Geoffrey Sparks*

## **Technical Editors**

*Bill Mioch*

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# Foreword

This user guide provides an introduction to the Auditing feature of Enterprise Architect.

## Auditing



Auditing is a project-level feature, available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions, that enables model administrators to record model changes in Enterprise Architect. By enabling this option, you can view information on changes such as:

- *Who* changed an element
- *How many* elements they changed
- *When* they changed the data
- *What* the previous values were, and
- *What type* of elements they changed.

Auditing does not record changes to RTF Templates, Model documents, Baselines or Profiles.

### Warning:

If your site runs separate editions of Enterprise Architect, when Auditing is turned on in a project any Desktop or Professional edition users are locked out of the project. To restore access, turn Auditing off in the project from a Corporate, Business and Software Engineering, Systems Engineering or Ultimate edition instance of Enterprise Architect.

## Auditing Quickstart

To quickly enable auditing and see it in action, see [Auditing Quickstart](#)<sup>[4]</sup>.

## Audit Settings

Once auditing is enabled within a project, you have a variety of options available for customizing what is recorded by the audit. See [Audit Settings](#)<sup>[5]</sup> for more information on the different settings available.

## The Audit View

To view what has been recorded by the audit, use the [Audit View](#)<sup>[8]</sup>, which provides an interface to everything recorded by auditing.

### Note:

If security is enabled, you must have **Audit View** permission to display data in the **Audit View**. (See *User Security in UML Models*.)

You can also obtain a snapshot of selected items in the model, using the Model View facility (see the *View Options* section of *Using Enterprise Architect - UML Modeling Tool*). In the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions of Enterprise Architect, this facility enables you to automatically generate this snapshot at intervals and, if there are changes in the items collected by the defined search, to trigger a notification to you of such changes. This enables you to monitor work flow and other events of concern to you (see *UML Model Management*).

## RTF Report

You can generate an RTF report that includes the audit history information for the selected element or package, by choosing the *basic + audit* RTF template. (See *Report Creation in UML Models*.)

## Audit History

Using Auditing, you can track changes to an element or connector over time. However, enabling Auditing also enables an [Audit History](#)<sup>[13]</sup> tab in the **Output** window, which summarizes all changes made to the selected

element or connector.

### Performance Issues

By enabling auditing on a project, you increase the time taken for most actions. For most modeling tasks, this increase is insignificant. However, there are some instances where the difference is more substantial. See [Performance Issues](#)<sup>[14]</sup> for more information.

## 1 Auditing Quickstart

To quickly enable auditing and see it in action, follow the instructions below.

### Enable Auditing

To enable Auditing:

1. Select the **View | Other Project Tools | Audit View** menu option to open the [Audit View](#) <sup>8</sup>.
2. Click on the **Audit Settings** button. The [Audit Settings](#) <sup>5</sup> dialog displays.
3. Select the **Enable Auditing** checkbox.
4. Click on the **OK** button to close the **Audit Settings** dialog.
5. Close the **Audit View** dialog.

### Make Changes

Change and save your project; for example:

- Add a new package
- Add a new Class
- Add a new connector
- Change the name of an element
- Delete an element.

### View Changes in the Audit View

Open the **Audit View** again (**View | Other Project Tools | Audit View**), and click on the **Refresh** (or **Load**) button to display a record of the changes you made.

## 2 Auditing Settings

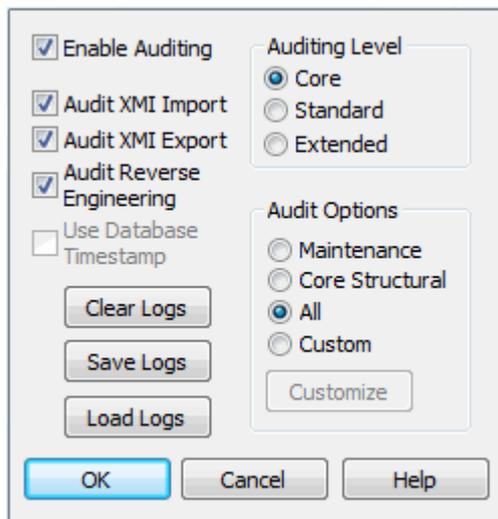
The **Audit Settings** dialog enables you to change what is recorded by the Auditing facility.

### Note:

If security is enabled, you must have **Audit View** permission to turn Auditing on, and **Audit Settings** permission to change Audit settings. (See *User Security in UML Models*.)

To open the **Audit Settings** dialog:

1. Select the **View | Other Project Tools | Audit View** menu option to open the **Audit View**.
2. Click on the **Audit Settings** button. The **Audit Settings** dialog displays.



The settings on this dialog are described in the following topics:

- [Audit Scope](#)<sup>[5]</sup>
- [Audit Logs](#)<sup>[6]</sup>
- [Auditing Level](#)<sup>[6]</sup>
- [Audit Options](#)<sup>[6]</sup>

### 2.1 Audit Scope

The **Audit Settings** dialog provides checkbox options for turning Auditing on, and for including or excluding areas of processing in Enterprise Architecture.

- **Enable Auditing** - select this checkbox to turn the Auditing facility on
- **Audit XMI Import** - select this checkbox to include XMI importing in the audit
- **Audit XMI Export** - select this checkbox to include XMI exporting in the audit

### Note:

As version control uses XML, these options must be selected to record changes from checking out packages.

- **Audit Reverse Engineering** - select this checkbox to include reverse engineering in the audit
- **Use Database Timestamp** - select this checkbox to use the database server's timestamp instead of each user's local timestamp; this improves security.

### Note:

The **Use Database Timestamp** option is not available for projects stored in .EAP Files.

## 2.2 Audit Logs

The **Audit Settings** dialog enables you to administer your audit records. As the number of records increases, the performance of the **Audit View** reduces. It is recommended that audit records that are not regularly required are saved to file, then cleared from the project. This helps ensure high performance.

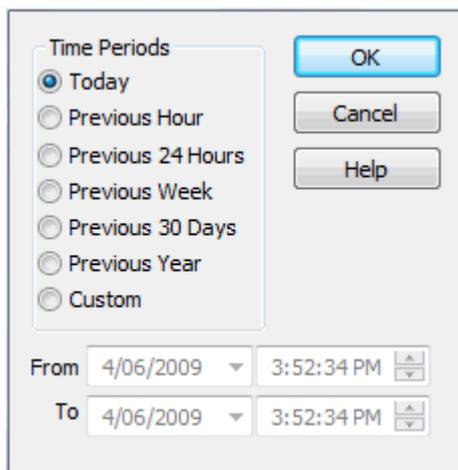
- **Clear Logs** - removes all log data from the current project; all data is permanently deleted. To keep the audit records outside the project, click on the **Save Logs** button to save the records before clearing them from the project
- **Save Logs** - saves a copy of the log items currently held in the database; these items remain in the database. To remove the items after saving the copy, click on the **Clear Logs** button
- **Load Logs** - enables you to load a previously saved set of logs back into the project. The file is not deleted by this operation. If duplicate logs exist in both the project and the file, these are skipped.

### Note:

Some of these functions can be accessed through the Automation Interface. For more information, see the *Repository* topic in *SDK for Enterprise Architect*.

If you save or clear the log items, Enterprise Architect prompts you to specify whether to save or clear the items covering a specific period of time.

- If you click on the **No** button, you save or clear all log items currently held in the database.
- If you click on the **Yes** button, the **Time Filter** dialog displays, on which you select a standard time period or define your own.



## 2.3 Auditing Level

The **Auditing Level** panel provides three options that determine what kind of model changes are recorded.

- **Core** - select this radio button to record changes to elements (including attributes and operations), packages, connectors and some model-level information
- **Standard** - select this radio button to record the same changes as the **Core** option, plus changes to diagrams
- **Extended** - select this radio button to record the same changes as the **Standard** option, plus changes to security.

## 2.4 Audit Options

The following elements are always audited:

- Packages
- Notes
- Boundary

- Text
- Diagrams (if on [Standard](#) level)
- Security (if on [Extended](#) level)

The audit options enable you to configure auditing to record changes to only certain types of elements.

- **Maintenance** - select this radio button to audit maintenance elements; that is:
  - Package
  - Requirement
  - Feature
  - Use Case
  - Actor
  - Note
  - Issue
  - Change
- **Core Structural** - select this radio button to audit maintenance elements plus some structural elements; that is:
  - Package
  - Class
  - Interface
  - Signal
  - Node
  - Component
  - Artifact
  - Part
  - Port
  - Device
- **All** - select this radio button to audit all elements
- **Custom** - select this radio button to audit element types that you specify.

If you select the **Custom** option, the **Customize** button is made available. Click on this button to display a list of element types, and select the checkbox against each element type to include in the audit (or click on the **Select All** button to select every element type). Click on the **OK** button to save the selection.

**Note:**

Connectors are audited when they are connected to an element that is included in the Audit Options.

### 3 The Audit View

The **Audit View** provides an interface to the information that has been recorded by auditing. Open the **Audit View** by clicking on the:

- **View | Other Project Tools | Audit View** menu option.

The **Audit View** is divided into three main areas:

- View controls
- Audit tree
- Record display.

The data in the Audit tree and Record display is determined by the view controls and [mode](#)<sup>[11]</sup> and, if [synchronizing](#)<sup>[11]</sup> with the **Project Browser**, by the package, diagram or element you have selected.

#### View Controls

The view controls provide a variety of settings for controlling auditing and the display of audit records.

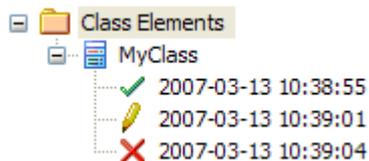


For information on these controls, see [Audit View Controls](#)<sup>[9]</sup>.

#### Audit Tree

The audit tree displays the logs that have been recorded by auditing. What is displayed in the tree is affected by the settings of the [View Controls](#)<sup>[9]</sup> section, such as:

- Sorting
- Filter (by time)
- Mode
- [Auditing settings](#)<sup>[5]</sup> (what was actually recorded).



In the audit tree:

- The green tick indicates a creation
- The yellow pencil indicates an edit
- The red cross indicates a deletion.

If you right-click on an element in the audit tree (such as *MyClass*) a context menu displays. This menu enables you to locate the selected element in:

- The **Project Browser**
- Any diagrams in which it exists.

#### Record Display

The record display is in two parts: the identity of the selected change, and the actual change made.

User	rchester(admin)
Time	2009-06-04 14:30:01
Details	Package.(Class Model)

Property	Original	Change
version	1.0	1.1
stereotype		agent
status	Proposed	Validated
phase	1.0	1.1
scope	Public	Protected

### Identity

The identity of a change consists of:

- The Windows username of the user that made the change

#### Note:

If security is enabled, the name is of the format: *WindowsUsername(SecurityUser)*.

- When the change was made
- The *path* of the change (for example, Class *Class1* - Attribute *Att1* - Attribute Constraint *Constraint*).

### Changes

The changes are displayed in a table format, showing the Property (or data item) name, its original value before the change and its value after the change.

If you double-click on an item in the list of changes (or right-click and select the **Show Differences** context menu option) the **Difference** dialog displays. This shows the specific changes that have been made, highlighting the edited, created or deleted characters.

Before Change	After Change
Proposed	Validated

## 3.1 Audit View Controls

The **Audit View** controls provide a variety of settings for controlling auditing and the display of audit records.

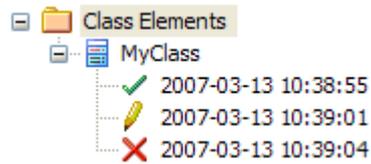


- The **Load** ([Advanced or Raw](#) modes) or **Refresh** ([Standard](#) mode) button reloads the Audit Tree, updated with any new audit results.
- The **Search** button enables you to search through log items for a particular area. Log Items can be searched by Name, Type or GUID. The items are loaded and filtered with the current **Sort By**, **Time Filter** and **Mode** settings. If you refresh the **Audit View**, you must run the search again.
- The **Audit Settings** button opens the [Audit Settings](#) dialog.

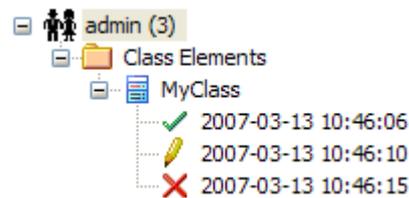
## Sort-by Panel

The **Sort By** panel enables you to select one of three display settings:

- **Type** - changes are grouped under element type (such as Class or Requirement), and then grouped under the changed element.



- **User** - changes are grouped under user name. The number of changes for each user is also displayed. Under each user name, changes are grouped as for the **Type** sort.

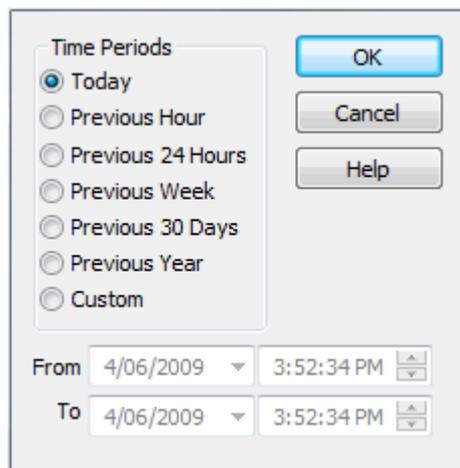


- **Deletions** - displays only deletions, shown in chronological order. If used with the **Search** button, this can be useful for recovering information on missing elements.



## Filter by

The **Filter By Date/Time** checkbox enables filtering by time periods, which you set using the **Time Filter** dialog; click on the **Filter Settings** button to display this dialog.



Select:

- **Today** - to display changes occurring today
- **Previous Hour** - to display changes occurring in the last 60 minutes

- **Previous 24 Hours** - to display changes occurring in the last 24 hours
- **Previous Week** - to display changes occurring in the last 7 days
- **Previous 30 Days** - to display changes occurring in the last 30 days
- **Previous Year** - to display changes occurring in the last 365 days
- **Custom** - to define your own time period, using the **From** and **To** fields.

**Note:**

The six pre-configured time periods automatically update when you click on the **Refresh** button. Custom periods are static and do not automatically update.

Changes that occur *outside* the filter period you select are not shown in the **Audit View**. Once you have set a filter period, it remains set if you deselect the **Filter By Date/Time** checkbox. The Custom time period, too, is retained so that you can re-use it or modify it later if required.

**Status Text**

Beneath the **Filter By Date/Time** checkbox, status text displays to show which [mode](#) has been selected, and which [time filter](#) is being applied to the data.

**Mode Button**

The **Mode** button enables you to change the mode of the **Audit View**. The button displays a drop-down menu from which you can select:

- **Standard** - to interact with the **Project Browser**
- **Advanced** - to load large sets of log items

**Note:**

When in **Advanced** mode, a special Audit Settings group can be displayed in the [Audit Tree](#). This records when Auditing has been enabled and disabled, along with who made the change, and the date and time of the change.

- **Raw** - to display all audit records without sorting (although any search and filtering you define still apply). Additional database information is displayed; this additional information might be unimportant.

**Standard Mode**

In **Standard** mode, Auditing is automatically synchronized with the **Project Browser**.

When synchronized, and where changes have been made, the **Audit View** reflects your selection from the **Project Browser**. If you click on:

- An element, the **Audit View** displays the history for that element
- A package, the **Audit View** displays the history for that package and its immediate children (but not the contents of nested packages)
- A diagram, the **Audit View** displays the history for that diagram and its contents (which could be drawn from a wide area of the **Project Browser**).

**Advanced Mode**

In **Advanced** mode, you can load sets of audit data independent of the **Project Browser**. These sets of data display all significant changes, but you can reduce the selection by filtering by time or by running a search.

**Advanced** mode also displays:

- Changes to the Audit Settings
- When Audit Operations are executed
- Security changes (which can be browsed in the same way as other changes).

**Raw Mode**

In **Raw** mode, all data recorded by auditing is displayed in chronological order. This enables you to see a progression of changes, which can be especially useful in determining date-time inconsistencies. Search and filters can still be applied, enabling you to view all of today's changes in order, or all changes for a particular element in order, or both.

**Note:**

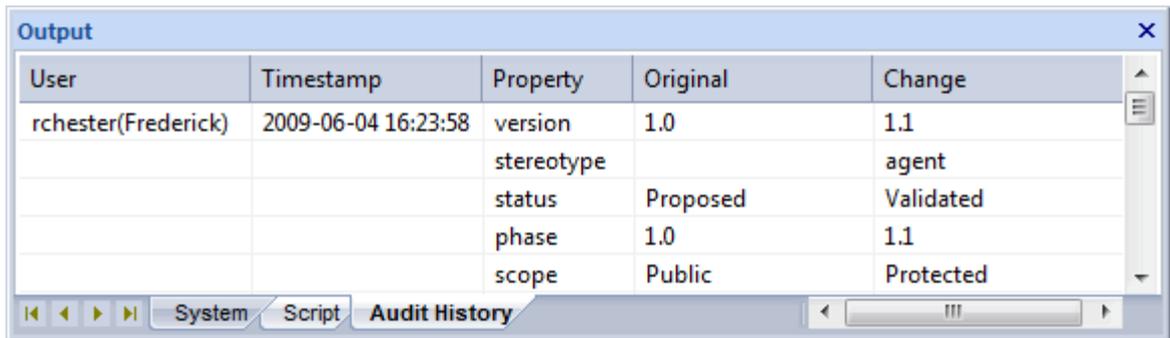
Some information displayed in **Raw** mode might be insignificant or only in machine-readable format.

## 4 Audit History Tab

When Auditing is turned on, an **Auditing History** tab is enabled in the **Output** window. To see this tab, you must have one or both of the **Auditing** <sup>2</sup> and **Element List** views open. (See *Using Enterprise Architect - UML Modeling Tool*.)

**Note:**

If security is enabled, you must have **Audit View** permission to display data on the **Audit History** tab. (See *User Security in UML Models*.)



User	Timestamp	Property	Original	Change
rchester(Frederick)	2009-06-04 16:23:58	version	1.0	1.1
		stereotype		agent
		status	Proposed	Validated
		phase	1.0	1.1
		scope	Public	Protected

The information in the **Audit History** tab provides a history of changes to whichever element or connector you have selected in the:

- current diagram
- **Project Browser**
- **Audit View**, or
- **Element List**.

As you select different elements or connectors, the **Audit History** automatically updates to reflect your current selection. The information shows, for each change made to the element or connector:

- Who made the change
- When the change was made
- Where the change was made
- The value of the characteristic before the change
- The value of the characteristic after the change.

## 5 Auditing Performance Issues

### Impact of Auditing on Other Facilities

Enabling auditing on a project increases the time taken for most actions. For most modeling tasks, this increase is insignificant; however, there are some situations where the difference is more substantial.

#### Large Deletions

Deleting large packages or package structures, or large numbers of elements, takes significantly longer with auditing on. You might [disable auditing](#) before performing such a deletion.

#### XMI Imports

Importing XMI takes longer with auditing enabled. A [project-level option](#) is provided for disabling auditing of XMI Imports.

#### Reverse Engineering

Reverse engineering code takes longer with auditing enabled. A [project-level option](#) is provided for disabling auditing of reverse engineering.

## 6 Audit View Performance Issues

Most operations in the **Audit View** are affected by the volume of use of the database - both by other facilities and by auditing itself. Some potential problems and their solutions are outlined below.

### Navigating the Project Browser Within Auditing is Slow

- Try setting the [time filter](#)<sup>[10]</sup> to a period in the immediate past, such as **Today**, **Previous 24 Hours** or **Previous Week**. This time period updates each time you open or refresh the **Audit View**.
- [Save log items](#)<sup>[6]</sup> outside the project with the **Save Logs** button. If you then clear the logs you have just saved, the load time of the **Audit View** is reduced. You can reload logs into the project at any time, using the **Load Logs** button.

### Navigating the Audit Tree is Slow

- Close the [Audit History](#)<sup>[13]</sup> tab in the **Output** window.

### The Audit View is Slow in Loading and Changing Modes

- Try setting the [time filter](#)<sup>[10]</sup> to a period in the immediate past, such as **Today**, **Previous 24 Hours** or **Previous Week**. This time period updates each time you open or refresh the **Audit View**.
- [Save log items](#)<sup>[6]</sup> outside the project with the **Save Logs** button. If you then clear the logs you have just saved, the load time of the **Audit View** is reduced. You can reload logs into the project at any time, using the **Load Logs** button.

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