Teamstudio®

Software Engineering Tools for IBM Lotus Notes® and Domino®

USER GUIDE

Edition 31

Copyright Notice

This User Guide documents the entire Teamstudio product suite, including:

Teamstudio Analyzer

Teamstudio CIAO!®

Teamstudio CIAO!® Server

Teamstudio Configurator

Teamstudio Delta

Teamstudio Design Manager

Teamstudio Profiler

Teamstudio Undo

Teamstudio Validator

Please read the section(s) of the guide that relates to the Teamstudio tool(s) you use.

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Introduction

Congratulations on your purchase of Teamstudio® software.

You can use the Teamstudio tools for IBM Lotus Notes® and Domino® application development individually or together.

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

About This Book

Here's what you'll find in this book:

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Refer to the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Once you install the tools you want, read the relevant chapter(s) of this manual to learn how to use those tools.

Remember, if you need help, we are just a phone call away. Technical Support is provided free of charge for the life of the then-current Maintenance Agreement.

We welcome your feedback! Tell us what you like and dislike about our products. Tell us what new features or new products you want to see. That way we can continually improve our product, and help you achieve your development goals.

Please send us your feedback via techsupport@teamstudio.com.

Thank you for using Teamstudio products!

Teamstudio Analyzer

Introduction

Congratulations on your purchase of Teamstudio Analyzer!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

You can test, debug and document your database design using Teamstudio Analyzer. Analyzer highlights functional dependencies within the design, verifies compliance with design standards, and uncovers compatibility issues before an upgrade.

How does Analyzer work?

- It reads the design of your Notes database or template.
- It analyzes this design.
- It builds a separate Notes database that represents the design.

The new database contains a document for each design element (such as a form, view, subform or field). Each document contains the fields that represent the properties or attributes of the related design element.

Analyzer can audit your design by testing it against a pre-defined set of criteria called *filters*. The Analyzer audit function identifies design elements that match the filter criteria and writes these audit results to an output database. This audit testing helps flag standards violations and potential performance problems for further review.

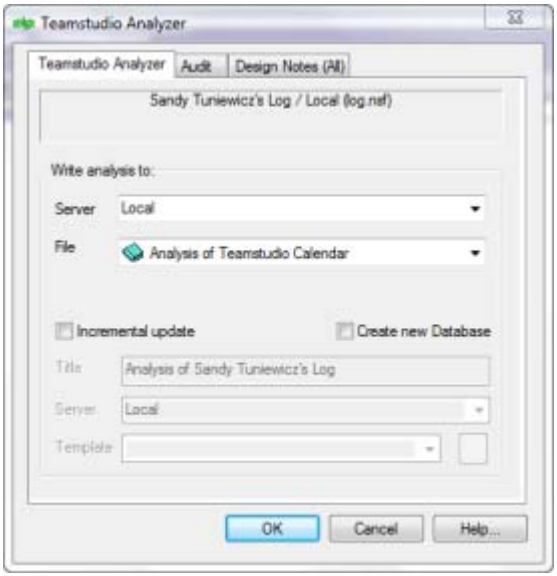
Using Analyzer

Starting Analyzer

To start Analyzer

1. In Designer, open the database you want to analyze.
2. Click the Analyzer button on the toolbar.

   You see the Teamstudio Analyzer window.



3. On the **Teamstudio Analyzer** tab, enter the server name and file name of the analysis output database that will store the analysis of your database design, or optionally create a new database by selecting the **Create new Database** check box and filling in the new database title, template server and template.

   When you click **OK**, Analyzer examines all design elements and stores the results in the database you have specified. See “Analyzing the Database Design,” on page 7, for more information.

   You can use the Design Notes tab to tell Analyzer which design elements you want to analyze. See “Using the Design Notes Tab,” on page 16, for more information.
4. On the **Audit** tab, enable Auditor which tests your design elements against a pre-

defined set of filters.

See “Auditing a Design,” on page 12 for more information about the Audit function.

Typically, there is one analysis output database and one audit output database for each project. There may be a number of different database designs represented in each output database.You may organize the output databases differently.

Tip	Design analysis databases become huge if they contain information about several database designs. If you select a large number of design elements for review by an audit run, the audit output database can also become quite large. Consider using more than one output database for analysis and/or audit runs, and decide in advance how to split design information among different output databases.

Analyzing the Database Design

The server and file name that you specified on the **Teamstudio Analyzer** tab tell Analyzer where to store the output from the analysis of your database design.

Defining the Analysis Output Database

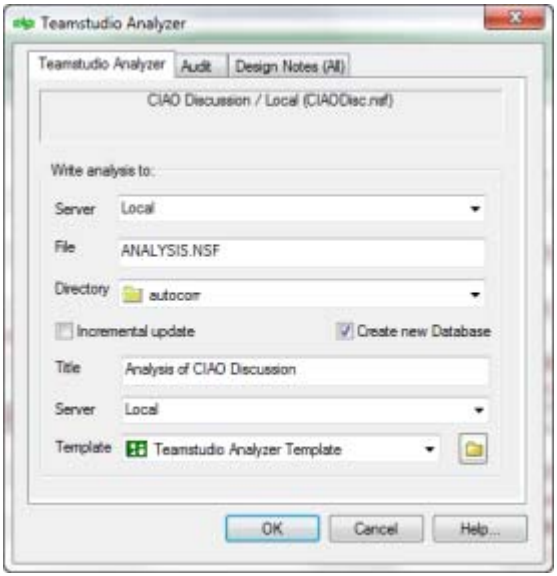
You can either create a new analysis output database or select an existing one.

Creating a new analysis output database

Analyzer will create the output database based on the template you specify.

To create a new analysis output database

1. Check the **Create new Database** check box.



2. Select a **Server** for the output database.
3. Enter a **File** name for the output database.
4. Optionally, select a **Directory** for the output databse to reside in.
5. Enter a **Title** for the new analysis output database.
6. Select the template **Server** from the dropdown.
7. Select the **Template** you want from the dropdown, or click the folder to browse your

computer to find a file.

8. Click **OK**.

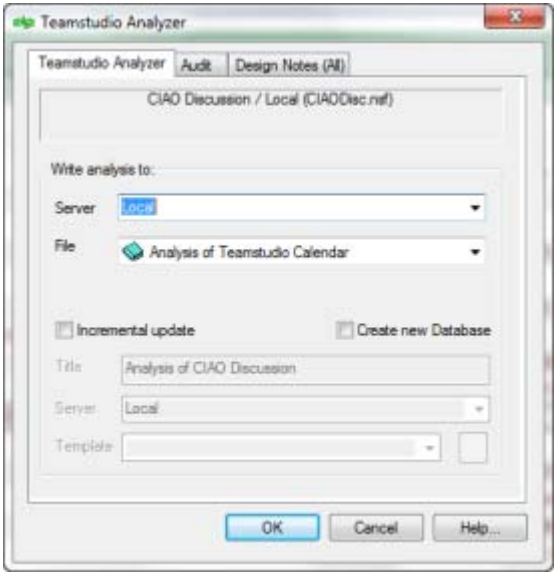
Note	The analysis database and the audit output database are two separate databases. You create the audit output database from the **Audit** tab.

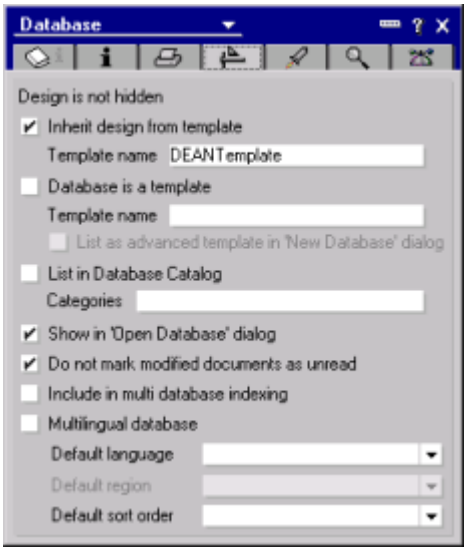
Selecting an existing analysis output database

If you select an existing output database, Analyzer adds its analysis of the selected database to that file.

To select an existing analysis output database

1. Click the **File** dropdown to select the analysis output database you want.



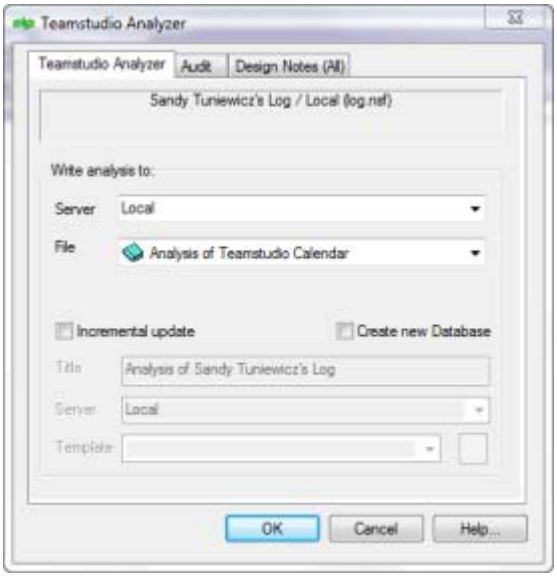
Note	The Select Analysis Database window shows only those databases based on the DEANTemplate. If the database you want does not display, but you know it exists, here's what to do: 1. Open the database in Notes. 2. Click **Inherit design from template** (shown in the oval) on the Design tab in Database Properties. 3. Enter DEANTemplate into the Template name field. 

Note	Analyzer checks to make sure you have **delete documents** access set in the access control list (ACL) of the analysis database. If you do not have delete documents access, Analyzer may not run. To work around this issue, restart Analyzer and rename the output database.

2. Click **OK** to run the Analysis.

Controlling Incremental Updates

The first time you run Analyzer against a database, every design element is analyzed (unless you excluded some of them on the **Design Notes** tab). When you run Analyzer subsequent times, select the **Incremental update** check box to analyze and update the documents for only those design elements that have changed since Analyzer was last run against them.

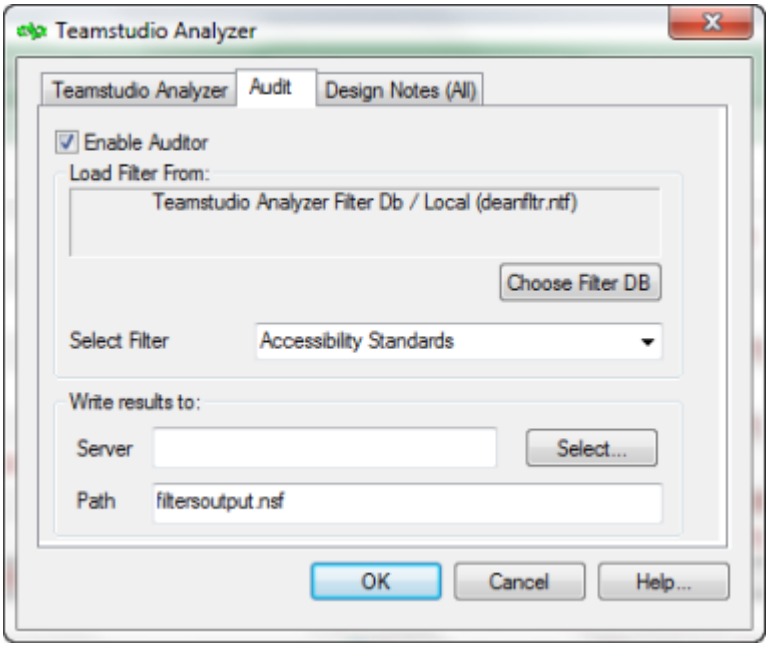


Clear the **Incremental update** check box to analyze every design element and update every document even if it has not changed. This feature allows you to change the title of a database and then update the design documentation and propagate the new title into other design elements.

Auditing a Design

On the **Audit** tab, you can select the **Enable Auditor** check box to have Analyzer determine whether any of your design elements match a pre-defined set of filters. Auditor writes the audit results to an audit output database that you specify. You can investigate issues with the design of your database. If you don't want Analyzer to check every design element in your database during the audit, specify individual design elements on the **Design Notes** tab. See "Using the Design Notes Tab," on page 16, for more information.

Each time you run the audit function, Analyzer first examines and updates the analysis file for the targeted design. When Analyzer generates audit output documents they are linked to the associated documents in the analysis database, providing full details of each design element selected by the audit.

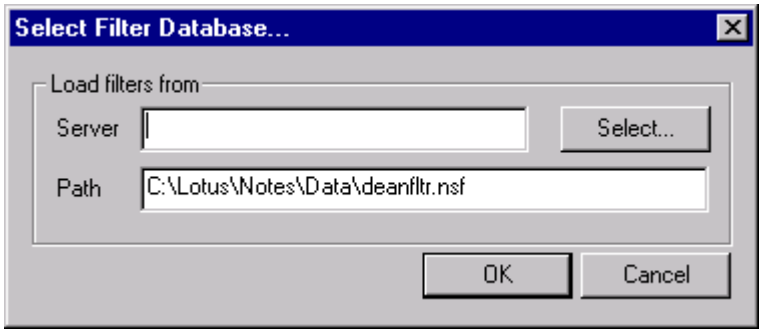


To disable Auditor, clear the **Enable Auditor** check box.

To select the filter database

You can identify a filter database to use as follows:

1. On the **Audit** tab, click **Choose Filter DB**.

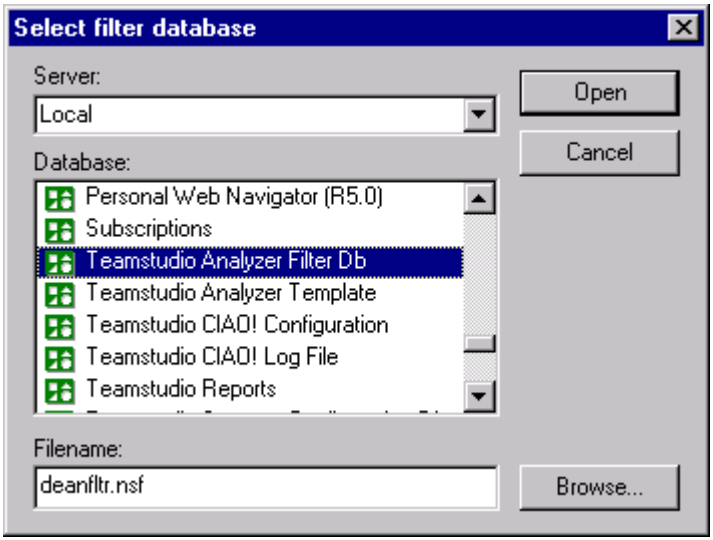


2. On the **Select Filter Database** window, click **Select**.

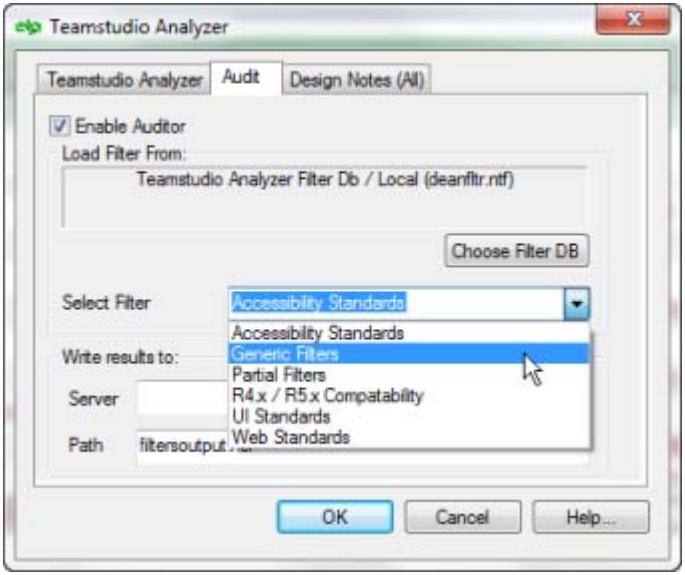
   You see the **Open/Browse** window.

3. Select the Teamstudio Analyzer Filter Database you want.

Note	Teamstudio installs a sample filter database in your Notes database directory.



4. Click **Open**, then click **OK**.



5. From the **Select Filter Set** dropdown, select the filter set you want to run against your database.

   Rather than run Auditor multiple times against many different filter sets, you should combine the filters you want, for example, performance problems and standards violations filters, within a class to be processed together.

   See “Analyzer’s Filters,” on page 32, for more information on classes and the filter database.

Selecting an audit output database

Analyzer Audit places its results in the audit output database you designate.

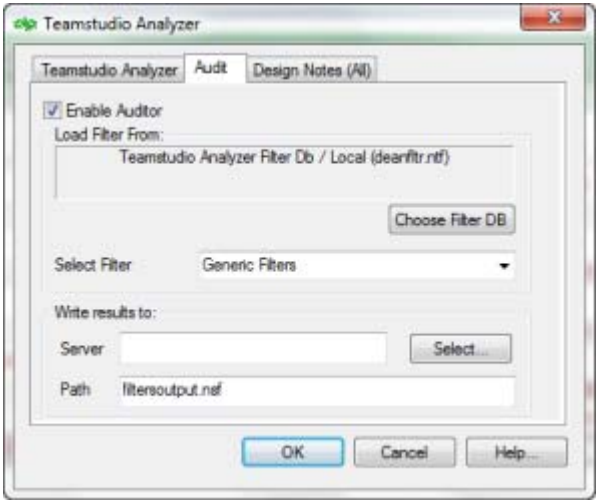
The audit output database is always based on Teamstudio’s **tmslogs.ntf** template, whether you select an existing output database or create a new one.

To use an existing output database

1. Click **Select** to display a list of existing databases that are based on the **tmslogs.ntf** template.
2. Select a database.
3. Click **Open**.

4. To create a new database, enter the server and output database name, including the path.

   The new database is automatically based on the **tmslogs.ntf** template.



   By default, Auditor checks every design element in your database. If you don't want Analyzer to audit every design element, specify individual design elements on the **Design Notes** tab. See "Using the Design Notes Tab," on page 16, for more information.

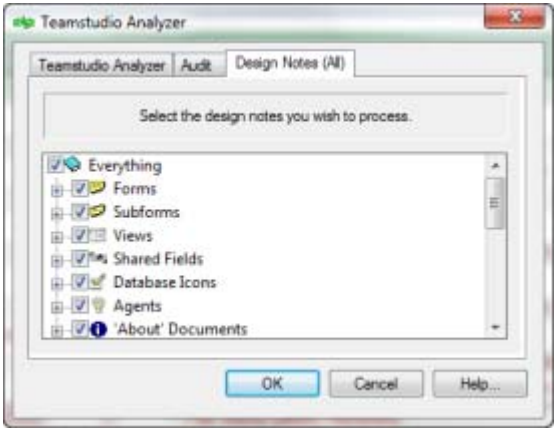
5. After you select the **Enable Auditor** check box and a filter set, and you specify the output database, begin Analyzing your database.

Note	You cannot run Auditor without also running Analyzer. When you click **OK** on the Teamstudio Analyzer tab to start Analyzer Audit, the database design is also analyzed. The design element subset you selected to Audit on the **Design Notes** tab also applies to Analyzer. See "Analyzing the Database Design," on page 7, for more information.

   If you are ready to begin, see "Starting the Analysis," page 17.

Using the Design Notes Tab

You can select individual design elements for analysis from the **Design Notes** tab.



By default, every category and design element is selected, as indicated by the checkmarks. All of the categories are children of **Everything**.

To see a category's design elements without affecting currently selected or deselected items, click the plus sign beside the category.

Here is how Analyzer treats selected categories and selected design elements:

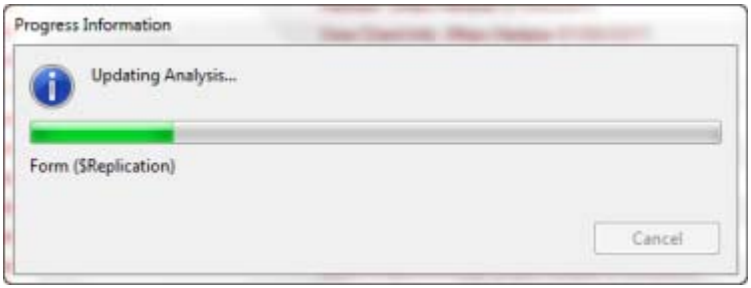
- If you select a design element, Analyzer analyzes it and creates a document for it in the output database. If the design element has changed, the new document overwrites the existing document. If the design element has not changed, the new document overwrites the existing document only if you have cleared the **Incremental update** check box on the Teamstudio Analyzer tab.
- If you select a category, Analyzer checks the category, identifies the elements and documents deleted since the last analysis, and moves the Analysis Document to the Deleted Documents category in the output database.

Starting the Analysis

1. After you specify the output database that Analyzer should use, optionally include or exclude design elements to analyze and optionally set up Auditor, click **OK** to start the analysis process.

   The database design analysis runs before the audit is performed.

   You see the Teamstudio Analyzer progress indicator that displays the name of each design element as it is processed.



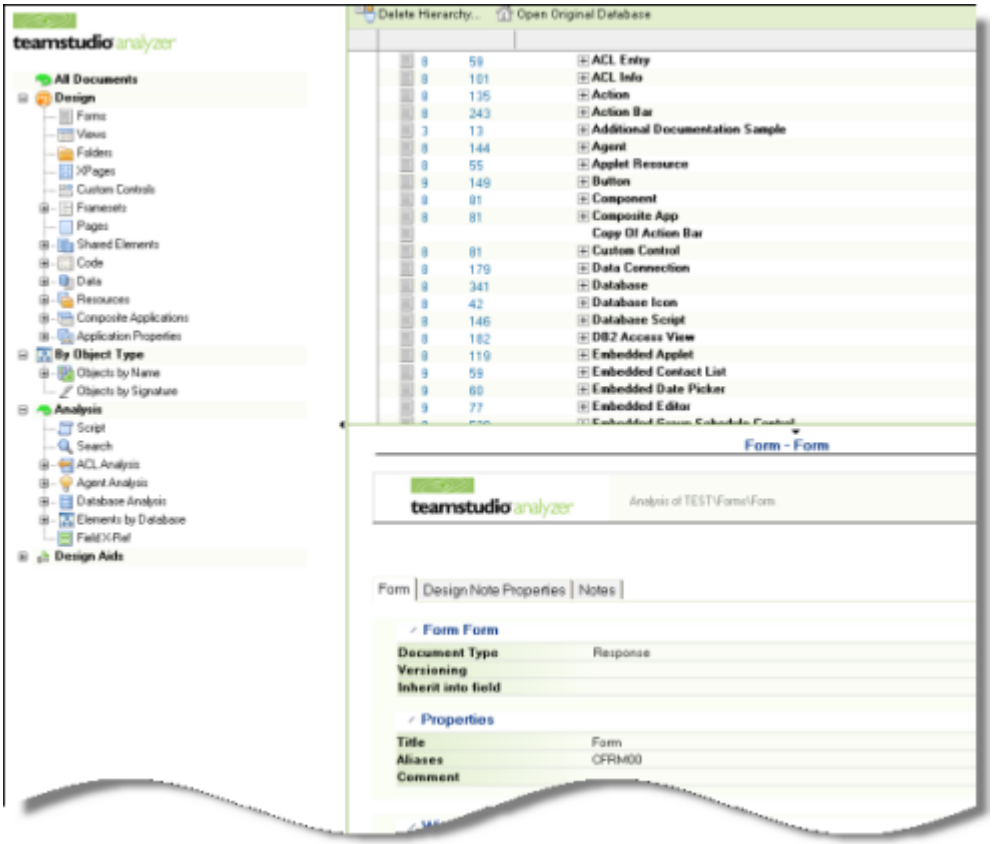
   When the analysis is complete, Analyzer opens the analysis output database you designated.

2. Expand categories to reveal Analyzer's design element analysis documents within the categories.

Note	If you ran an Audit, you must open the Audit output database.

The Analysis Output Database

Analyzer scans your database, creates a document for each component it finds, and organizes the documents using views.



Adding Comments to Design Elements

You can add user data, for example, comments, description, change history, or development status to the Analysis documents for major design elements. To view the comment area, click the **Note** tab at the top of an analysis document.

Double-click the document to make it editable and to display the development status options within the **Note** area.

Items such as buttons and hotspots that Analyzer creates documents for do not have a corresponding design element in the application database. Consequently, they are difficult to identify reliably from one run to the next. Accordingly, the **Note** field is not included on those documents. Field documents do contain the **Note** field since they rarely change names and aliases.

You can create a separate document to record any additional information about a major design element document in the analysis database (for example, a description of a design element or maintenance history). You can access a sample document, named **Additional Documentation Sample**, from the **Create** menu.

To record additional information about a major design element

1. To create the document, select the design element you want, and select **Additional Documentation Sample** from the **Create** menu.

   This sample form contains a title field (**fspvName_WB**) and a rich text body field in which to store your information. You can modify these fields to meet your organization's documentation requirements.
   See "Customizing the Template," on page 26, for more information.

2. Complete and save the form.

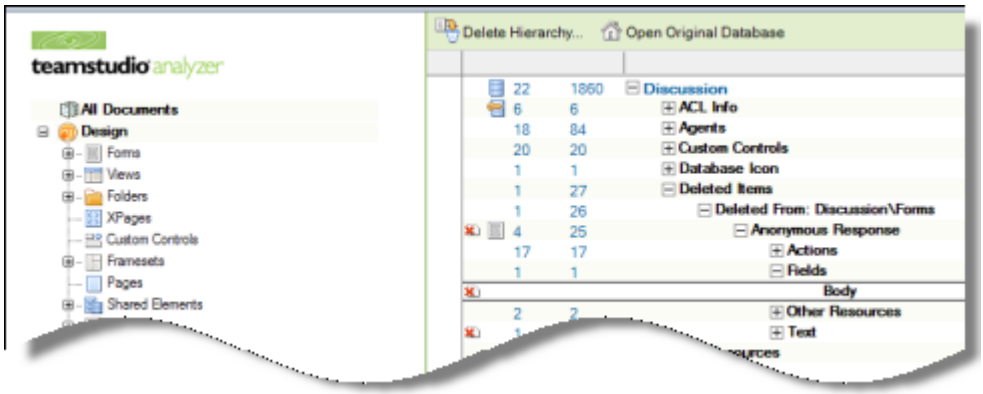
   The saved document will display in the **All Documents** view under the design element you created it for.

Note	The Additional Documentation feature is only available for design elements and fields.

Deleted Items

Analyzer moves the deleted element data and any user documentation for previously deleted design elements. You can find the data under the **Deleted Items** category, in the **All Documents** view.

You can identify the deleted element and any of its children documents, such as fields and buttons, by the Delete icon, a document with a red X through it.



If you no longer need the deleted element data and its documentation, simply delete

them from the Analysis file using the Delete hierarchy button.

Tip	You can drag deleted fields to the Field X-Ref folder to get a field cross reference report to show usage of the deleted field. See “Finding all References to a Field,” on page 27 for more information.

Getting Started: Viewing Analysis Information

With the many sorting categories Analyzer provides, you can view the design element information you need. So where do you begin? To get started, consider the recommended views and actions described in the following table.

Using the Analysis Output Database Views

Goal	What to View in the Analysis Output Database	What to Do
See where design elements are used	• View design element references	1. Expand the corresponding design element category with the left navigator, and open the design element document. The references are listed at the end of the document. 2. Go to the Design Aids view category and select the Dependencies view. This shows all design elements with dependencies by design element category.
See Last Modified	• View all design element last modified dates	• The Design Aids category has several views to show the last modified dates.
See Default Access	• View the database access control list	• In the Analysis category, there is a subcategory for ACL analysis.
Check view columns for consistency	• View columns in views	• In the Objects by Name category is a view called Columns in views that shows several settings that can often be inconsistent.

Using the Analysis Output Database Views (Continued)

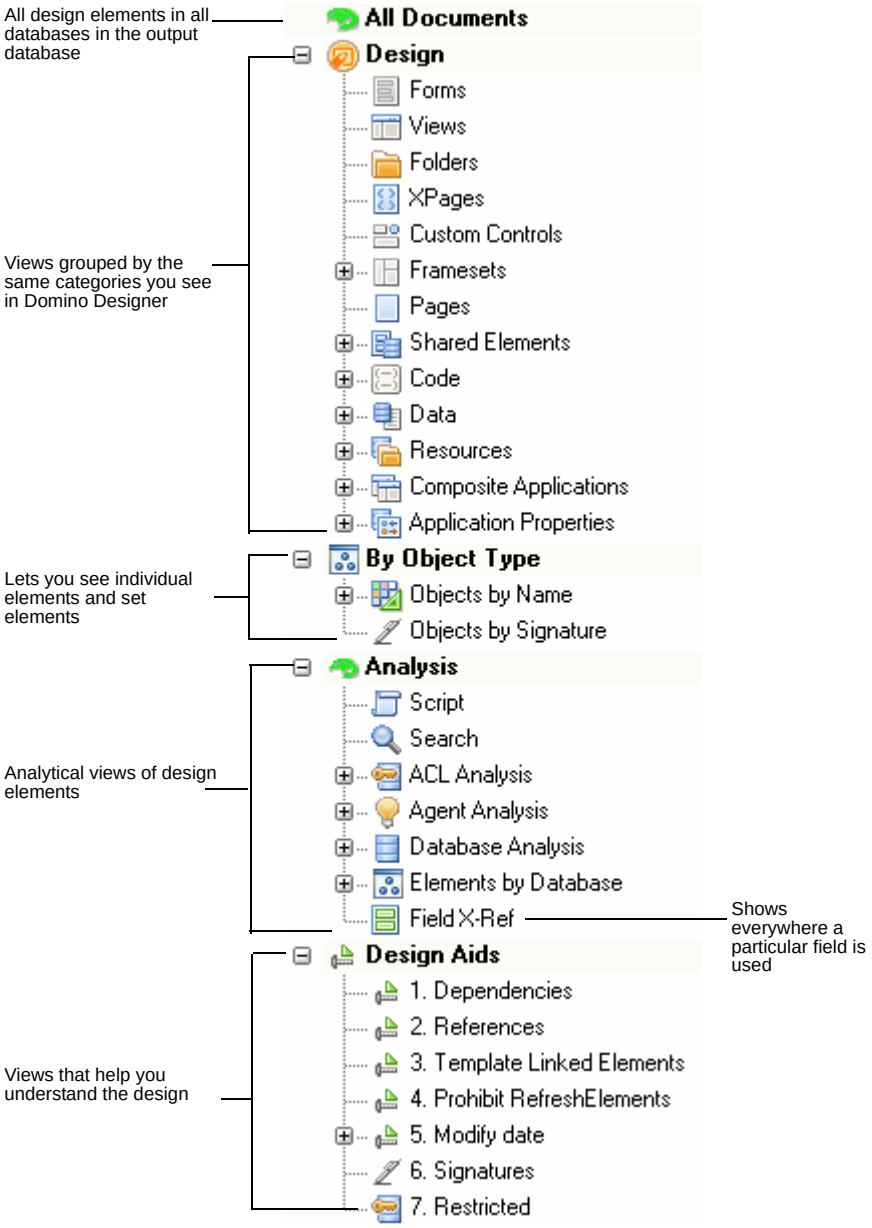
Goal	What to View in the Analysis Output Database	What to Do
See subroutines in need of refactoring	• View the number of lines and parameters of agents	• In the design category, under Code and then Script Libraries, is a view called Subs that lists the number of lines of code and the number of variables declared. The largest numbers are the most complex subroutines and could be refactored.
See everywhere a field is referenced	• Use the Field XRef folder	• Simply drag any field document (under Forms in Object by Name category) and drop it in the xRef folder. Then click the Add References button. Every design element that refers to that field will be included in the view.

Summary of Views

The output database template includes the following groups of views:

View	Description
All documents	Shows all design elements in all databases in the output database. The view is sorted by database title. The hierarchy represents the hierarchy of the database design. The first column in the activity window shows the number (count) of objects within each category. Click the  button to open the database, from which the analysis was taken, in a new Notes window.
Design	Shows views grouped by the same categories you see in Domino Designer.
By Object Type	Also includes the Field X-Ref view that shows where a particular field is used.
Analysis	Analytical views of design elements.
Design Aids	Views that help you understand the design.

The Analysis Output Database Views



Customizing the Template

When Analyzer is installed, it creates a database template file called **ivesdean.ntf**, which has a template name of DEANTemplate. Analyzer uses this template to create the analysis output database. The database stores the analysis documents for one or more Notes template or database designs.

Tip	LotusScript, formula code, Java and JavaScript are always written as rich text. This is because plain text fields are limited to around 15K in size by the Notes client, and code can be as large as 64K. Since you cannot refer to rich text fields in view selection formula, this may at first seem limiting. You can create an agent which performs an @Abstract operation on the rich text, converting it to plain text, truncating it at some size less than 15K. For example: FIELD ScriptBegins := @If(fflpScripts="";"";@Abstract([Save]:[Abbrev];14999;"";"fflpScript"))

You can customize the template to create additional views or Notes agents.

To create a template you can customize

1. From Notes, make a new copy of the Teamstudio Analyzer Template (**ivesdean.ntf**).
2. Open the Database Properties window for the new file. Then click the Design tab.
3. From the Design tab, rename the new template.
4. In the Database Categories box, enter **DEANTemplate**.

When creating a new output database, you base its design on a template that you select from a list of all the templates you have created.

You can add fields to the forms in the output database template. The fields can hold information, such as comments, that you add to the database. These additional fields are not overwritten when the analysis output is updated.

Caution	The **content** of user-defined fields is only preserved between Analyzer runs for design notes and fields.

Similarly, you can add forms to the output database template to hold any data you want to capture. You can create and edit these forms, optionally using formulas and scripts that extract data created by Analyzer into your form.

Caution	While a user-defined form is not overwritten when the analysis output is updated, the **documents** created with user-defined forms will only be preserved between Analyzer runs for main documents and responses to design notes and fields.

Finding all References to a Field

You can use the Field X-Ref folder to find all references to a particular field name.

To find references to a field

1. Open the **Field X-Ref** folder.
2. Click the **Reset** button to remove any documents from the folder.
3. Switch to a view containing the field you want to find references to (for example, **Objects by Name\Fields**).
4. Locate the document representing the field.
5. Drag the field from the view into the **Field X-Ref** folder.
6. Open the **Field X-Ref** folder.
7. Click the **Add References** action button.

   Any elements that reference the field will be added to the **Field X-Ref** folder. The folder is categorized by field name.

Note	This structured cross-reference works only for fields.

The Audit Function

You are often faced with the difficult task of examining a database design to ensure it can meet some, unique, criteria. Examples of this are:

- Is the design compatible with the next release of Notes?
- Can the design be moved to another environment?
- Does it meet company standards?

Analyzer's analysis function helps with these decisions by extensively documenting the attributes and contents of a design, and by providing views that help answer many of these questions. Sometimes, however, you must examine a combination of elements and their attributes to properly answer a question.

The audit function can help by letting you define requirements and then test the design of the database or template to make sure it meets the requirements. Many of these requirements are reusable, such as standards or common coding errors. Others will have a unique temporary nature, such as a special change request or compatibility issues raised by upgrades to a new version of Notes. Auditor includes some predefined tests that give you a head start on defining typical tests such as locating the following:

- Common coding errors
- Potential performance problems
- Violations of typical organizational standards
- Potential application upgrade problems
- Potential Web or O/S compatibility problems

Auditor Components

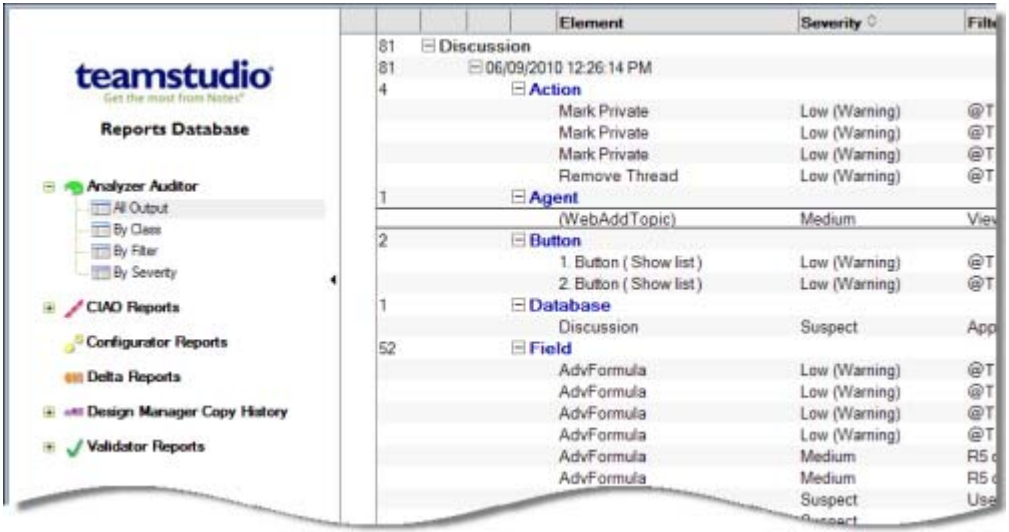
Auditor uses several databases to identify the design elements you want to find, as described in the following table:

Database	Description
Filters (based on deanfltr.ntf)	Describes the criteria to use when auditing a design.
Analysis (for example, analysis.nsf)	Created by Analyzer when a design is analyzed.
Audit output (for example, auditreport.nsf)	Documents the instances of design elements selected by Auditor which match filters.

When Auditor runs, it retrieves the filter(s) from the Filters database and scans the analysis file looking for design elements that match those filter(s). For each match, Auditor creates a document in the audit output database.

Using the Audit Output Database

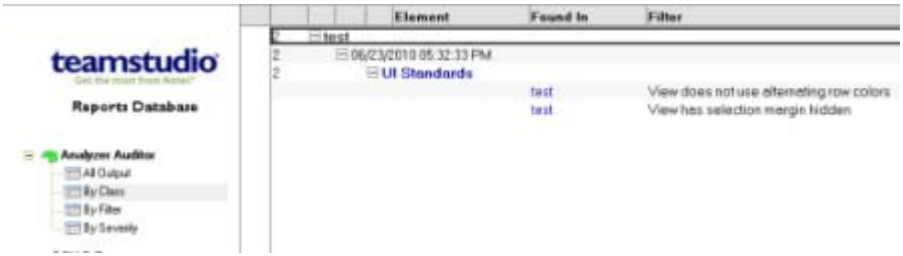
You can see the database audit results in the **Analyzer Auditor\All Output** view.



Documents are sorted by database title, the date and time Auditor was run and design element categories. Running Audit against the same database at different times gives you results grouped for each date and time reported.

Note	When you open the Audit output database, you may notice views in the navigator pane that do not apply to the Audit function. That is because the database is based on Teamstudio's **tmslogs.ntf** template, which is a general purpose template designed for use with all of our products. Since the Auditor only creates documents that appear in its own views, you may ignore the other views when using the database for auditing purposes.

Auditor creates a document in its output database each time it finds a design object that matches any of the filters processed during the audit run. A design element can appear more than once under its design category since a document is created for each filter a design element matches. Expand a design element category to learn which design elements matched the filters.



Design elements that matched a filter are divided into severity categories based on those defined in the Filters database. In this example, several design elements match filters assigned low and medium severity.

If the item selected is a design element (for example, a form), the parent of the design element (for example, the database) is listed in the **Found In** column. If the item selected is a component of a design element (for example, a field within a form), its host design element is shown under the **Found In** column. The filter the design element matched is listed in the **Filter** column.

Analyzer's Filters

Filters identify design objects you want to focus on. You define filters by specifying the attributes and properties that meet your criteria.

Analyzer Filter examples

- Use of @dblookup in a keyword definition (potential performance problem)
- Editable text fields without Help text (violations of organizational standards)
- Non-computed fields ending in "_1" (common coding errors)
- Existence of a certain design element (for example, Help Using, Help About or a particular form)
- Use of specific field properties (for example, Date/Time fields that don't display the year with four digits)

Auditor scans the analysis output looking for design objects that match the filter criteria and documents each occurrence in the audit output database.

Since most development organizations have their own standards and procedures, you may want to add your own filters, modify the severity to match terms and criteria you use, and classify filters with terms you normally use. With Auditor, it's easy to customize filters and their attributes to meet your organization's needs.

You can find the filters and definitions of their attributes (class and severity) in the Analyzer Filter database. The Analyzer Filters database included in this release is **deanfltr.ntf**. Prior to Edition 24, it was **deanfltr.nsf.** This is so the install database does not overwrite the filter database currently on your system. If you have modified the database in any way, you will not lose any changes or customization. However, this means that you must create a new filter database if you want to incorporate the bug fixes included with this release.

To upgrade your filters database

1. Make a copy of your current Analyzer Filters Database (**deanfltr.nsf**)
2. Create a new database (**File > Database > New**) and name it **deanfltr.nsf**
3. Select Analyzer Filters Template from the template box.
4. Click **Yes** when Notes asks if you want to overwrite the existing one. (It's OK; you made a copy)
5. Copy all your custom filters into this new database from your old one.

The attribute, Class, groups the same type of filters together. For example, filters that identify design techniques that can cause problems when you upgrade to a new Notes Release are typically categorized as Release “A” to Release “B” Upgrade Issues. Therefore, you can set up a class called Release A to Release B Upgrade or simply, Upgrade. Then, when you define a filter that fits this category, you assign it to the Upgrade class. At run-time, you tell Auditor which class of filters to use.

The Severity attribute prioritizes the documents stored in the audit output database, helping you to systematically review and act on the items selected.

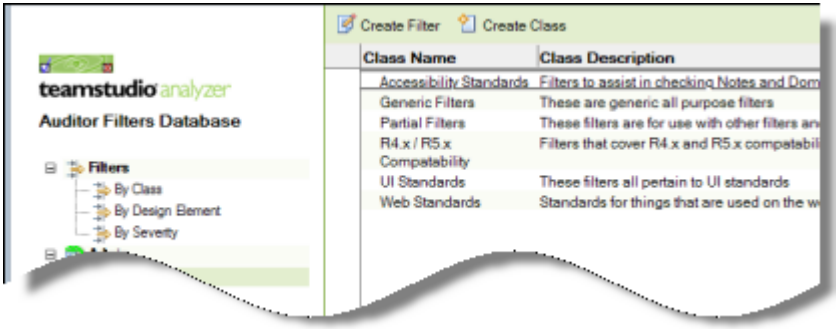
The following sections describe how to work with filters:

- Reviewing filters and their attributes
- Disabling or activating filters
- Editing or creating classes
- Editing or creating severity definitions
- Editing or creating filters

Reviewing Filters

When you open the Analyzer Filter database, you can review the following:

- Filter Classes—name and description
- The Filters themselves
  - – by the Class they are assigned to
  - – by the Design Element they audit
- The Severity Definitions—name and description



Disabling or Activating Filters

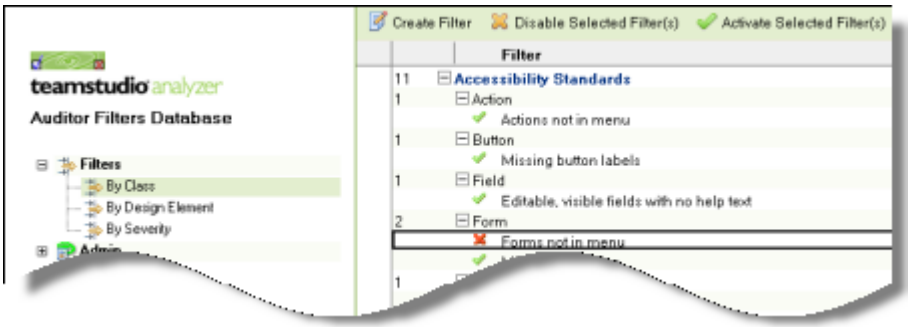
You may decide to stop using a filter, or to use it selectively.

When you disable a filter, Analyzer won't evaluate the filter when you pick a class that the filter belongs to.

You can reactivate a filter later.

To disable or activate a filter

1. From the Analyzer Filter database, click a Filter view, for example, **By Class**, or **By Design Element**.
2. Click in the left column to select one or more filters to disable.
3. Click **Disable Selected Filter**(s) or **Activate Selected Filter(s)**.



A green check mark indicates that the filter is active. A red X indicates that the filter is disabled.

Remember to activate disabled filters when required.

Editing or Creating Classes

Auditor's Filter database includes pre-defined filter classes. You can edit the name or description of the class and you can create new classes. After you create a class, you can add filters to that class. A filter can belong to more than one class.

When you choose a Filter Set on Analyzer's **Audit** tab, the classes from the

Analyzer Filter database display in the drop-down list.

To edit a class

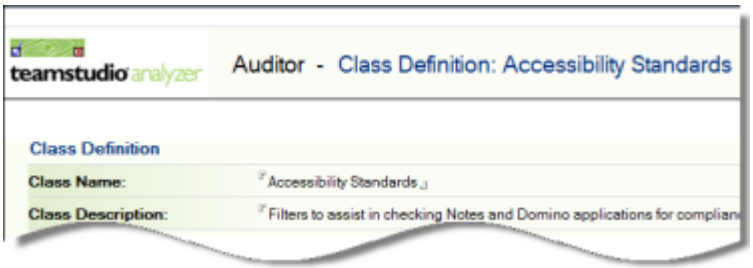
1. Open the Analyzer Filter database.
2. Click the **Admin > Filter Classes** view.
3. Double-click an existing Class to open the document.
4. Double-click the document to enter edit mode.
5. Change the **Class Name** or **Class Description** to meet your requirements.
6. Save your changes as prompted when you close the document.

To create a class

1. Open the Analyzer Filter database.
2. Click the **Admin** > **Filter Classes** view.
3. Click the **Create Class** button 

.
4. Enter the **Class Name** and **Class Description**.

   The **Class Name** should be something brief but descriptive since it will be shown in the Filter Set selection box at run-time. The **Class Definition** should explain the use of the filters in the Class.



5. Save your changes as prompted when you close the document.

Editing or Creating Severity Definitions

The Audit database includes pre-defined severity levels that are assigned to each filter. Auditor displays data in descending sort order for severity sequence. The higher the numeric value, the more important it is to address the issue causing the data element's selection. You can assign severity levels in any numerical range, including negative numbers.

The following example shows how you can set up severity codes for filters. You can change the name or description of an existing severity level to meet your standards, or create an entirely new severity level.

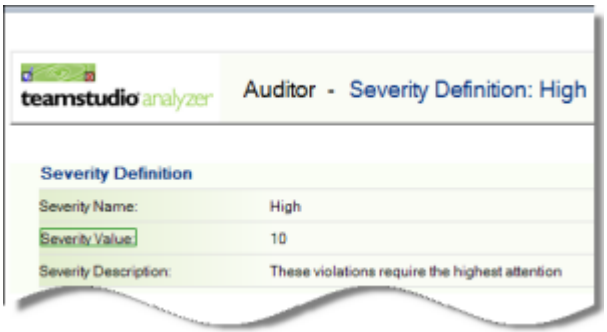
To edit a severity level

1. Open the Analyzer Filter database.
2. Click the **Admin > Severity Definitions** view.
3. Double-click an existing Severity Definition to open the document.
4. Double-click the document to enter edit mode.
5. Change the **Severity Name**, **Value** or **Description** to meet your requirements.
6. Save your changes as prompted when you close the document.

To create a severity level

1. Open the Analyzer Filter database.
2. Click the **Severity Definitions** view.
3. Click **Create Severity Definition** 

.
4. Enter the **Severity Name**, **Value** and **Description**.

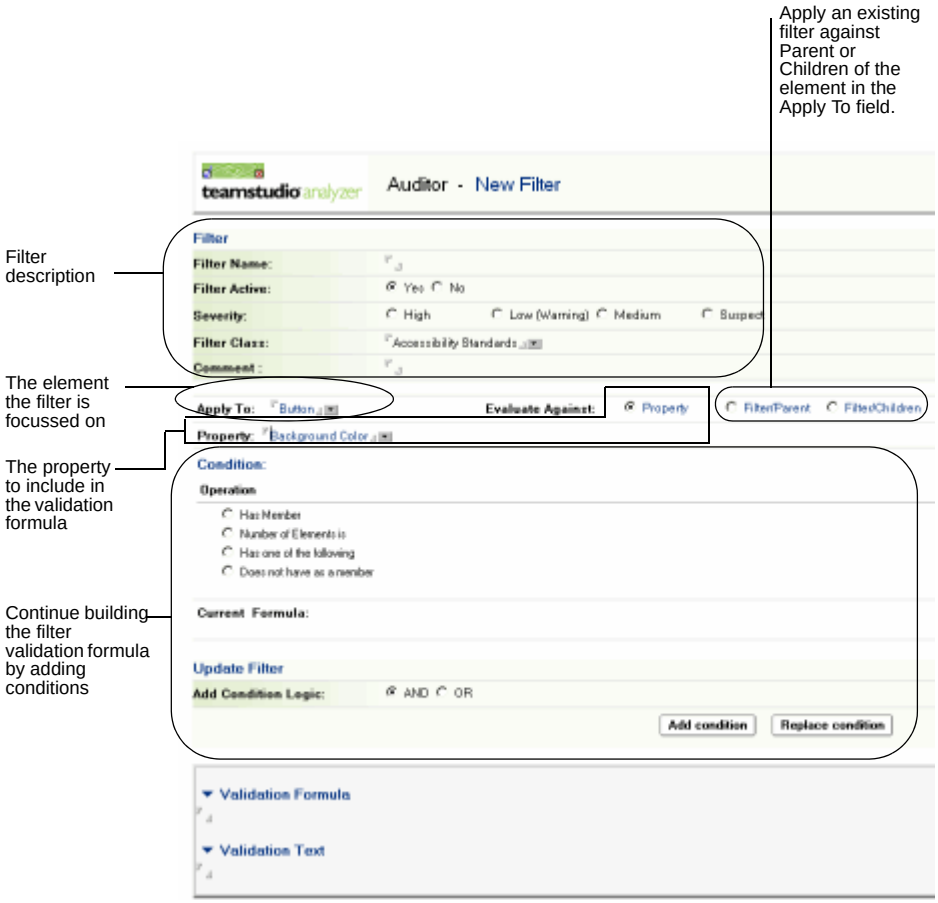


The higher the severity value, the more important it is to fix the data element identified by the filter. You may assign severity levels in any numerical range.

5. Save your changes as prompted when you close the document.

Editing or Creating Filters

You can change the specifications of an existing filter or create a new filter.

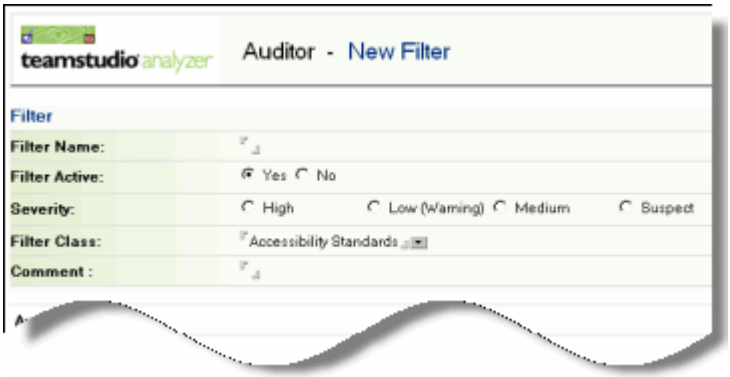


To create a filter

1. Open the Filter database (deanfltr.nsf).
2. Click the **Create Filter** action button 

.

   You see a **New Filter** document.



3. Define the new filter by completing the following fields:

Field	Description
Filter Name	The purpose of the filter, for example, agents using Java code.
Filter Active	**Yes/No** indicates whether the filter should be included when one of its classes is chosen for processing.
Severity	The relative importance of items fitting this criteria.
Filter Class	One or more groups (classes) that the filter belongs to
Comment	The reason to use the filter, for example, Release A to Release B upgrade.
Apply To	Click the **Apply To** dropdown to select the design element you want the filter to check. This is the primary focus of the test.  While selecting **All** lets you create filters that apply to all elements within a database design, selecting **All Design Elements** restricts your filter to first-level elements such as page, form or view. It ignores (doesn't include as audit targets) sub-elements such as field, hotspot and column. With the **Apply To** field chosen, the form expands to show the **Evaluate Against** options, the **Property** field, and other filter options.
Evaluate Against	Select the Property option to include a property in the validation formula, or select an option to apply an existing filter against the Parent or the Children of the element in the Apply To field.

Field	Description
Property	Select the property you want to test. The list generated is based on the **Apply To** field type. Once you select the property, the form shows options for defining a condition to use in the selection step. The condition options you see are based on the **Apply To** and **Property** fields selected.
Condition	Select the appropriate operation to define your test. The operation choices depend on the **Apply To** and **Property** selections you made previously. For example, select **Button** for the **Apply To** design element and **Hide When Options** for the property. To add a Condition, simply select one of the operations such as **Has one of the following**. Then select a **Compare With** value such as **Web browsers**. To test multiple conditions, you click **AND** or **OR** to specify the logical operator. When you have selected the elements of a single condition, click the **Add Condition** button to have the **Validation Formula** updated to include the test just completed.

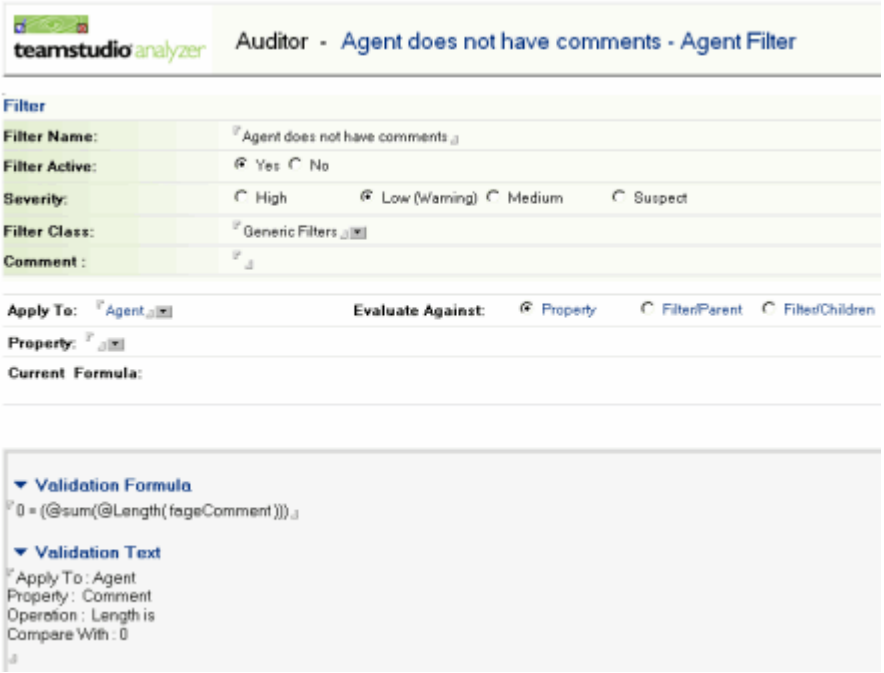
The following table describes the buttons on the **Filter** form:

Button	Description
Add Condition	Appends the **Validation Formula** to include the test just defined. When more than one formula is specified, the Boolean combination is dependent on the option button (also called radio button).
Replace Condition	Deletes the entire **Validation Formula**. Use this button to effectively redefine the entire filter, starting with the same design element in the **Apply To** field.

4. Save your changes as prompted when you close the document.

To edit a filter

1. Open the Analyzer Filter database.
2. Double-click an existing filter to open the document.
3. Double-click the document to enter edit mode.



4. Edit the fields you want.

   If your edits require a new validation formula, Auditor automatically generates it when you select a property and add or replace a condition.
5. Use the **Validation Text** field to *reverse engineer* how a validation formula was

created.

6. Save your changes as prompted when you close the document.

Note	To develop a filter for a different design element, you must create an entirely new filter. To modify the **Validation Formula**, use the **Add or Replace Condition** functions to rebuild the formula.

Filter Examples

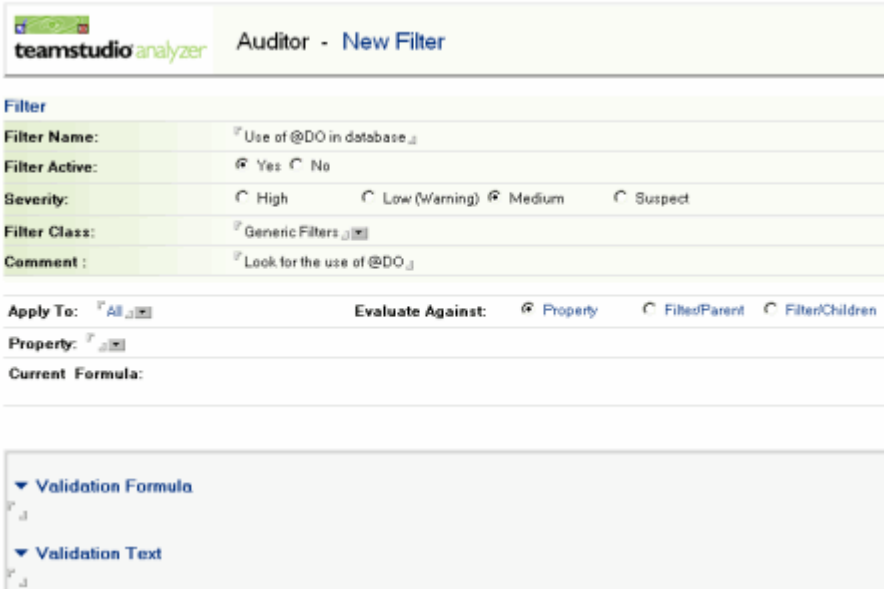
The following table shows examples of filters you can create. Procedures for creating them follow the table.

Filter Example	Description
Search for static text	You can search your database for instances of a particular @Function such as **@Do**. To do this, create a filter that searches for **@Do** using the **TMSRTContains** formula. Use whole word matching, or the search result will include other functions that begin with **@Do**, such as **@Doc**, **@DoChildren** and **@DocFields**.
Search for values included within an analysis document	To meet corporate standards, you must find and correct all the forms that do not include their name in the window title. To do this, you would likely pass the form name to the **TMSRTContains** function using a formula such as **TMSRTContains(ffrmWinTitle; 0; "Memo")**, where "Memo" is a particular form's name. However, you want to find **all** such forms, not just "Memo." To search for all such forms, pass the field name that contains the title of the form instead of a literal string of the form name. You can then apply this filter to all forms, not just a particular form.
Use values from the parent	One of your company's standards is that field names must start with form aliases. You can create a filter that shows all the fields in a document, where field names do not start with the alias of the form/subform they reside in.

To create a filter that searches for use of a constant value: "@Do"

1. Open the Auditor Filter database, which is called **deanfltr.nsf**.
2. Click **Create Filter** to open the **New Filter** window.
3. From the **New Filter** window, enter the following:

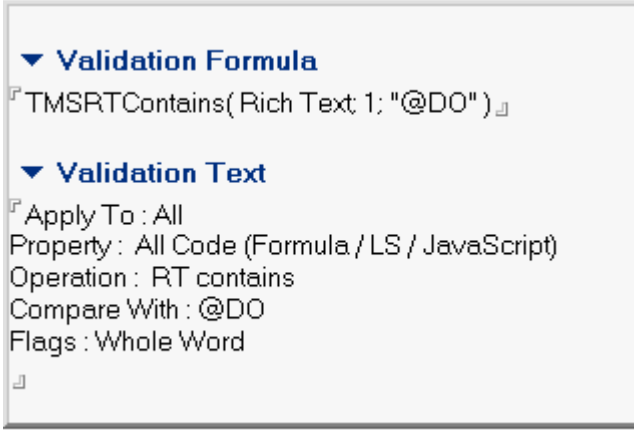
Field name	What to enter or select
Filter Name:	Use of **@Do** in database
Filter Active:	Yes
Severity:	Medium
Filter Class:	Generic Filters
Comment:	Look for the use of **@Do**
Apply To:	All



4. In the **Property** field, click the arrow to display the list. Then select the keyword **All Code (Formula / LS / JavaScript)**.
5. In the **Operation** field, select the **RT contains** option.
6. In the **Compare To** field, enter **@DO**.

7. In the **Flag** field, click the arrow to display the list.
8. Select **Whole Word** and click **OK**.
9. Click **Add Condition**.

   You see the formula in the **Validation Formula** field.



10. Save the filter and exit.

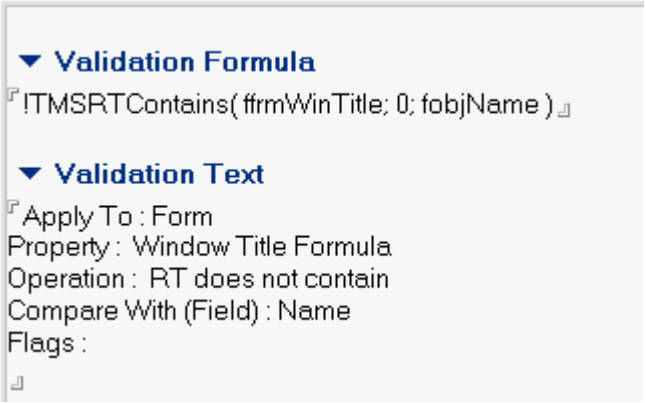
To create a filter that searches for values included within an analysis document: Forms with window titles that don't include the form name or the database name

1. Open the Auditor Filter database, which is called **deanfltr.nsf**.
2. Click **Create Filter** to open the **New Filter** window.
3. From the **New Filter** window, enter the following:

Field name	What to enter or select
Filter Name:	Form name not used in window title
Filter Active:	Yes
Severity:	Medium
Filter Class:	UI Standards
Comment:	Corporate says the name of the form must be included in the window title
Apply To:	Form

4. In the **Property** field, click the arrow to display the list. Then select the keyword **Window Title Formula** and click **OK**.
5. In the **Operation** field, select the **RT does not contain** option.
6. In the **Compare** field, select **Field Value.**
7. In the **Compare To** field, click the arrow to display the list.
8. Select **Name** and click **OK**.
9. Click **Add Condition**.

   You see the formula in the **Validation Formula** field.



10. Save the filter and exit.

Auditor Filters for Advanced Users

The Filter wizard creates a validation formula which is a standard Notes formula. Advanced users may avoid the limitations of the wizard by manually completing the validation formula field.

You should build your filters a step at a time to ensure that each part works correctly before you add more to it. Since Auditor requires that you use the design of the Analyzer template, you must use fields or alias names from **ivesdean.ntf**.

Tip	Analyzer Auditor processes documents in the analysis database. This means that any time you reference a field name it must be a valid field on a form referenced by the **Apply To** value. • If you plan to write validation formulas manually, we recommend that you familiarize yourself with the design of the Analyzer template (**ivesdean.ntf**). A good starting point is to analyze the Analyzer template.

Generally, filter validation formulas are standard Notes formulas. Analyzer extends these formulas for special purposes with advanced functions.

The following are the advanced filter functions:

- TMSRTContains
- TMSGetParentValue
- TMSGetChildValues(<Form Alias>::<field name>)
- TMSIncludeChildren(UNID; LOGIC)
- TMSSearchAll(Flag; Value)
- TMSIncludeParent(UNID)
- TMSAliasDuplicate/TMSTitleDuplicate(FieldName)

TMSRTContains

This function searches the specified rich text field for a value.

```
TMSRTContains( FieldName ; Flags; Value )
```

Parameter	Meaning	Flag	Flag Meaning
FieldName	This parameter represents the name of a rich text field on the current analyzer document. If **Apply To** is **Agent**, then it includes only rich text fields that exist on the **Agent** form in the analyzer template. Or If this parameter is set to **Rich Text**, then it looks in all rich text fields on the document.		No options
Flag	flags	This number tells TMSRTContains how to search. These flags can be **OR**'d together	
		0	Normal
		1	Whole Word
		2	Case Sensitive
		4	Accent Sensitive
		8	Wildcards
Value	This is the text to search for. It can be a quoted string or an unquoted field name. If it is a field name, Auditor gets the value to search for from that field, so it must be plain text.		"<string>" Quoted text string or <fieldname> Unquoted field name

TMSGetParentValue

This function gets a field value from a parent document in the Analyzer database.

TMSGetParentValue(<Form Alias>::<field name>)

Parameter	Meaning
<Form Alias>	This parameter must indicate a parent of the current document (following the structure of the Analyzer output). For example, **field** cannot be a parent document of a **form**. However, **Form** can be a parent for a field. Also, the only valid parent for a design element is **Database** (CDBP00).
<field name>	This parameter must represent a valid text field on the target document. Otherwise, it will fail. The field cannot be a rich text field. If the field is not a text field, the value is converted to text.

For example, consider the following:

```
TMSGetParentValue( CDBP00::fdbpFile )
```

It returns the file name of the current database.

It can be embedded in the RT formula as follows:

```
TMSRTContains( Rich Text ; 0; TMSGetParentValue(
CDBP00::fdbpFile )  )
```

When checking a filter, **GetParentValue** is evaluated first and its return value is substituted into the formula. Then the rest of the formula is evaluated. This function works on any **Apply To** filter except **Database** because Database documents do not have a parent.

TMSGetChildValues(<Form Alias>::<field name>)

This function returns a colon-separated list of field values from child documents in the Analyzer database.

Parameter	Meaning
<Form Alias>	This parameter indicates a form that can be a child of the current document. For example a **column** can be a child of a **view**, but a **field** cannot.
<field name>	This parameter represents a valid text field on the child documents, for example, **TMSGetChildValues(CCOL00::fcolTitle)**. When run against a view, the document returns a list of titles for all of the child columns.

TMSIncludeChildren(UNID; LOGIC)

This function runs the specified filter against all children of the current document and combines the results according to the specified logic.

Parameter	Meaning
UNID	This parameter is the UNID of the filter document you will use to run against the child documents.
LOGIC	Accepts values "AND" and "OR". "AND" - result will be true only if the filter evaluates to true for all children. "OR" - result will be true if the filter evaluates true for at least one child.

Use the **Select filter(s) to evaluate against children** button on the **filter definition** form to set up **TMSIncludeChildren**.

For example:

```
TMSIncludeChildren(" FA385C79559C18308525690B006479B6";"AND")
```

TMSSearchAll(Flag; Value)

This function is the same as **TMSRTContains** except it looks in all text and rich text fields on a document.

Parameter	Meaning	Flag	Flag Meaning
Flag	flags	This number tells TMSSearchAll how to search. These flags can be **OR**'d together	
		0	Normal
		1	Whole Word
		2	Case Sensitive
		4	Accent Sensitive
		8	Wildcards
Value	This is the text to search for. It can be a quoted string or an unquoted field name. If it is a field name, Auditor gets the value to search for from that field, so it must be plain text.		No options

This function returns **TRUE** or **FALSE**.

TMSIncludeParent(UNID)

This function finds the parent document of the document currently being analyzed and then runs the specified filter.

Parameter	Meaning
UNID	This parameter is the UNID of the Filter document that you will use to run against the parent of the current **Apply To**.

This function returns **TRUE** or **FALSE**.

TMSAliasDuplicate/TMSTitleDuplicate(FieldName)

This function checks for a duplicate title.

Parameter	Meaning
FieldName	This parameter is the field name that contains the value that you want to check against the list of titles or aliases for that particular class of design elements (form/view/agent/etc).

This function returns **TRUE** or **FALSE**.

Teamstudio CIAO!

Introduction

Congratulations on your purchase of Teamstudio CIAO!®

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio CIAO! allows multiple people to work on the design of the same database at the same time, without generating save conflicts on the particular design elements they are working on. You can use CIAO! client and CIAO! server for version control and for promoting versions of your database through the development cycle.

Note	All developers must use CIAO! for design element locking to work properly.

If you have used a version control system, for example, Subversion, which is an open-source source-control system, you are likely familiar with the principle of check-in/out. By checking out design elements, you lock those elements so no one else can change them while you are working on them.

CIAO! is made up of the CIAO! client, the CIAO! Config database, and the CIAO! Log database. The CIAO! client is where you check in and out the design elements you are working with. The CIAO! Config database is a list of databases that CIAO! knows about. With the CIAO! Config database, you can configure database promotion and version numbering, set up user authority for various CIAO! features, and link CIAO! with your issue tracking database. The CIAO! Log database keeps the history of every design element checked in.

Using CIAO!

To use CIAO!, you first identify a database to put under control.

CIAO! keeps a list of the databases it knows about in its configuration database, the *CIAO Config* database. You need to tell CIAO! where its configuration database is before you tell it what databases to watch.

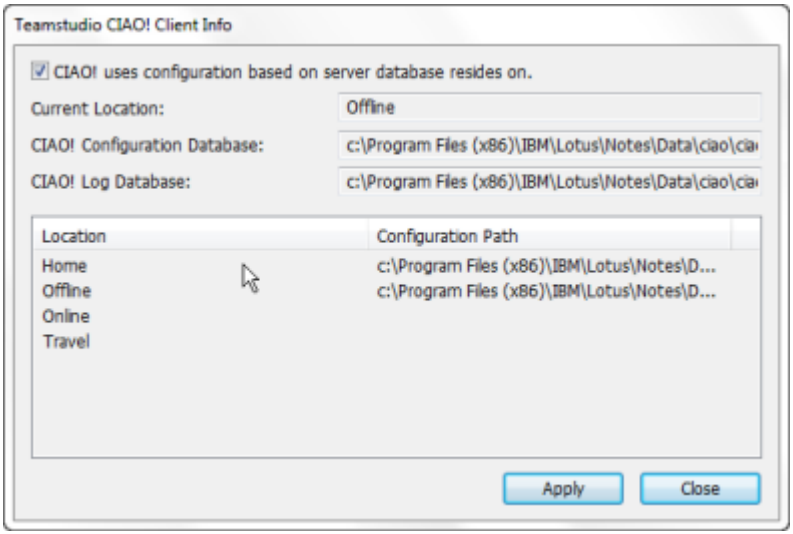
Note	The first time you run CIAO!, you are prompted for the serial number and key pair you got with your CIAO! license. If you have not entered this information, you must do so before you can enable version control for your application database. See the *Teamstudio Installation Guide*, to complete this step before continuing.

To start CIAO! and put a database under CIAO! control

1. In Designer, open the database.
2. Click the CIAO! button on the toolbar.

   If CIAO! cannot find the CIAO! Config database, you see a message asking if you want to edit the location of the configuration database.
3. Click **Yes** to display the **Teamstudio CIAO! Client Info** window.
4. Click to select the **CIAO! uses configuration based on server database resides on** option to force CIAO! to use the CIAO! Configuration database on the server of the target database.

Note	This configuration database must be on the same server as the watched database and be called CIAO\CIAOConfig.nsf.

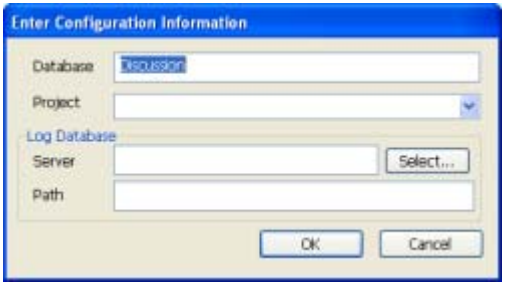


You see a message telling you that CIAO! is not configured to watch the database and

asking if you want to add it to the list of watched databases.

5. Click **Yes** to add this database to the list of watched databases.

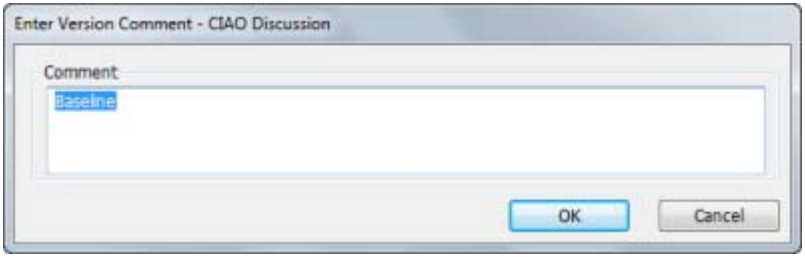
   You see the **Enter Configuration Information** window.



The following table describes the configuration fields.

Field	Description
Database	The title of the database to watch. The default information is based on the database icon you selected on the workspace.
Project	You can organize your work into projects. Each project has a set of databases within it. If you have previously defined any projects, they appear in the drop-down menu in this field. You can create a new project by typing the project name into this field.
Log File (database)	You can enter the server and path for the log database if you know them. Or click **Select** to browse for a log database. The value in this field will default to the last log database you selected. CIAO! can create a new Log database, if one does not exist for the specified server and path.

6. Enter the configuration information and click **OK**.
   You see the **Enter Version Comment** window.



7. Enter a comment, for example, “Initial version under CIAO! control” and click **OK**.

You see the **Version Options** window.

Note	Clicking **Cancel** puts the database under CAIO! control without a baseline version. It does not cancel putting the database under CIAO! control.

8. Enter **Initial** (or a name of your choice, such as 01000T) into the **Version Label** field (the default is BASELINE) and click **OK**.

Note	You can enter only letters and/or numerals in the Version Label field.

See “Understanding Version Options,” on page 85 for more information on field settings.

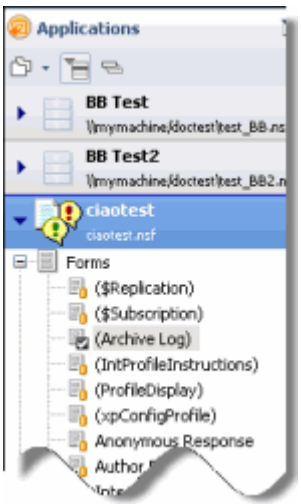
Working with Elements

CIAO! allows a team of developers to work on the design of the same database at the same time. With CIAO!, each developer effectively locks design elements while they are working on them, then unlocks the elements when they have finished. While a design element is locked, no other developer using CIAO! can make changes to it. This process of locking and unlocking design elements is called check-out and check-in.

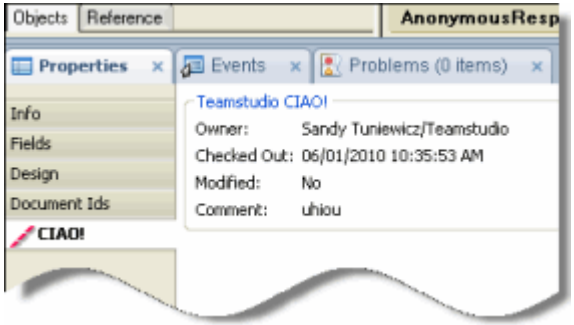
CIAO!-Awareness in Domino Designer 8.5.1 and 9.0

When using Domino Designer 8.5.1 or 9.0, in the Domino perspective and other perspectives that use the Package Explorer view, you will see database elements with icons beside them that represent a CIAO! status as described in the following table:

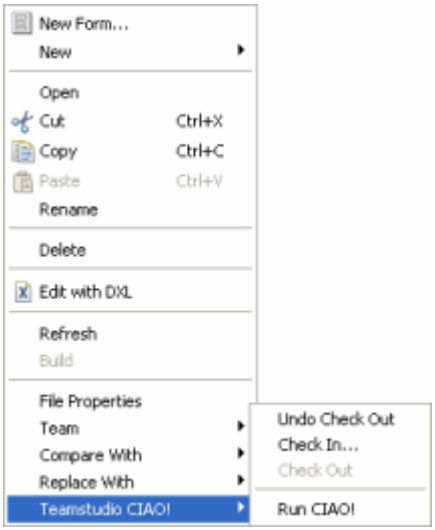
Icon	CIAO! Status
	CIAO!-watched
	Checked out to me
	Checked out to someone else



When you select a CIAO!-watched element, you'll see a CIAO! section of the Properties tab which displays the element's owner, checkout comment, date/time checked out, and whether or not the element has been changed.



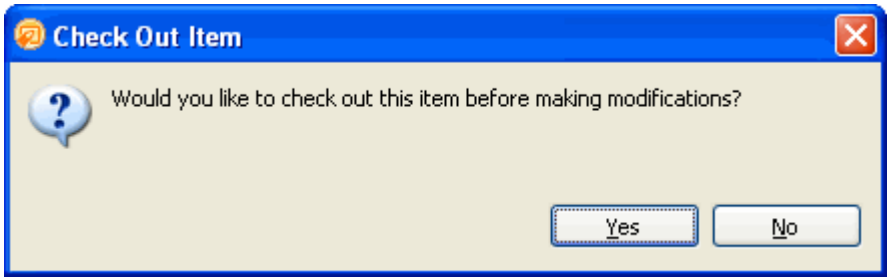
Additionally, by right-clicking within the Database Navigator pane, you display the shortcut menu where you can access CIAO! to Undo Check Out, Check In, Check Out or Run CIAO!.



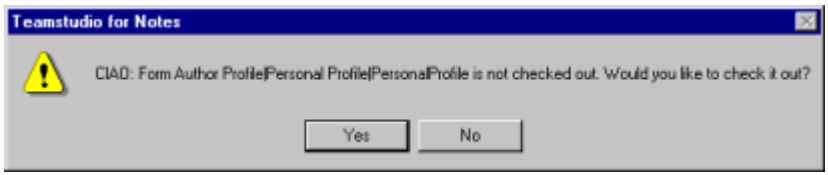
Checking an Element Out

Before you can make changes to the design of a watched database, make sure that you check out all the design elements associated with your changes together, so you won't later be stuck waiting to check out elements that someone else is working on.

If you are using Domino Designer 8.5.1 or later, CIAO! prompts you to check an element out when you begin to make changes to it.



If you are using Domino Designer versions earlier than 8.5.1 and you make changes to an element that is not checked out, CIAO! asks you to check it out when you go to save it.



To check design elements out

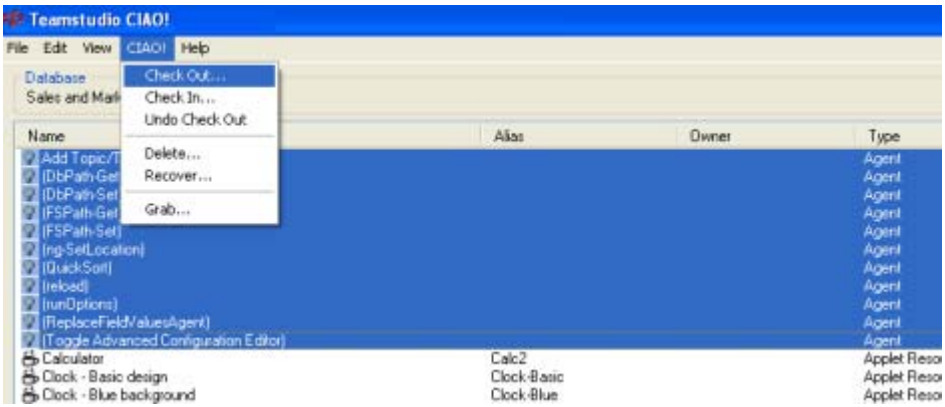
You check design elements out so no other developers will overwrite your changes. You can check design elements out as follows:

1. In Designer, open the database you want to work with.
2. Click the CIAO! button on the toolbar.
3. From CIAO!, select the design elements you want to check out by clicking the design element's name.

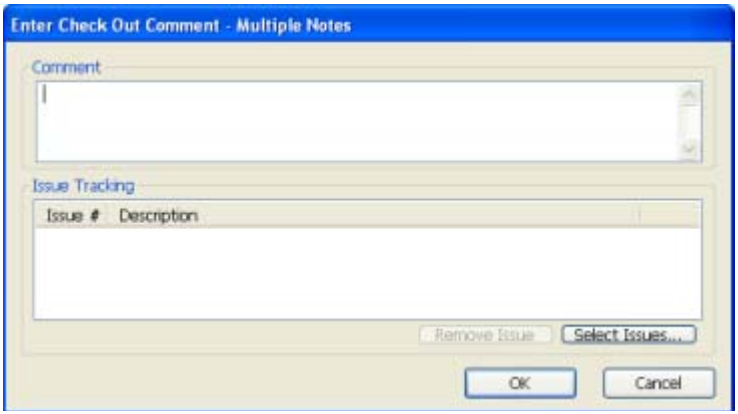
Note	If you are using Notes 8.5.1 or later, CIAO! automatically recognizes which element you have selected in designer and highlights it.

4. From the CIAO! menu, select **Check Out**.

Notes	
	• To select multiple design elements in a categorized view, click their check boxes, or, if using an uncategorized view, use the **SHIFT** or **CTRL** key as you click each element. • You can right-click a design element to display the shortcut menu, and select **Check Out**. • If a design element is template-linked, you cannot check it out. The template to which the element is linked is listed as the owner of the element. • To allow template-linked elements to be checked out, open the CIAO! Configuration database and set the Watch Linked field to **Yes**. See "Working with Templates and Template-linked Elements," on page 125 for more information. • Use CTRL+A or Edit > Select All to select all design elements, or, in a categorized view, check the box beside the database name.



You see the **Enter Check Out Comment** window.



5. Enter a comment describing the changes you are making to the design element.

Note	If the **An Issue is Required When Checking Out** option is checked in the CIAO! configuration database for the database you are working on, you must assign an issue to the check-out. If the **Mandatory Comment** option is checked in the CIAO! configuration database for the database you are working on, you must enter a comment for the check-out.

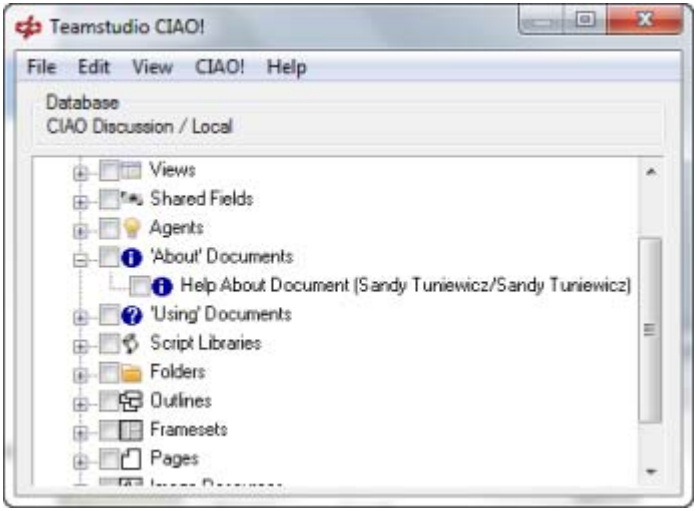
Tips	• Although you can open a design element, make changes, and only check the element out just before saving it, we do not recommended this. Since someone else may have checked the element out, made changes and checked it back in while you had the element open, you would over-write the other person's changes. Consequently, we strongly recommend that you check an element out before you change it. • If someone has not checked a file in, and you change that file outside of CIAO!, then you cannot check the file in.

To view the design elements checked out

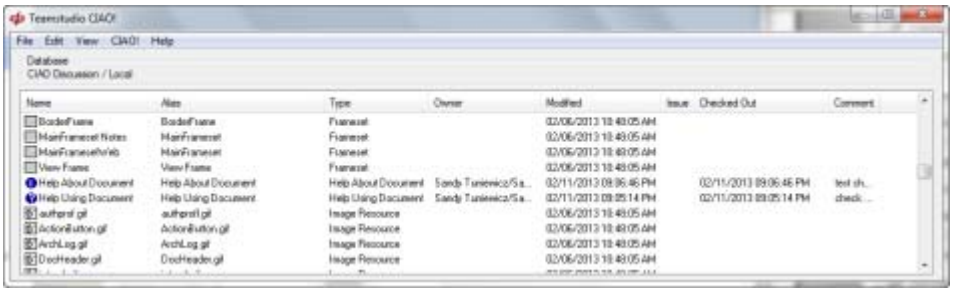
You view design elements checked out so you can see who is working with the design elements you are interested in. You can view the design elements checked out as follows:

1. In Designer, open the database you want to work with.
2. Click the CIAO! button on the toolbar.

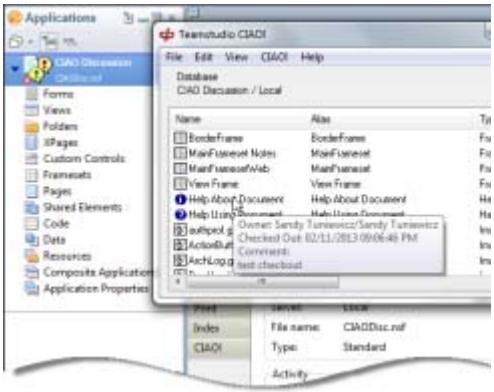
   You see the CIAO! window with the name of the open database, the design elements, and who has each element checked out.



If you change to the non-categorized view, you can sort the information in columns.



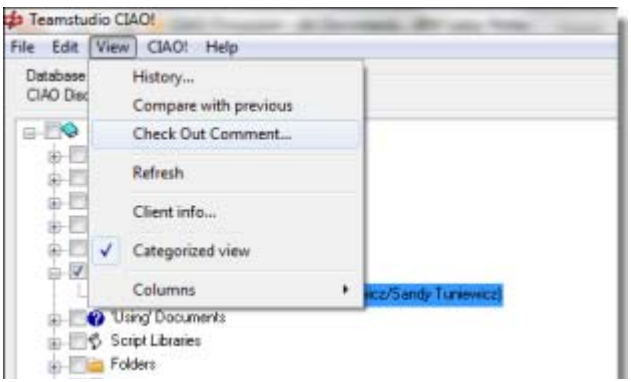
You can sort the list by clicking a column heading. You can also resize the column widths by dragging the side of the column header. Double-clicking on the column header divider will adjust the column width to best fit the contents.

Tip	You can view an element's owner, date checked out and comment by hovering your mouse pointer over the element. 

To view the check-out comment that someone else provided

You view check-out comments to see the type of changes the current owners of the elements say they are making. You can view check-out comments as follows:

1. Select the checked out element.
2. From the **View** menu, choose **Check Out Comment**.

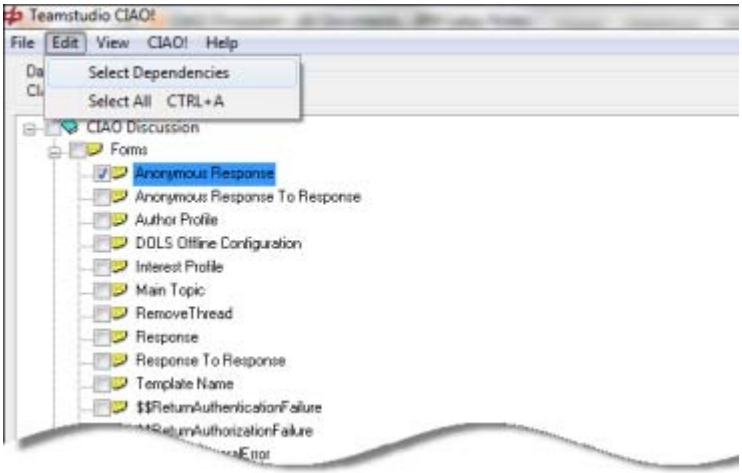


Note	You can edit comments for design elements that you checked out. Comments written by other owners are read-only.

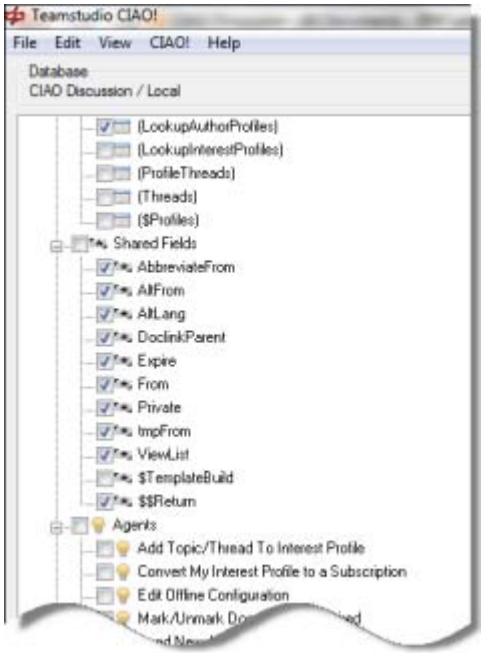
To check out a design element that uses other design elements

You check out a design element that uses other design elements, for example, a form and its subforms, so you can make appropriate changes to related elements and you can be sure that others do not make changes to them.

1. Select the main design element (for example, the form) by clicking it.
2. Choose **Select Dependencies** from the **Edit** menu.



Any dependent design elements (for example, subforms) are also selected.



3. From the **CIAO!** menu, choose **Check Out**.

   All selected elements are checked out.

How Using CIAO! Check-out Can Keep Your Changes Safe

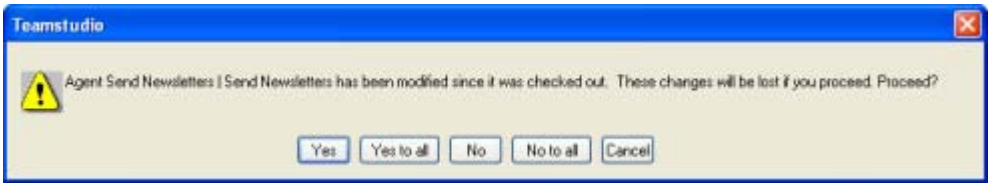
While you can view the design of an element someone else has checked out, if you try to save any changes, you see a message telling you who the element is checked out to.

Note	If CIAO! client is on your computer and you are saving a design element not checked out to anyone on a CIAO!-watched database, then CIAO! will ask you to check out that design element.

If the database is watched by CIAO! Server Edition, but you do not have CIAO! Client Edition installed locally (or you do have CIAO! installed, but it is disabled), you see a message telling you that you are not authorized to perform that operation.

Undoing a Check-out

If you have changed a design element, but change your mind, you can undo any changes you made by selecting the element in CIAO! and choosing **Undo Check Out** from the **CIAO!** menu. If CIAO! detects that you made changes to the element since the last check-in, you see the following message.



If you click **No**, the Undo Check-out operation will be canceled, and the element will remain checked out to you.

If you click **Yes**, the element will be restored to its state before the check-out. Any changes made to the design element after it was checked out are lost.

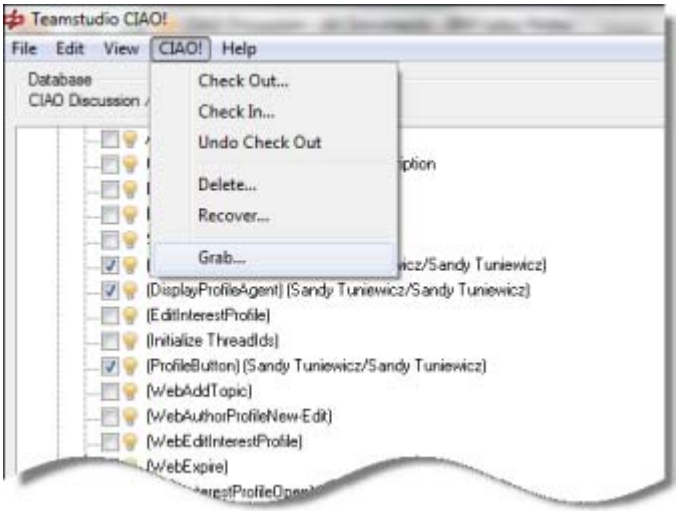
If you click **Cancel**, it is the same as if you clicked **No to All**.

What if I need an element someone else has checked out?

Occasionally you may find it necessary to check a design element out, even though someone else has already checked it out. For example: someone made changes to a set of design elements and saved the changes back in the master copy of the database. Then, that person left for a two-week vacation without checking those changes back in. Unless you had access to that person's Notes ID file, you could not get the changes checked back in to release the locks on the design elements. All elements must be checked in before you can save and create a new version of the design. See "Making Versions and Restoring to Previous Versions," on page 83.

The Grab feature allows you to check a design element out, even though it is

already checked out by someone else.



You can avoid a difficult situation using the Grab feature. CIAO! lets you grab one or more design elements, checking them out to yourself, even though they may be checked out to someone else. Use this feature with care, since if the person who had the design elements checked out has not saved his or her changes back in the master copy of the database, those changes will be lost.

When you grab a design element, CIAO! saves a copy of the checked-out element to the CIAO! log database with the Grab comment.

The Grab feature can be restricted from certain users by using a grab-disabled serial key. CIAO! comes with a grab-enabled serial key. To get a free grab-disabled key, please contact Teamstudio with your product serial number. Another way to restrict access to the grab feature is through the CIAO! Config database. See “Assigning CIAO! Feature Access,” on page 126 for more information.

Checking an Element In

You check an element in to make the element available for check-out. Checking an element in saves a copy of the element into the log database. This allows you to roll back to that change in the future. Each time you check an element in, CIAO! stores the following:

- Issues
- A copy of the element you are checking in
- The comment you attach to it
- A record of who made the check-in operation
- When the check-in operation occurred

Checking in a Single Element

If you entered a check-out comment, and you are only checking in a single element, then CIAO! uses this check-out comment as the default.

To check a design element in

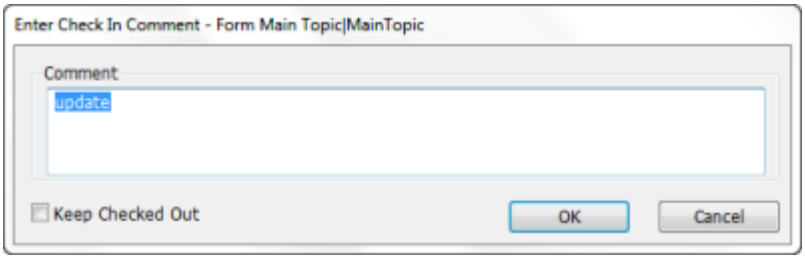
1. In Designer, open the database you want to work with.
2. Click the CIAO! button on the toolbar.

   Design elements that have been changed display in blue by default in the CIAO! main window.
3. Select the design elements you want to check in.

Note	If you are using Notes 8.5.1 or later, CIAO! automatically recognizes which element you have open in designer and highlights it.

4. From the **CIAO!** menu, choose **Check In**.

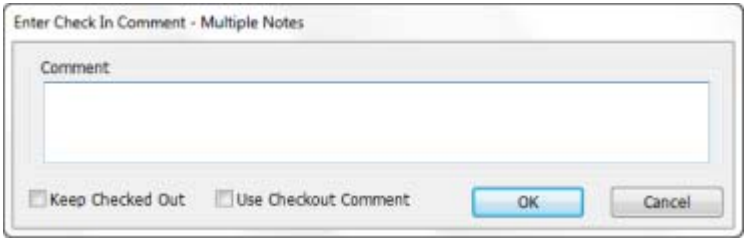
   You see the Enter Check In Comment window.



5. Enter the check-in comment and click **OK**.

Tip	You can check in multiple elements at the same time by selecting the elements you want to check in, and then choosing **Check-in** from the **CIAO!** menu. If using an uncategorized view, you select multiple elements at once by holding down the **CTRL** or **shift** key while selecting. To check in all elements that are checked out to you, click the **Owner** column in the CIAO! main window. This sorts the display of elements alphabetically by owner (that is, who has the element checked out), making it easier to select all of the elements that you currently have checked out. If using a categorized view, you select multiple elements by clicking to select their check boxes.

You may find it convenient to select multiple elements, then check them in, rather than check in one at a time. If you are checking in multiple elements, you see the following window.



The **Keep checked out** check box lets you make new versions of the elements, but keep them checked out. This is useful if you want to save your changes, yet continue working on the same elements.

The **Use Checkout Comment** check box lets you automatically use the checkout comment as the Check In comment.

Note	If you are checking in multiple elements together, the check-out comment will not be displayed as the default check-in comment.

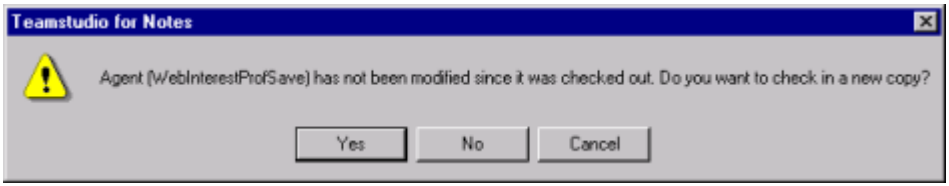
When checking in multiple elements, including some that you haven't modified, you see a message, offering two additional options: **Yes to all** and **No to all**.

- Click one of these buttons if you do not want to check in each element individually.

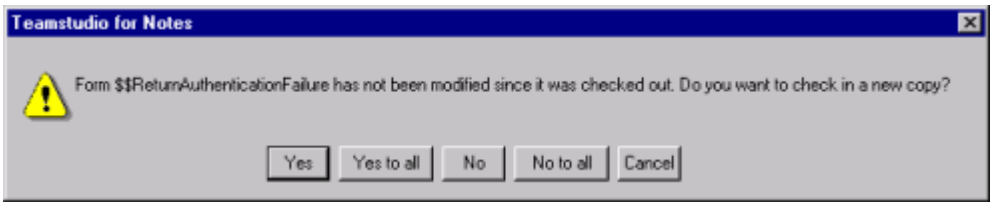
Note	The **No to all** button only applies to elements that have not been modified.

To check in an unchanged design element

You may check in an element, even if you have not changed it. If you have not made any changes to the design element since you checked it out, you see a message asking if you want to check in a new copy (that is, make a new version).



You see a similar message if you are checking in multiple elements.

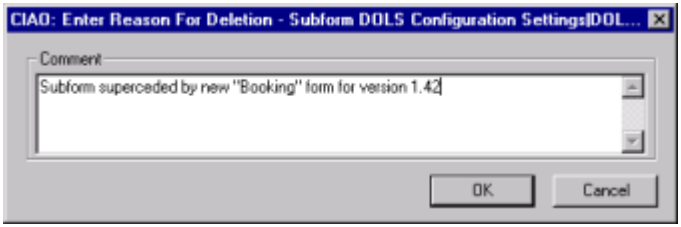


- Click **Yes**, or **Yes to all** if you want to check in the element and have CIAO! make a new version of the element, which is exactly the same as the previous version.
- Click **No**, or **No to all** if you if you want to check in the element without making a new version.
- Click **Cancel** to cancel the check-in and to keep the element checked out.

Deleting and Recovering Elements

You can only delete a design element from a watched database if you have the element checked out. If you have an element checked out, and you delete it from the database design, CIAO! asks you for a comment, as it would for any other change

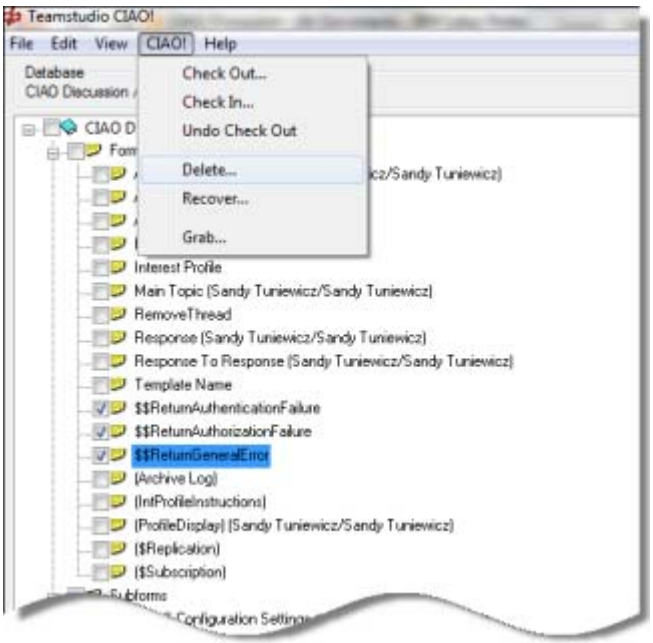
to the database design.



If you are deleting a number of elements at the same time, it can become tedious to enter the same comment for each element.

To delete multiple elements through CIAO!

1. Select the elements you want to delete.
2. Check them all out.
3. From the **CIAO!** menu, choose **Delete**.



Once you delete a design element, you no longer see it in the CIAO! main window.

To restore a design element that was deleted

You can restore a deleted design element as follows:

1. From the **CIAO!** menu, select **Recover**.

   You see the **Recover** window, showing all the design elements that have been deleted.
2. In the **Item** column, click the element name.
3. Click the **Rollback** button.

   Once the rollback is complete, the element is automatically checked out to you.

Tip	If the database design is open in Designer when you do the Recover operation, Notes does not refresh the view of the design until you close and re-open the database. After a Recover operation, always close the database design in Notes and open it again before continuing. Press **F9** to refresh the Notes user interface.

Working with Element History

You view an element's history to see who has been working on an element and what changes they have made. From the History window you can also choose to view changes between two versions or rollback to a previous version.

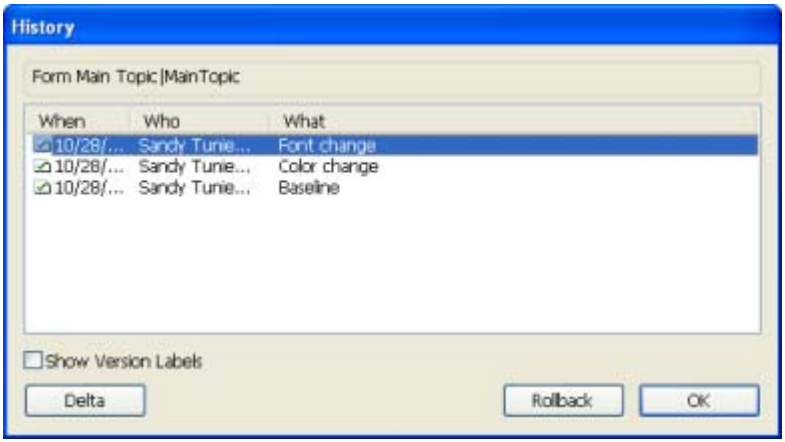
To view the history of a design element

You can view the history of a design element as follows:

1. From CIAO!, select the design element you want to view the history of.
2. From the CIAO! **View** menu, choose **History** (or double-click the design element).

   Items prefixed by a star symbol indicate a version, rather than a check-in.

3. Optionally, check the **Show Version Labels** box to see versions for your information and not for roll back.



Note	You cannot rollback a version. You can only rollback to a previous check-in operation. A version merely acts like a bookmark or placeholder. When you perform a Make Version operation, a new version of this element is created only if no previous version exists.

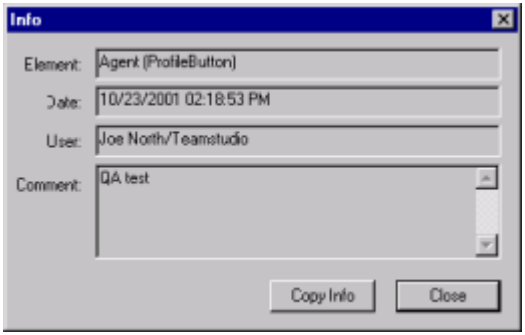
If no previous versions of the element have been stored, that is, the element has not been checked in, you see the a message telling you that there are no previous versions of the element in the log file.

To copy History text to the clipboard

When you double-click a line item within the History window, you see history details. You can copy the info to the clipboard to use elsewhere as follows:

1. Double-click an item in the **History** window.

   You see the **Info** window.



2. Do one of the following:

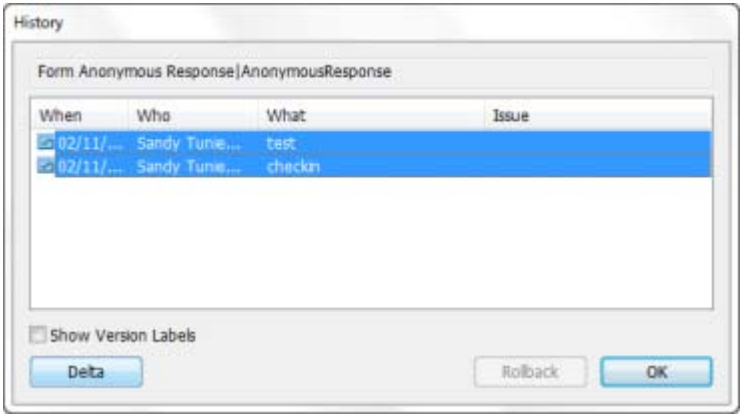
   – Click **Copy Info** to copy all of the text to the clipboard.

   – Select some text and press **Ctrl+C** to copy only the selected text to the clipboard.

To compare two versions of an element

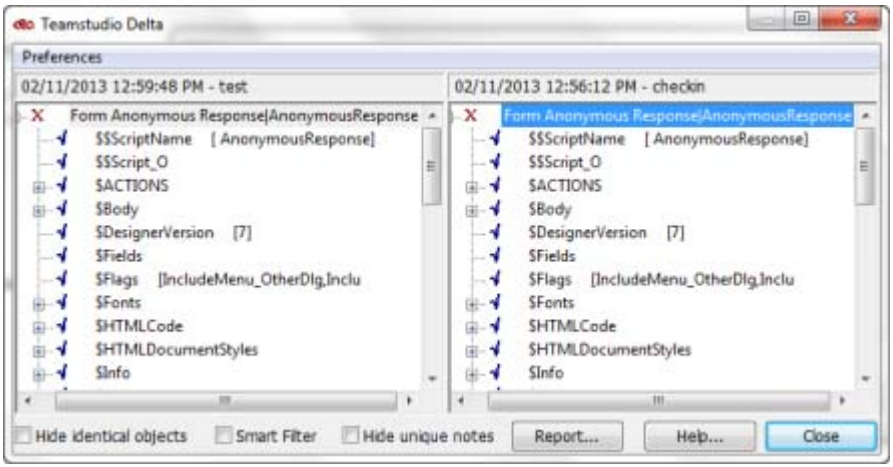
You can compare any two versions of a design element as follows:

1. In the **History** window, click to select a version and then hold down the **CTRL** key while you click the second version to compare.



2. Click the Delta button.

   You see the Delta window.



   You see the two elements you chose to compare displayed side-by-side in the Delta window. The windows in the two panes are synchronized, so that as you scroll through one, the other scrolls with it. You can expand or collapse headings by clicking the plus/minus signs. To expand the list of elements, click the plus sign in either pane. Corresponding elements are always listed side-by-side. Corresponding design elements

always have identical names and are of the same type.

An arrow pointing right indicates that the element exists in Database 2 only. If there is no corresponding element in Database 2 to an element in Database 1, the corresponding line in database 2 is blank. An arrow pointing left indicates that the element exists in Database 1 only. To drill down to successively lower levels of detail, continue clicking plus signs. To expand everything, press the asterisk key on the numeric keypad.

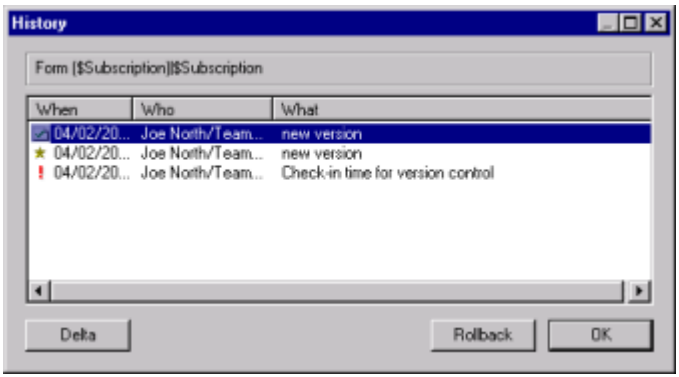
See “Comparing Elements or Documents,” on page 174, for more information.

To restore a previous version of an element

While working with an element, you may decide it is best to start fresh with a previous version of that element. You can restore a previous version of an element as follows:

1. To view previous versions of any design element, open CIAO! and double-click the name of the design element.

   If the selected element has been checked in at least once, you see the **History** window.



   In the **History** window, all previous versions of the element are sorted by check-in date.

2. Select the date of the version you want to restore and click **Rollback**.

Note	You must have the element checked out before you can rollback to a previous version. This does not apply to deleted elements, which you cannot check out.

Making Versions and Restoring to Previous Versions

If changes are made accidentally or have been put into production without proper testing, you can undo the last set of changes and return quickly to a database design that works. If you need to reverse a large number of changes that have been made to the database since the last version was made, you may want to restore the entire database design.

When your team has finished making changes to a database design, and you are ready to make a new release of the database, you can save and assign a new version to all of the design elements giving them the same comment at the same time. Then you can look at the history of changes made to any one element and see which changes were made before a particular release was made, and which changes were made after the release.

This is also the time when you increment the version number of your database design.

Note	When you first put a database under CIAO! control, CIAO! automatically tries to make an initial version of that database. You can restrict access to the Make Version feature through the CIAO! Configuration database. See “Assigning CIAO! Feature Access,” on page 126 for more information.

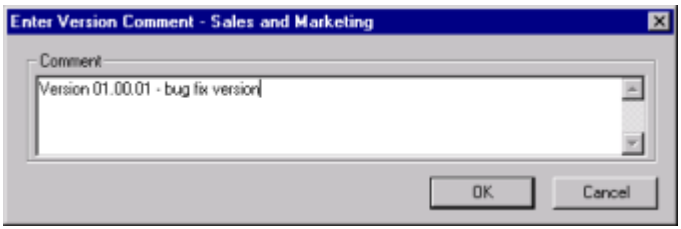
You make a version of a database design so you can have a point release ready for QA or for Production, or just a stable roll-back point when you need it.

You can make a version as follows:

To make a version of a database design

1. In Designer, open the database you want to work with.
2. Click the CIAO! button on the toolbar.
3. Check in all design elements.
4. From the CIAO! **File** menu, choose **Make Version**.

   You see the **Enter Version Comment** window.
5. Enter a version comment describing the purpose of the version.



   You see the **Version Options** window.
6. Select the version options you want, and then click **OK**. See “Understanding Version Options,” on page 85 for more information.

   CIAO! adds the new version label entry to the history of each design element.

Understanding Version Options

The following tables describe the sections of the **Version Options** window:

Version Options: Version Label and Database

Item	Description
Version Label	No spaces or special characters are allowed except "__" (underscore). Enter the label, which will become part of the version name. For example, entering Sales for version number 1.1.0 results in a release number of Sales1.1.0. This is a required field.
Title	The database title for the new version
File Name	The filename for the new version.
Extension	NTF for template or NSF for database.

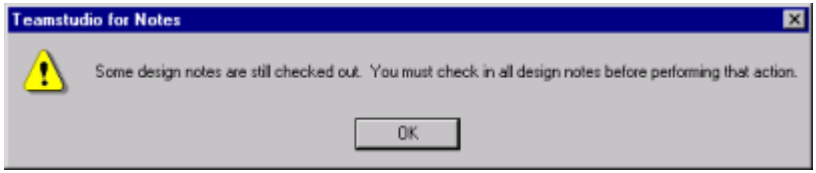
Version Options: Save

Item	Description
Database design and documents	Select this option to store the data that is in the database along with its design. This may be useful if you want to keep test data with this version of the database, or if some data documents, such as configuration documents, form part of the design. The default, Database design only, stores only the design, without the data.
Database design only	Select this option to store only the database design.
Access Control List	Select this check box to have CIAO! maintain the access control list for the saved database. Otherwise, the default access (author) is applied.
Replica ID and settings	Select this check box to have CIAO! keep any replication settings you have configured.
Store version as ZIP file	Select this check box to store the version CIAO! creates in a compressed format in the CIAO! Log to save space. If this check box is cleared, CIAO! creates your database version as an .nsf or .ntf file, uncompressed.

Version Options: Version Numbers

Item	Description
Release Type	Choose the type of release: No Change (to define a baseline or initial value for a design), Major, Minor or Point. Consider the three place version numbering scheme (1.0.0). • The left-most position indicates a major version to accommodate major feature additions • The middle position indicates a minor version to accommodate minor feature enhancements • The right-most position indicates a point version for bug fixes You can customize the terms used for the Release Type options in CIAO! Config.
Current Release	This is the current release number. CIAO! looks to see if previous versions exist in the Log database. If previous versions exist, CIAO! uses the latest for the current version number. If no previous version is found, CIAO! uses the default value from the CIAO! Config document. You cannot change this field.
Next Release	This is the next release number, a field you can change. It was recorded in the CIAO! Log as the latest release number. For the first version number assignment by CIAO!, you can start from the beginning (for example, 1.0.0), or you can use the database's current version number (for example, 3.4.0). If no previous version is found, CIAO! uses the default value from the CIAO! Config document.
Current Client Version	Version of Notes Designer
Force Database Version	Select this check box to choose a Notes release that is earlier than your current client version. This option makes the new version of your database compatible with this release.

If you try to make a version while a design element is still checked out, you see a message telling you to check in all design notes. Notes that are checked out tell you that a developer may not have finished that work.



Once you check in all design notes, select **Make Version** again.

When you make a version, and CIAO! cannot find a check-in document in the Log database, CIAO! creates one. The reason for this is so you can roll-back to the version of the design element as it was when that version was created. You cannot perform a roll-back operation on a version record. CIAO! gives this check-in operation the same comment given to the version to show that the only purpose of the check-in is to create the version.

Tip	If you receive the error message "You are not authorized to perform that action" while creating a new version of the database design, this is probably caused by a private view or agent in the database design that belongs to someone else. Be sure you have rights to all the elements in the database before you make a version.

Restoring the Entire Database Design

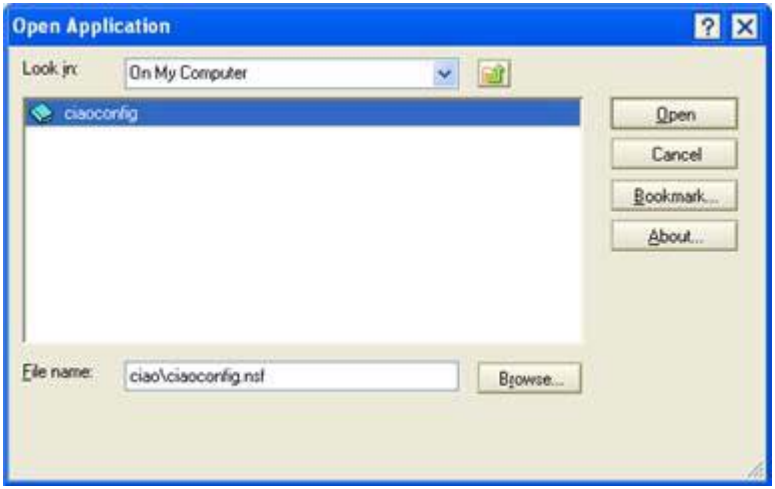
In addition to being able to roll back individual design element changes, you can also revert to a complete previous version of the database, that is, to a point at which a Make Version was performed.

To restore the entire database design, you make a new version, get the version you want to bring back from the CIAO! log file and save the version to the path of the database you want to overwrite.

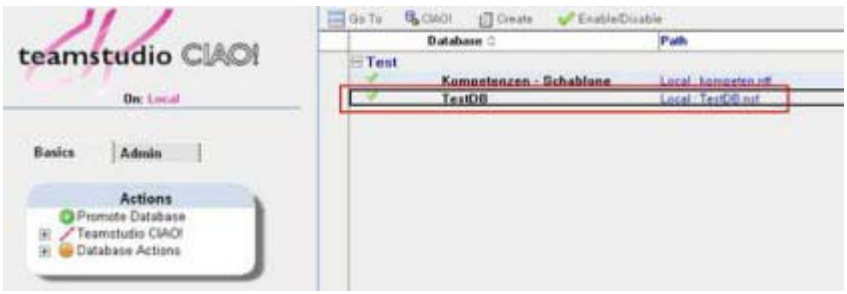
To roll back the entire database design

You restore a database design as follows:

1. Open the CIAO! Configuration database, which you typically find in the ciao/ciaoconfig.nsf path.

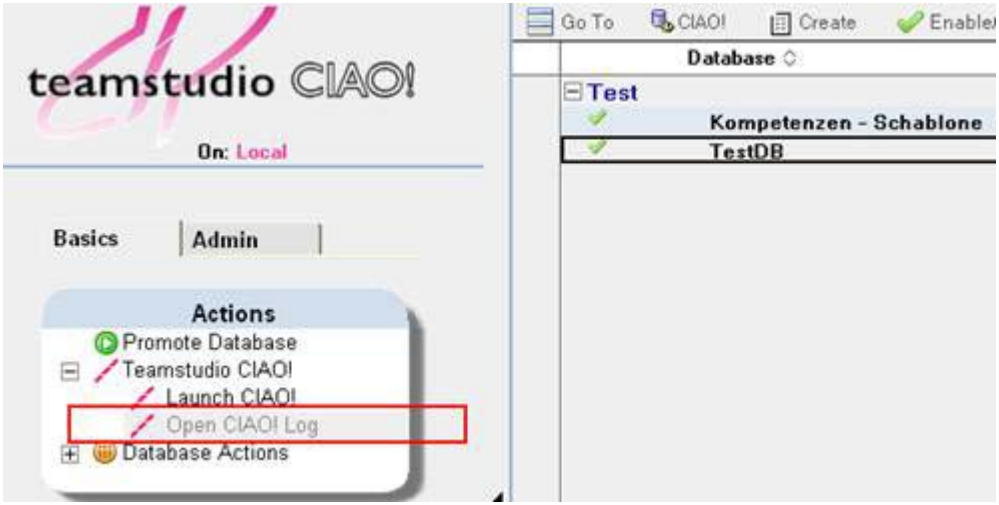


2. Locate the database document for the database you want to roll the design back on.

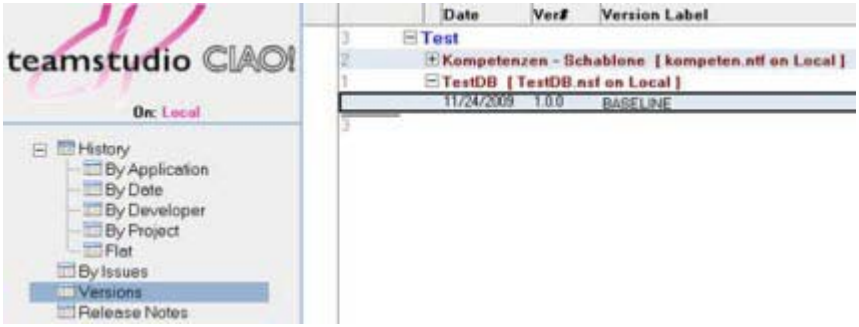


3. Select the database document. Then, in the Teamstudio CIAO! > Actions section, click

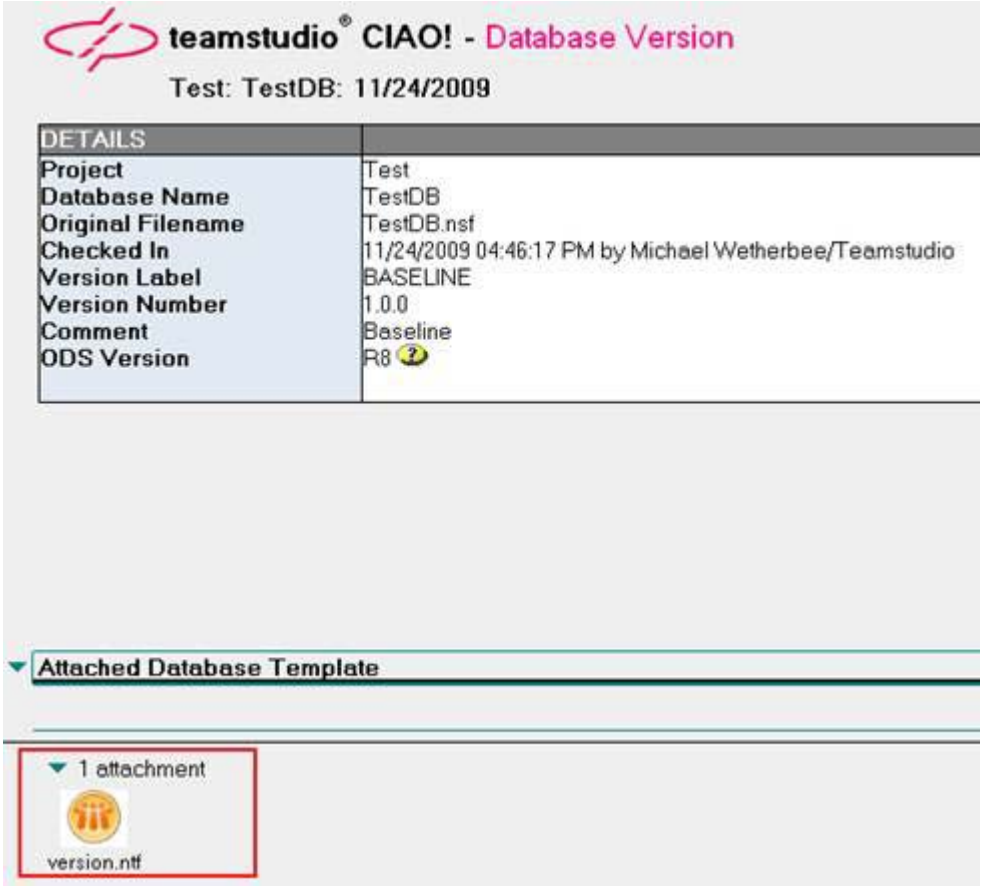
Open CIAO! Log.



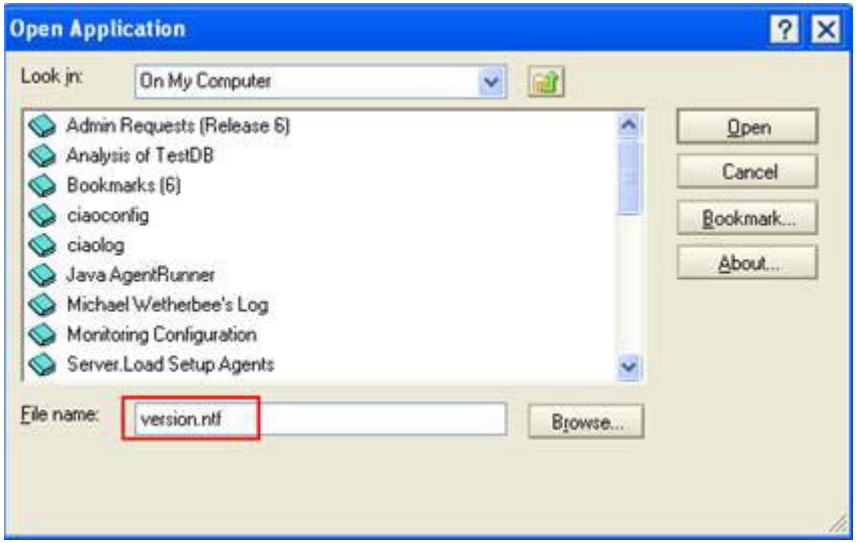
4. Once the log database opens, select the Versions view. Then locate and open the version document for the version of the database you want to roll back the design of.



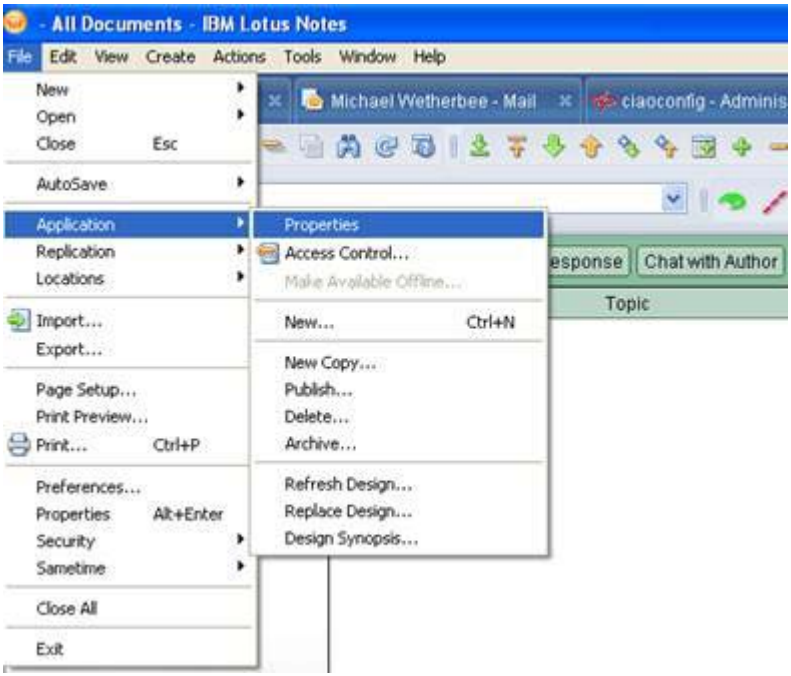
5. Locate the version attachment, which can be in the ntf or zip file format.



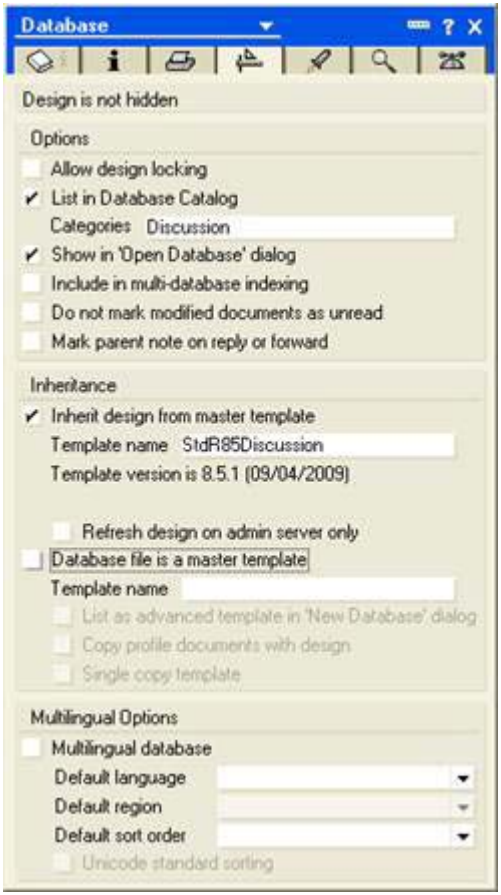
6. For an ntf, right click and save the attachment to your local data directory. For a zip, extract it to your local data directory.
7. Click File>Open>Lotus Notes Application and type version.ntf in the File name box.



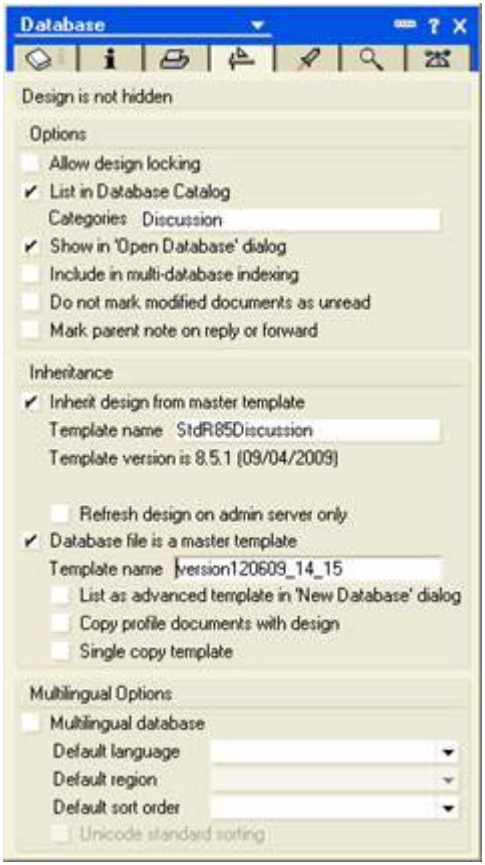
8. Once the database opens, open the applications properties by selecting File > Application > Properties.



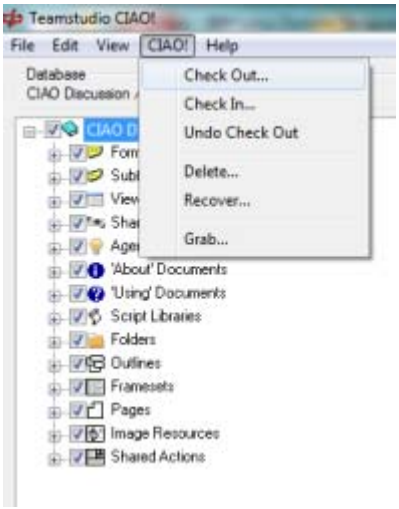
9. When the properties box opens, click the Design tab.



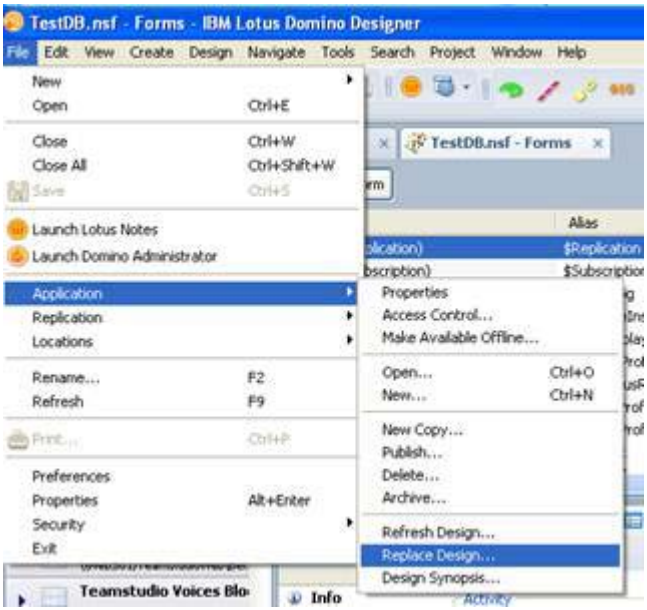
10. Give the template a unique template name, for example, the word “version” followed by the date and time.



11. Once you have established this version as a template, open the database you want to roll back in CIAO!. Then, check out all design elements.

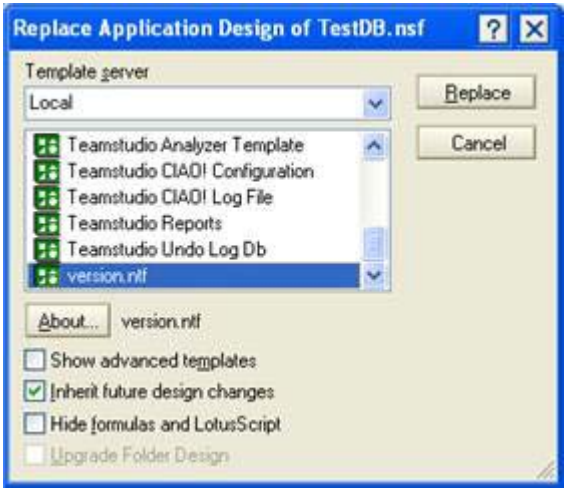


12. In Designer, open the database you want to roll back. Then replace the design.

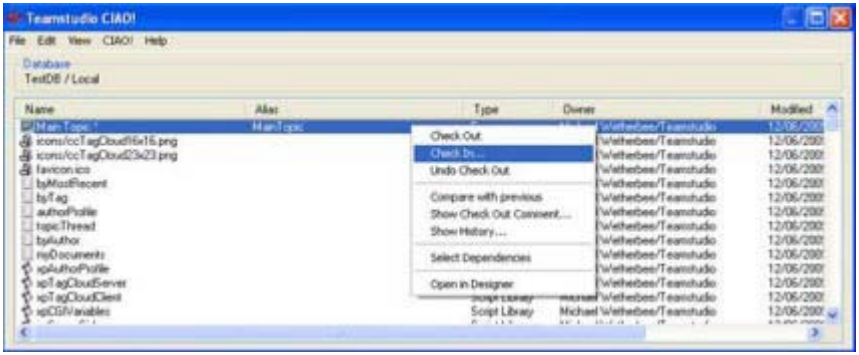


You see the template selection window.

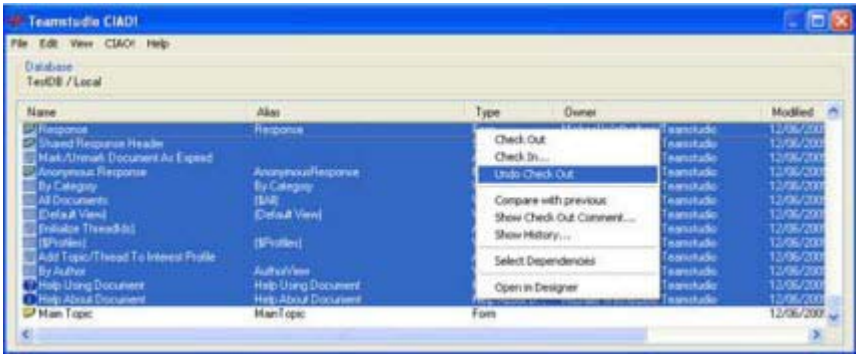
13. Select the **version.ntf** template and click replace.



14. Once the replace is complete, open the database you rolled back in Teamstudio CIAO!. Then check in the changed items (blue font).



15. Select the remaining items. Then undo the checkout.

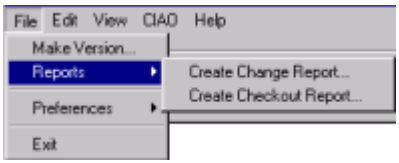


The database has been successfully rolled back to a previous version.

Working with CIAO! Reports

CIAO! provides the following reports:

- Checkout Activity Report
- Change Report



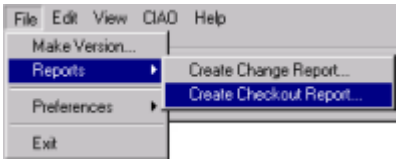
Checkout Activity Report

You run the Checkout Activity Report to see a list of what elements are currently checked out. The report includes elements from all the databases watched by CIAO!.

Since this report shows check-out activity at the time it is run, you can save previous report data from one run to the next so you have a history of check-out activity.

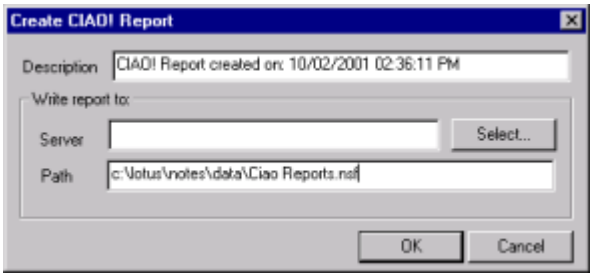
To create a Checkout Report

1. From the **File** menu, choose **Reports** > **Create Checkout Report**.



Note	All databases listed in the CIAO! Config database are included in the report.

You see the **Create CIAO! Report** window with a default title and the current date and time. You can change the report name by changing the text in the **Description** box.



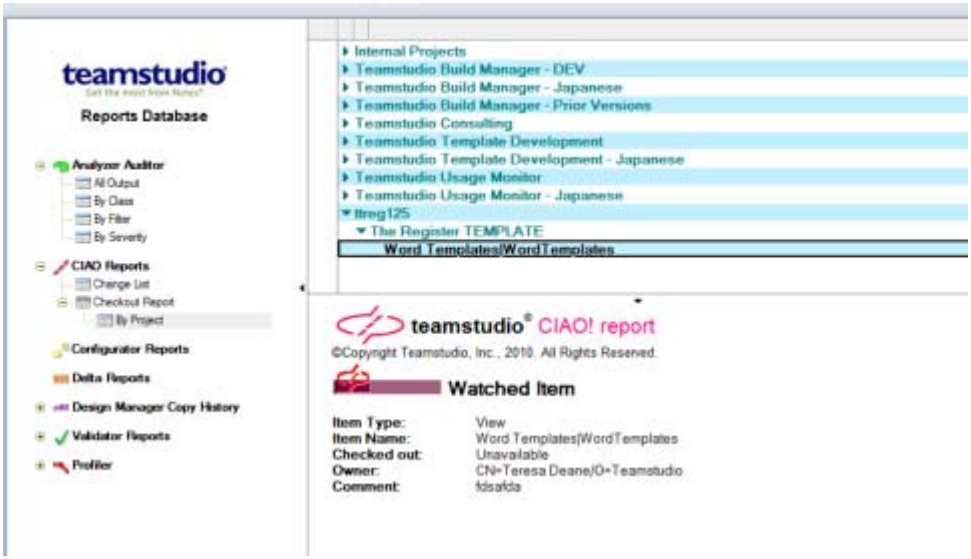
If you do not have a report database, CIAO! creates one.

2. To create the report, click **OK**.
   You see a message with the report's location.

To view the checkout report

1. Open the CIAO! Report database.
2. Open the CIAO! Checkout Report view.

The view is sorted by database name (by default). An alternate view is sorted by project and database name.



You see the following information for each design element:

– Item Type

– Name of the design element

– Developer who checked out the element

– Date and time of the check-out

– Comment that the developer included (if any)

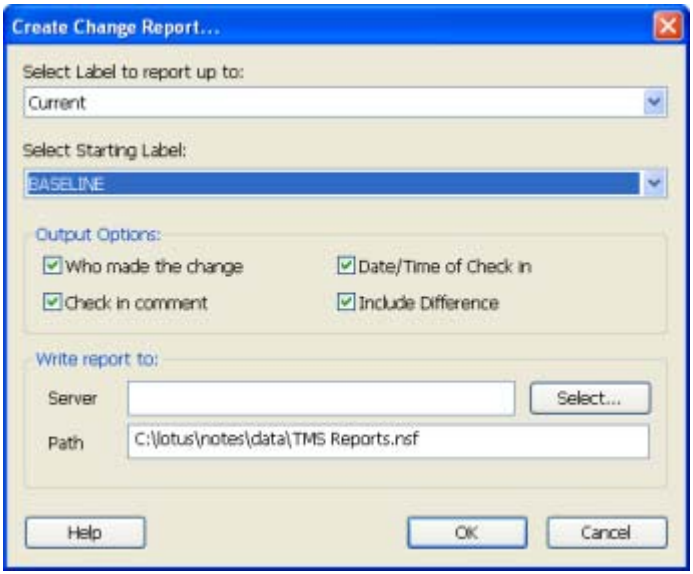
Change Report

To see only those elements that have changed between database versions, view the CIAO! Change Report. You can use information in the change report as a source for release notes.

To create a change report for a specified database

1. Make a new version of the database if you want the ability to include its most recent changes in the change report.
2. From the **File** menu, choose **Reports** > **Create Change Report**.

   You see the **Create Change Report** window.



3. Select the range of versions you want.
   a. Select the version label to report up to.
   b. Select the starting label to report changes from.
4. Select the output options to use as the report columns.

   – Who made the change

   – Date/Time of Check-in

   – Check-in comment

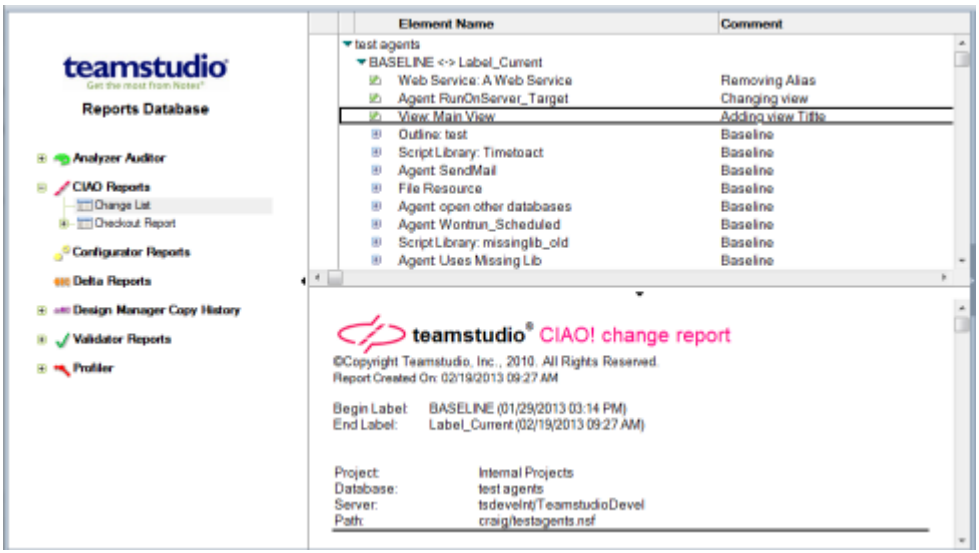
   – Include Difference

5. Optionally identify the server and path of the report's output location, or use the default.
6. Click **OK** to create the report.

   You see a message telling you the report has been successfully created.

To view the Change Report

1. Open the reports database.
2. Expand the CIAO Reports section by clicking the plus sign, then click Change List.
3. Open the twistie for the changes you want to see.



4. Double-click any element to see a detailed change report for it.

teamstudio® CIAO! change report

Report Created On: 11/04/2009 01:56 PM

Begin Label: BASELINE (10/29/2009 07:02 AM)
End Label: newversion (11/04/2009 01:54 PM)

Project:
Database: QA
Server:
Path: QA.nsf

Element: Form: Main Topic

Changed By: CN=Sandy Tuniewicz/O=Teamstudio
Date of Change: 11/04/2009 01:29 PM
Comment: any change

Associated Issues
Issue database:

Difference:

How it looked before
How it looked after it was Checked in

Form Main Topic|MainTopic

$Info
$INFO

Document

Background Color:	Yellow
Background Color:	Dark magenta
Background Color (R4):	Yellow
Background Color (R4):	Dark magenta
Red:	255
Red:	161
Green:	255
Green:	0
Blue:	0

About CIAO! Version Control

With CIAO!, you can store previous versions of design elements and you can restore them if needed. Each time you check in a new version of a design element, you may enter a comment about and identify an issue related to the changes you made. CIAO! keeps a log of all the changes to each design element, so you can rollback to any stored version of the design element you want.

When viewing a design element's change history, you can compare two versions of the element, so you can see exactly what has changed from one version to the next.

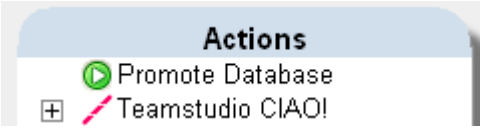
When the design of a database is ready for release, you can make a new version. When you make a version, CIAO! assigns all of the design elements the same date and comment, and stores a copy of the database design in the log database.

Promoting a Database

You promote a database to change its release number and move it to the next phase of the development cycle. Once an admin has created the promotion step, you can promote a database as follows:

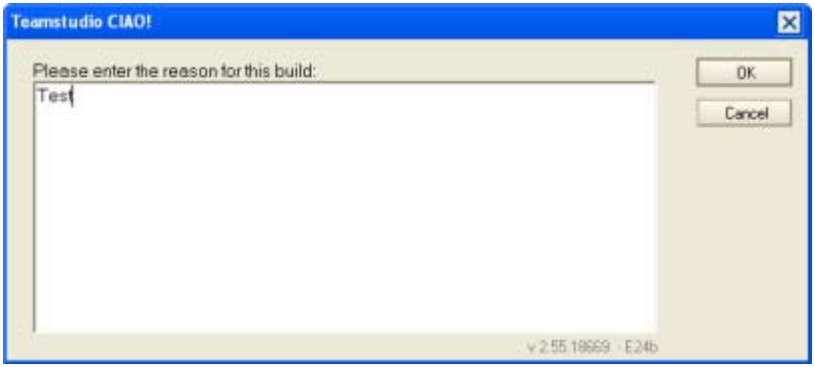
To promote a database

1. Open the CIAO! Config database.
2. Locate the database you want to promote and select it.
3. Click **Promote Database**.

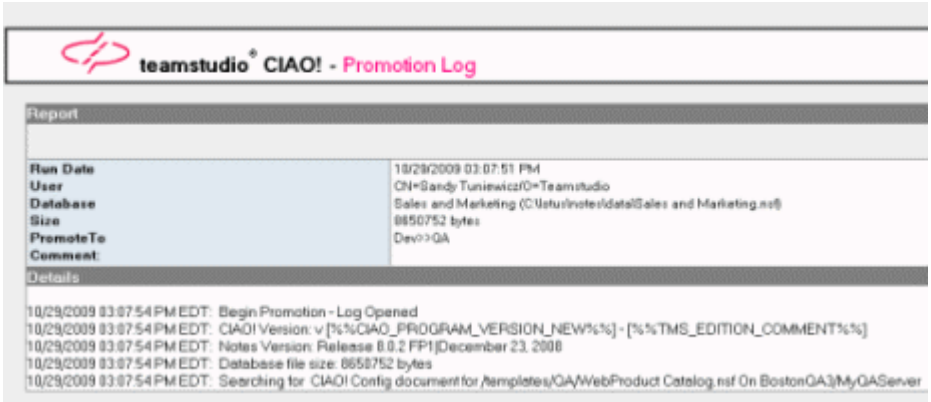


You see the **Comment** window.

4. Enter a comment for the promotion and click **OK**.



You see the promotion log which tells you if the promotion was successful.



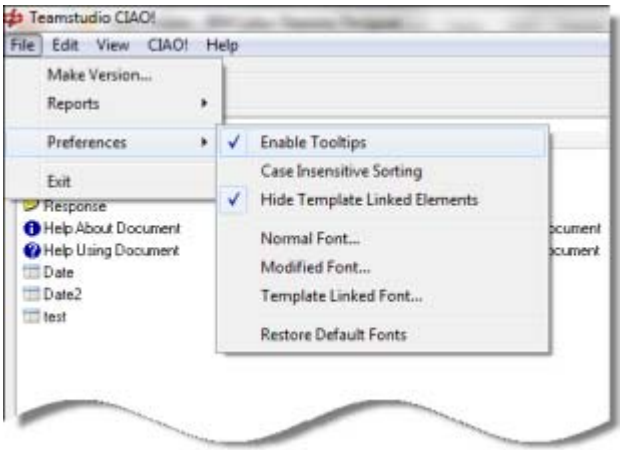
Changing CIAO! Preferences and Views

From the main CIAO! window, you can set preferences for how you want CIAO! to appear. You can also make changes to how the views appear.

Changing CIAO! Preferences

You can change the following preferences:

- Enable or disable Tooltips
- Enable or disable case insensitive sorting (when enabled, sort ignores case)
- Hide or show template linked elements
- Define the fonts for normal and modified elements
- Define the font for template-linked elements
- Restore the default font



To enable/disable Tooltips

You can enable or disable tooltips as follows:

- From the CIAO! menu select **Enable Tooltips** to add or remove the checkmark from the menu item.

To enable/disable case insensitive sorting

You can enable or disable case insensitive sorting as follows:

- From the CIAO! menu select **Case Insensitive Sorting** to add or remove the checkmark from the menu item.

To hide template-linked elements

If you make changes to template-linked elements, the changes could later be overwritten in the case of a design refresh or replace. You can change CIAO! preferences so that template-linked elements are not displayed in the CIAO! window.

- Click **File** > **Preferences** > **Hide Template Linked Elements**

To define fonts

You can define font types, for example, the Normal Font, used in the CIAO! window as follows:

1. Click **File** > **Preferences** > **Normal Font**

   You see the **Font** window.
2. Select the font, font style, size, effects and color as needed.
3. Click **OK**.

To restore the default font

You can restore the default font as follows:

- Click **File** > **Preferences** > **Restore Default Fonts**

Making changes in the view

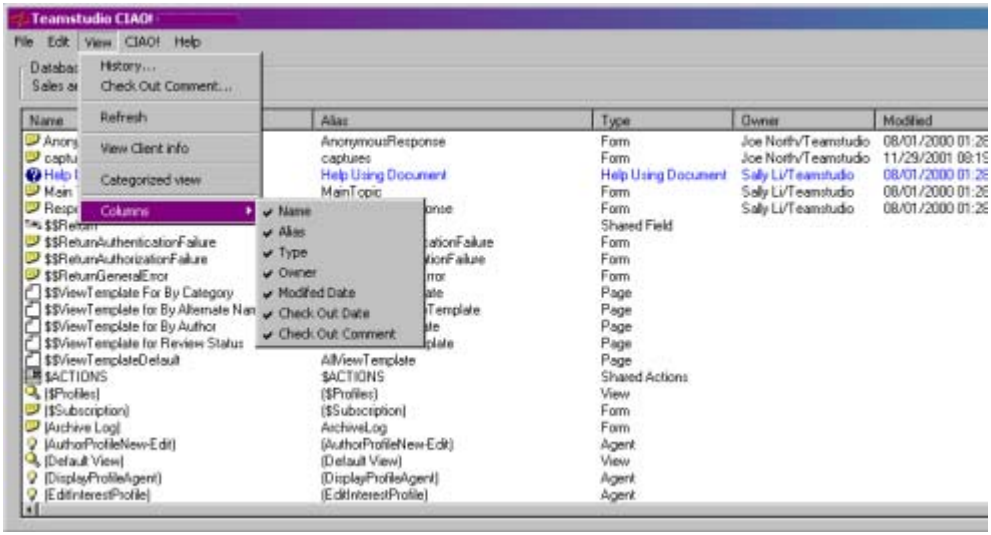
Here are some changes you can make to the view:

- Add or remove columns from the view
- Change to a categorized view

To add/remove columns from the view

You can choose which columns to display in the CIAO! window as follows:

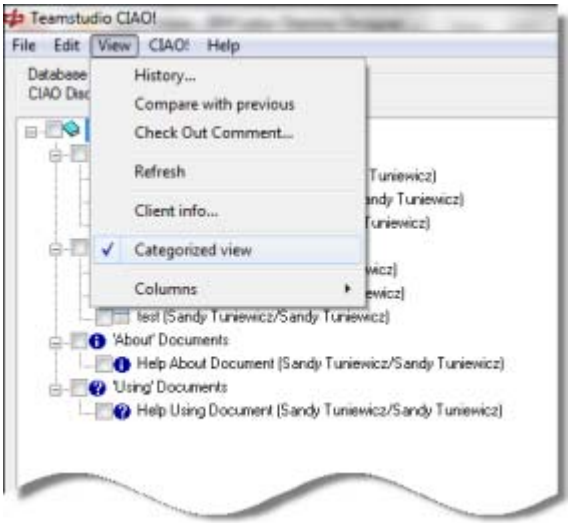
1. Click **View > Columns** to add optional columns to the view, customizing the type of information that appears.
2. Check or uncheck an item to add or remove the column from the view.



To change to a categorized view

The CIAO! main window *default* view lets you sort by clicking a column heading. CIAO! also has a *categorized* view of design elements that you can switch to as follows:

- Click **View** > **Categorized View** to toggle between the two views.



The check mark beside **Categorized View** indicates that the Categorized View is active.

Administering CIAO!

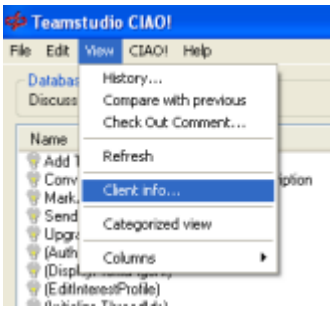
Alternate Ways to Set up CIAO!

CIAO! can be set up so that each location can point to a different configuration database. This is convenient for those who are on-the-go.

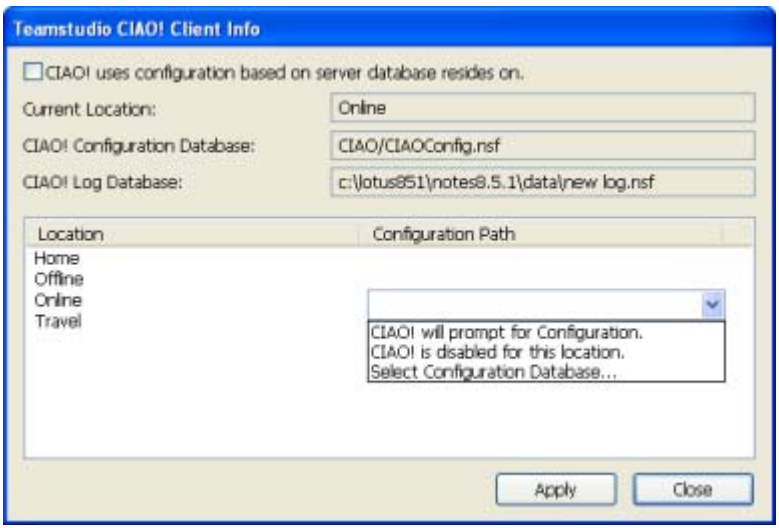
To locate and/or change the path to your CIAO! Config database

You can change the path to your CIAO! Config database as follows:

1. From the CIAO! **View** menu, click **Client Info**.



You see the **Teamstudio CIAO! Client Info** window.



2. For each location, select from the Configuration Path dropdown.

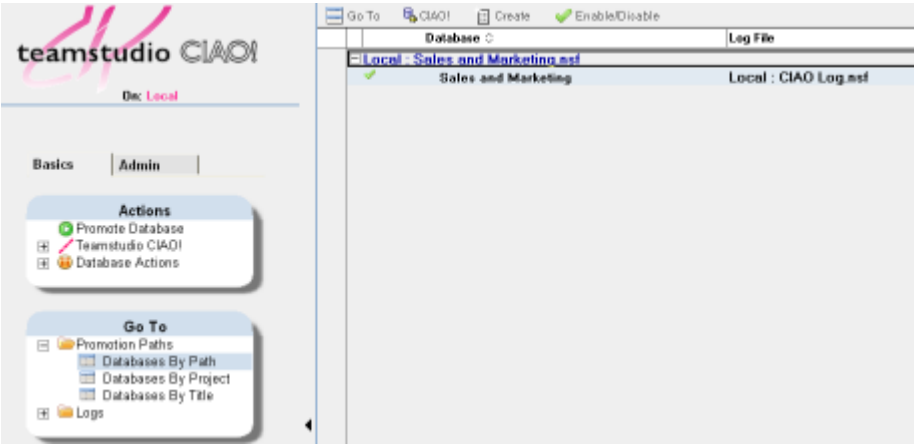
Tip	CIAO! displays only those databases based on the template CIAOConfig. If you know you have a configuration database that does not show up in the window, check to make sure that the name of the template on which the design is based is **CIAOConfig**.
	If your organization is using CIAO! Server Edition to monitor databases, we strongly recommend that you select the same configuration database that the copy of CIAO! Server Edition is using. This ensures that any databases that you put under control will also be controlled by the server. If in doubt, please check with your CIAO! administrator.

Enabling or Disabling CIAO! Control of a Database

To remove a database from CIAO! control, you can edit the document for the watched database in the CIAO! configuration database.

To edit the document for the watched database

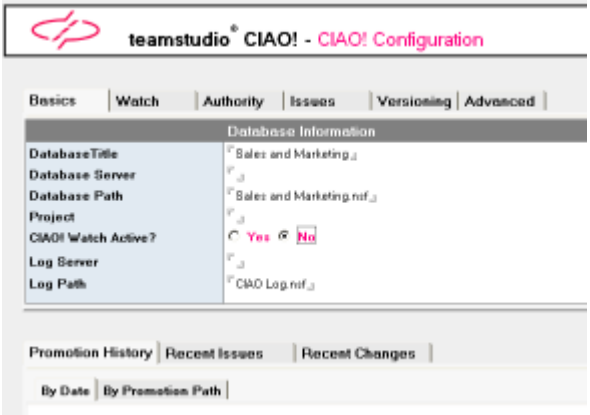
1. Open the CIAO! Config database (usually on the server).
2. In the **Go To** section, click one of the Promotion Path views, for example, **Databases by Path**.



Note	The green check mark in the above figure indicates that the database is under CIAO! control. If you remove this database from CIAO! control, the icon will change to a red X.

3. Select the document describing the database you want to remove from CIAO! control, and open it for editing.

4. Change the value of the **CIAO! Watch Active** field from **Yes** to **No** to mark the database as no longer under CIAO! control.



Note	Once you remove the watched database from CIAO! control, check-in/check-out will no longer work for this database. Any developer can make changes to any design elements. You are *not* removing the history of the database. This remains in the CIAO! log database. You can also access the history if you haven't deleted it from the log database.

To put a database under CIAO! control

You put a database under CIAO! control so CIAO! can watch the database, keep track of and report on changes, and allow check-in and check-out of elements to keep multiple users from modifying the same elements at the same time.

You can put a database under CIAO! control as follows:

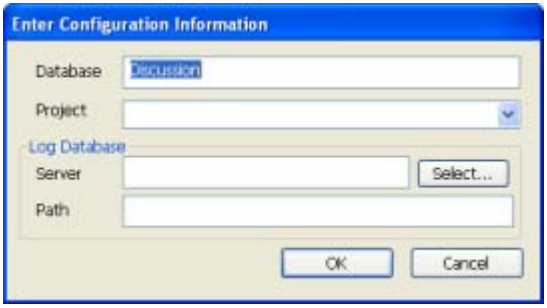
1. In Designer, open the database you want to work with.
2. Click the CIAO! button on the toolbar.

   You see a message telling you that CIAO! is not configured to watch that database and

asking if you want to add it to the list of watched databases.

3. Click **Yes**.

   You see the **Enter Configuration Information** window.

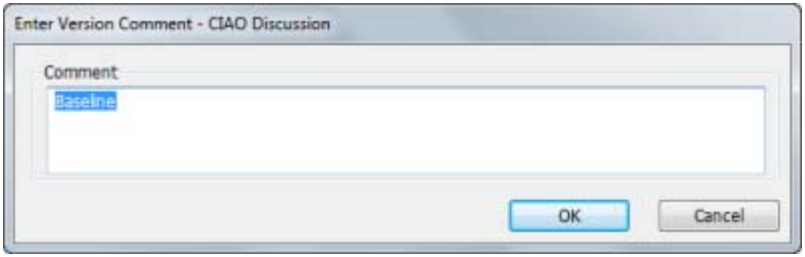


4. Enter the configuration information and click **OK**.

   The following table describes the configuration fields.

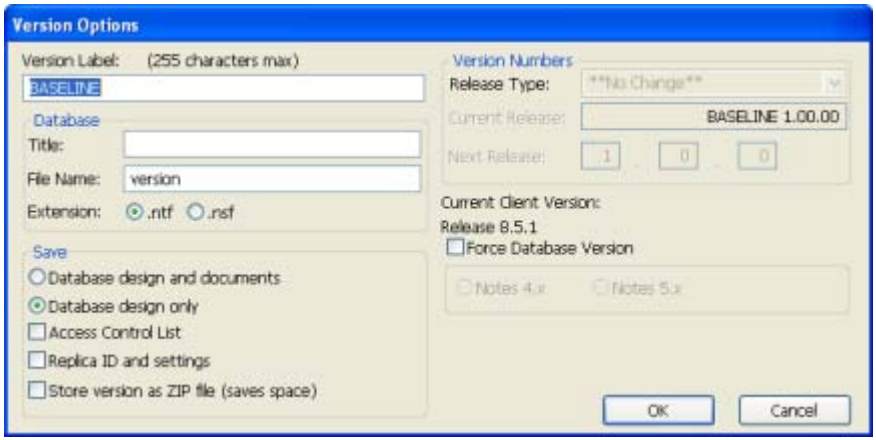
Field	Description
Database	The title of the database to watch. The default information is based on the database icon you selected on the workspace.
Project	You can organize your work into projects. Each project has a set of databases within it. If you have previously defined any projects, they appear in the drop-down menu in this field. You can create a new project by typing the project name into this field.
Log Database	You enter the server and path for the log database or click **Select** to browse for an existing log database. CIAO! creates a new Log database, if one does not exist for the specified server and path.

   You see the **Enter Version Comment** window.



5. Enter a comment, for example, “This is the initial version under CIAO! control” and click **OK**.

You see the **Version Options** window.



Note	Clicking **Cancel** puts the database under CAIO! control without a baseline version. It does not cancel putting the database under CIAO! control.

6. Enter **Initial** (or a name of your choice, such as 01.00.00) into the **Version Label** field (the default is BASELINE) and click **OK**.

   See “Understanding Version Options,” on page 85 for more information on field settings.

About CIAO! Client and Server

There are two components of CIAO!. The CIAO! Client Edition is installed on each developer’s workstation, and allows an individual developer to participate in check-in, check-out and versioning. CIAO! Client’s security features can prevent unauthorized access to the configuration database and to CIAO! features such as Make Version and Grab.

You can optionally install Teamstudio CIAO! Server Edition onto each Domino server used in the development process. CIAO! Server Edition ensures that only users running CIAO! Client Edition who have the appropriate design element(s) checked out can make design changes. Teamstudio CIAO! Server Edition provides an optional, added level of security beyond using Teamstudio CIAO! Client Edition

alone.

Configuring CIAO! to Watch Documents

You can watch documents using CIAO!. You configure watching documents on a per-database basis. Examples of documents you may want to watch include those with configuration information or website content. Typically, you don't watch documents for production applications.

To enable document watching

1. Open the CIAO! Config database and find the entry for the database you want.
2. Open the configuration database entry for the database.
3. Click the **Watch** tab.
4. Set the **Watch Documents** option to **Yes**.

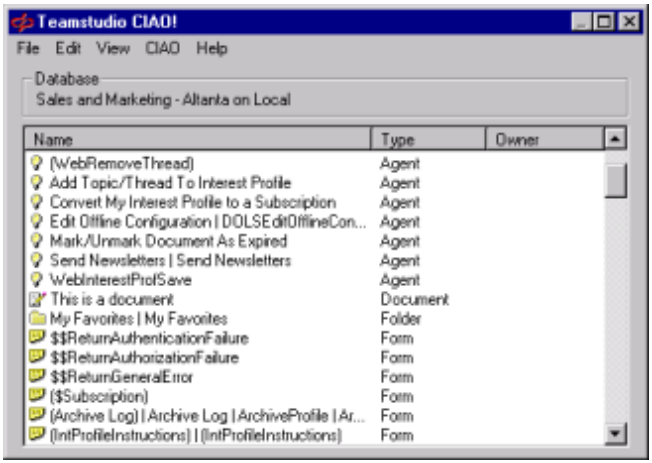
   CIAO! will then watch any document that contains the $TMSTitle field. This field is of type Text, and contains the text you want to use to reference this document. These documents appear in the CIAO! user interface as type Document, with the title set to the value of $TMSTitle.

   You can then check Documents in and out as usual.

Note	To stop watching a document, check it out and remove its $TMSTitle field.

   In the following example, the $TMSTitle field was added to a single document in the

database, and the value *This is a document* was entered into that field:



Working with Issue Tracking

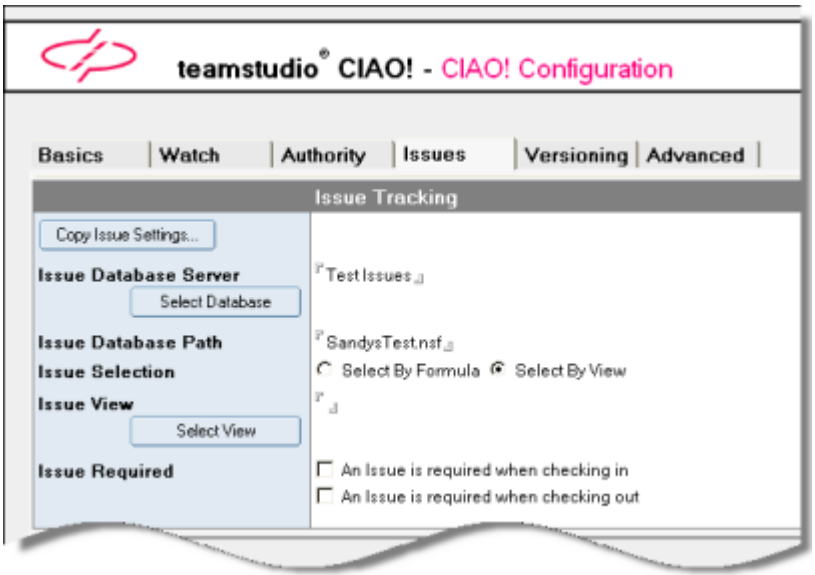
It may be important to associate your changes to elements to issues in your issue tracking database. When you check in or out an element you can note the issue you were working on.

To select issues by view

You can select a view for displaying issues as follows:

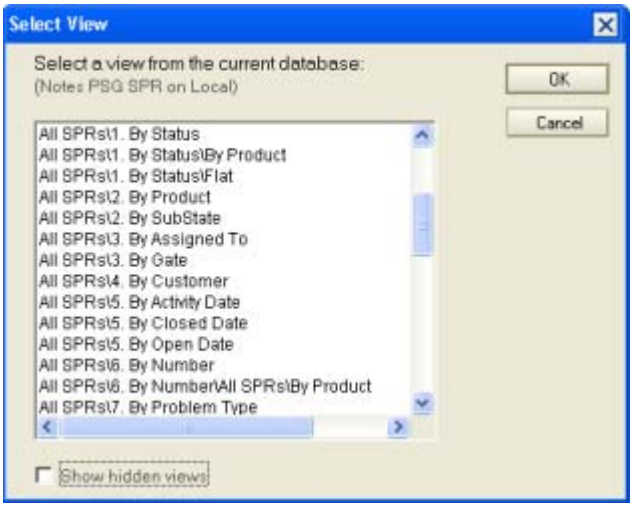
1. On the **Issues** tab of the CIAO! Configuration page, select an **Issue Database Server**.
2. Click the **Select by View** radio button.

   You see the **Issue View** field and the **Select View** button.



3. Click the **Select View** button.

You see the **Select View** window.



4. Select the view you want for displaying issues.

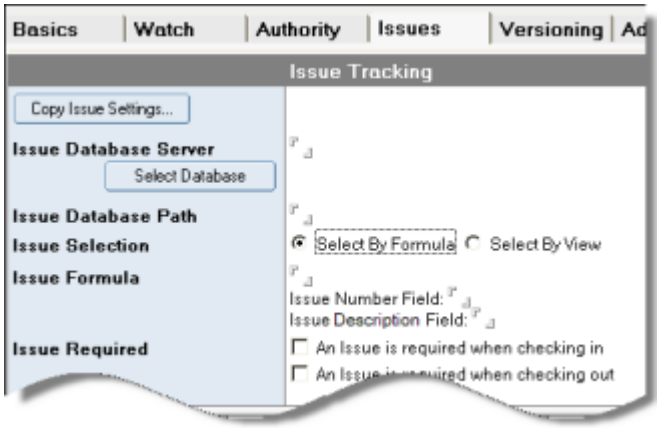
Note	The first two columns of the view must be of type text. The first column is for the issue number and the second column is for the issue description.

5. Click **OK**.

To select issues by formula

If the issue tracking database is very large or does not have a view relevant to your work, you can use a formula to determine issues to select from.

1. From the **Issues** tab of the CIAO! Configuration page, click the **Select by Formula** radio button.



2. In the **Issue Formula** field, enter a Notes selection formula.

   The following is an example of an issue selection formula:

Formula Example	If you have a field called Assignee in your issue tracking database, you might only want to display issues that relate to the current user working on the current application. The following formula will do this: `Product="app.ntf"|@username=AssignedTo` **Note:** This assumes that your issue db contains a field called "Product" which contains the application file name and a field called "AssignedTo" which contains a canonical username.

3. In the **Issue Number** field, enter the name of the field (in the issue tracking database) that identifies the issue.

   This sets the field populating the Issue Selection window which you see when you are assigning check-ins and check-outs to issues. This field must be data type text.

4. In the **Issue Description** field, enter the name of the field (in the issue tracking database) that provides a description of the issue.

   This sets the field populating the **Issue Selection** window which you see when you are

assigning check-ins and check-outs to issues. This field must be data type text.

Requiring an Issue to Check In/Out an Element

At the bottom of the CIAO! Database Configuration page there are two checkboxes:

- An Issue is Required When Checking In
- An issue is Required When Checking Out

When you check either of these options, CIAO! requires you to select an issue to associate with your check-in or check-out.You can select from a list based on a formula or based on a view in the issue database.

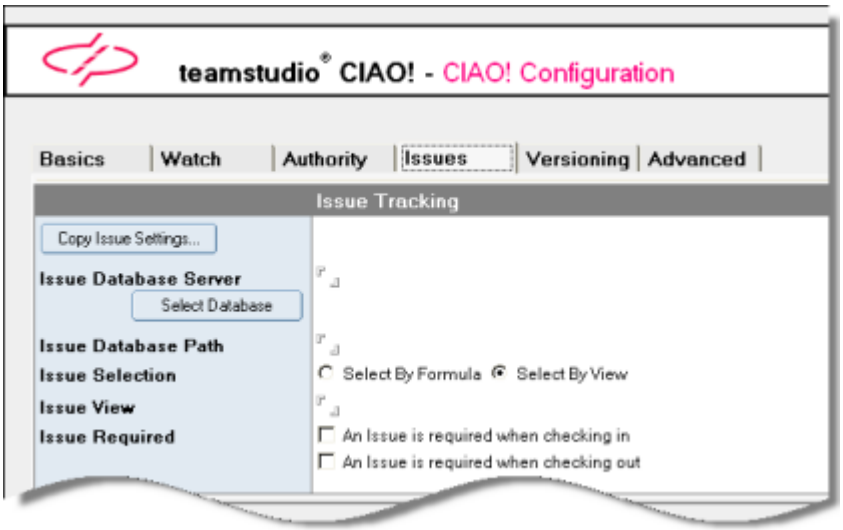
Configuring an Issue Tracking Database in CIAO!

You can assign each of your databases to an issue tracking database in your CIAO! Config database.

To set or change the Issue Tracking Server and Path

You set the issue tracking database you want CIAO! to link to in the CIAO! Config database. Set the issue tracking server and path as follows:

1. From the CIAO! Config database, open a database configuration document for editing.
2. Click the **Issues** tab.



3. In the **Issue Database Server** field, enter the name of the server where the issue tracking database is stored.
4. In the **Issue Database Path** field, enter the complete pathname of the issue tracking database or click the **Select Database** button to browse for the database.

Understanding CIAO! Config Information

You access a CIAO! Configuration document by double-clicking an entry within the CIAO! Config database. You can configure items in the following categories from the CIAO! Config document:

Category	Description
Basics	Database Title, Database Server, Database Path, Project, CIAO! Watch Active, Log Server, Log Path
Watch	Watch Documents, Watch Template Linked Elements, CIAO! Owner in Note Comment, Mandatory Comments
Authority	Add, Check Out, Check In, Delete, Grab, Make Version
Issues	Copy Issue Settings, Issue Database Server, Issue Database Path, Issue Selection, Issue View, Issue Required
Versioning	Custom Version Label Settings
Advanced	DBID (the database ID of the watched database), Log Key

Configuring the Basics

You can configure the following from the **Basics** tab of the CIAO! Config database document.

Basics Item	Description
Database Title	The name assigned to the database.
Database Server	The server name of the watched database.
Database Path	The path of the watched database.
Project	The database's project name.
Watch Active	Whether CIAO! is watching the database (yes) or not (no).
Log Server	The name of the log file's server.
Log Path	The path of the log file's server.

Configuring What CIAO! Watches

You can configure the following from the **Watch** tab of the CIAO! Config database document.

Watch Item	Description
Watch Documents	Whether CIAO! is watching both design elements and documents.
Watch Template Linked Elements	Whether CIAO! is watching template-linked elements.
CIAO! Owner in Note Comment	Set to **Yes** to prepend the check-out owner name in the comment field of the Notes Designer activity window. The owner's name will appear like 'Firstname Lastname ***' where *** marks the end of the CIAO! information. Do *not* modify this!
Mandatory Comments	When Mandatory Comments is set to **Yes**, you can require comments for specific operations such as check-in, check-out and delete.

Authority

As the administrator, you can restrict access from the **Authority** tab of the CIAO! Config database document. You assign the access for each of the items described in the table.

Note	Leaving a field empty gives everyone access.

Authority Item	Description
Add	Add design elements to a CIAO-watched database.
Check Out	Check out items from a CIAO!-watched database.
Check In	Check in items to a CIAO!-watched database.
Delete	Delete items from a CIAO!-watched database.
Grab	Check out items already checked out by another user.
Make Version	Assign a new date, version number, and comment to all items in a CIAO-watched database.

Issues

You can configure CIAO! to link to your issue tracking database from the **Issues** tab of the CIAO! Config database document.

Issues Item	Description
Copy Issue Settings	Copy issue settings from another database.
Issue Database Server	Server for the Issue database.
Issue Database Path	Path and filename of the Issue database.
Issue Selection	Method of selecting issues: By Formula or By View.
Issue Formula	Formula used to select issues, Issue Number field, Issue Description field.
Issue View	View used to select issues.
Issue Required	An issue can be required on check-out and/or check-in.

Versioning

You can configure CIAO! to use the release number labels you want from the **Versioning** tab of the CIAO! Config database document.

Versioning Item	Description
Edit Settings	Click to open a window where you can edit labels and values that make up release numbers.
Position 1	First position of the release number (X.0.0)
Position 2	Second position of the release number (0.X.0)
Position 3	Third position of the release number (0.0.X)
Initial Value	Starting value in the position.
Increment	Value CIAO! adds to this position's previous release value when assigning the next release number.

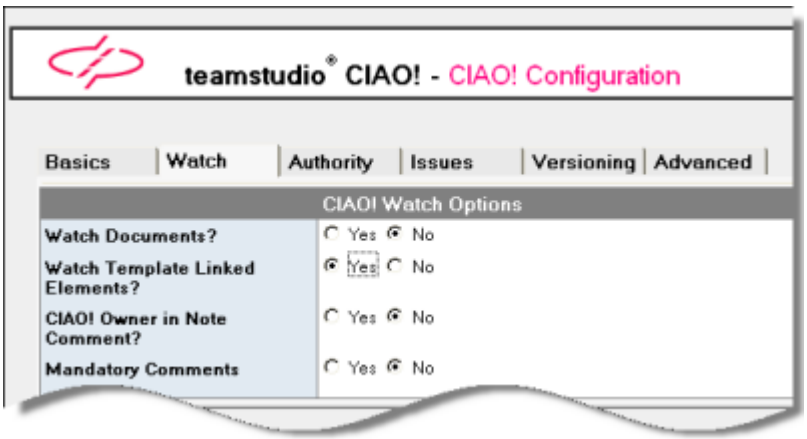
Working with Templates and Template-linked Elements

If a design element inherits its design from a template, CIAO! displays the template name in the owner column. CIAO! does not let you check those elements out. To change those elements, make changes in the source template.

To allow template-linked elements to be checked out, open the CIAO! Configuration database and set the **Watch Template Linked Elements** field to **Yes**.

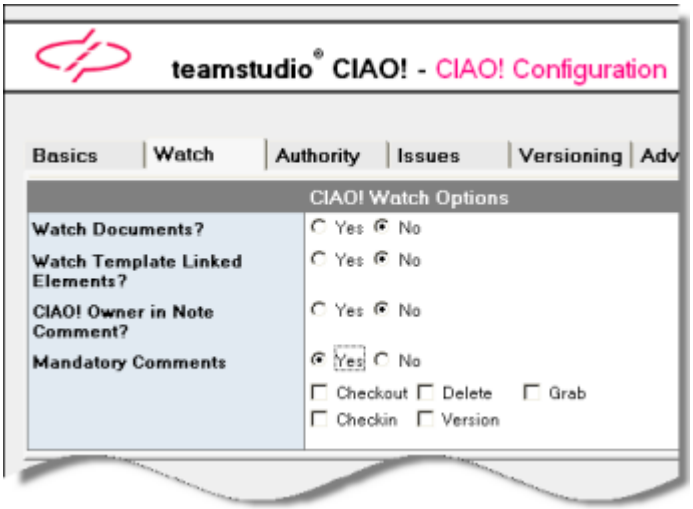
- The default setting **No** indicates that CIAO! will not watch template-linked elements. In this case, CIAO! will not block updates, including normal template design refreshes by Notes.
- If the field is set to **Yes**, CIAO! ignores the template-linkage of the design element. In this case, as with any other design element, updates will be blocked unless you have the design element checked out.

Note	When you set the **Watch Template Linked Elements** field to **Yes**, the normal Notes Design Refresh operation may override your changes, or Notes Design Refreshes may be blocked, depending on the check-out status of the element.



Requiring Comments

You can change the CIAO! Config to require users to enter comments for Checkout, Checkin, Delete, Version, or Grab.



Assigning CIAO! Feature Access

You can prevent unauthorized access to CIAO! features such as Make Version and Grab through the CIAO! Configuration database.

To assign access

1. From the CIAO! Config database, open the database configuration document for editing.
2. Click the **Authority** tab.

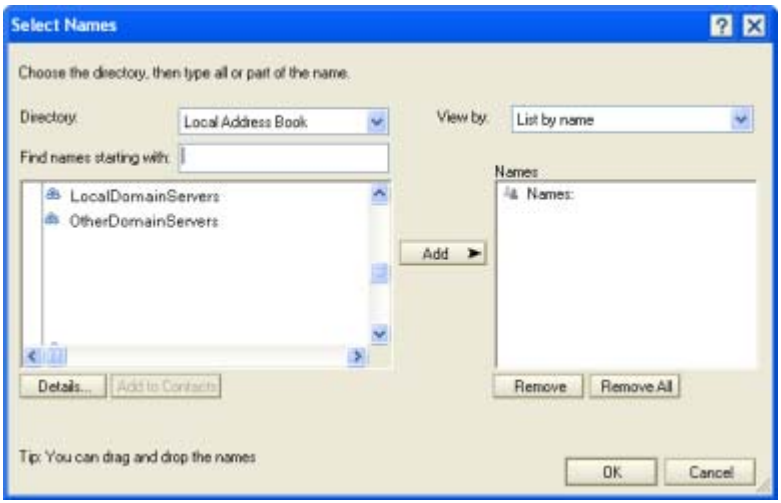
You see the **CIAO! Authority** window.

3. Set the access authority for the action you want to assign.

   In each case, you see the **Select Names** window.

   – Add the names or groups of those who will perform each function.

   We recommend that you choose from an address book to which everyone has access. Otherwise, some people may be locked out because CIAO! cannot resolve the names specified.



Note	Leaving the field blank allows anyone to perform that function.

Building Promotion Paths

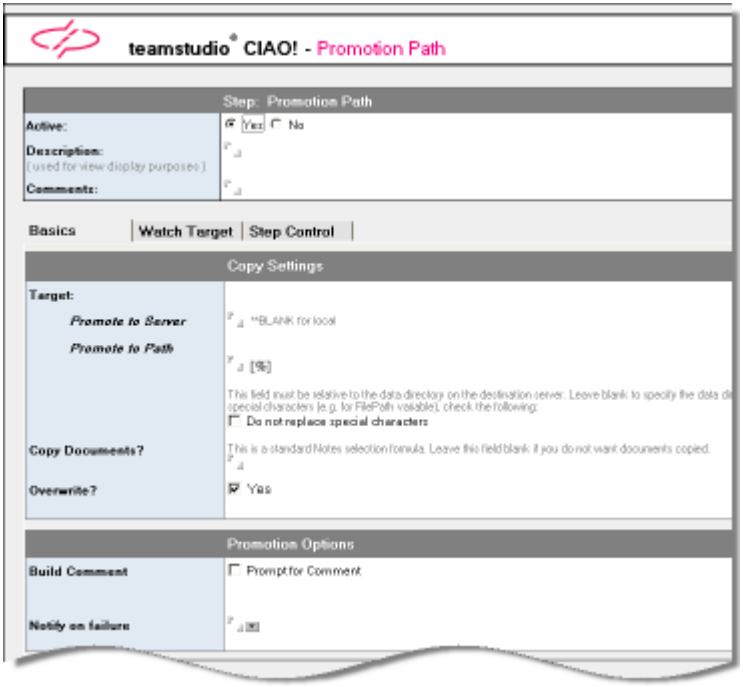
Building Promotion Paths

If you already have promotion paths in CIAO! Edition 23 or earlier, you can update them to use with the current version of CIAO!. You can create multiple promotion paths for each of your watched databases. To configure a promotion path document, you create and name the promotion path, enter the copy settings, select the promotion options, and the CIAO! options; then, save and close the document.

To create and name a promotion path

1. From the CIAO! Config database, select the database document you want to create a promotion path for.
2. From the **Create** menu, click **Promotion Path**.

   You see the **Promotion Path** document.



3. Select **Yes** beside the **Active** field, if not already selected.
4. In the **Description** field, enter a name describing the promotion path, for example, **Dev>QA**.

   This field cannot be blank and must be unique.

To configure the CIAO! options and save the promotion path

You save a promotion path so you can promote a copy of the database to another stage, for example, testing.You can configure the CIAO! options and save the promotion path as follows:

1. From the Promotion Path document, click the **Watch Target** tab.
2. Select **Yes** for the **Watch New Database** field, if you want CIAO! to watch the target database.
3. In the **Destination Configuration Server** field, use the selection button, or enter the name of the server with the configuration database
4. In the **Destination Configuration Path** field, use the selection button, or enter the path to the configuration database that you want to monitor the promotion template.
5. In the **Destination Log Server** field, optionally use the selection button, or enter the server name for the log database you want the promoted database to use.

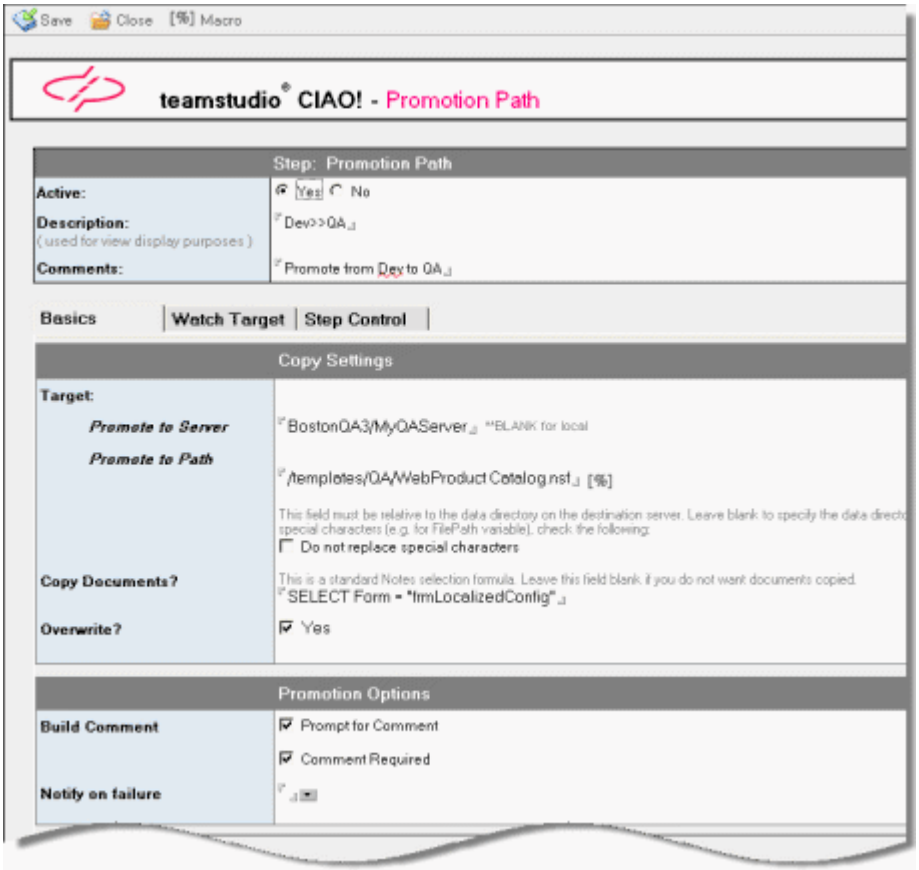
6. In the **Destination Log Path** field, use the selection button, or enter the path to the log database that you want the promoted database to use.
7. Save and close the document.

   You see the new Promotion Path entry in the right pane, under the database to which it applies.

To configure the copy settings for the promotion path

You can configure the copy settings for the promotion path as follows:

1. From the Promotion Path document, select the **Basics** tab.



2. In the **Promote to Server** field, select the server you want to promote the database to.

   This field cannot be blank.

3. In the **Promote to Path** field, enter the path that the database is to be promoted to.

   This field must be relative to the data directory on the destination server. Leave this field blank to specify the data directory itself. If you omit the database name, the

current name is used.

Note	The blue percent sign (%) at the top of the page indicates that you can use replacement macros in this field. Click the blue percent sign to view all options. A grey percent sign at the top of the page indicates that you cannot use macros in the selected field.

4. Enter a Notes selection formula in the **Copy Documents** field (for example, **SELECT @ALL**) if you have documents that must stay with the database or template.
5. To overwrite old copies of the file being promoted, ensure the **Overwrite** field is checked.

Note	Unchecking this setting causes the promotion to fail if the target database already exists.

To configure the promotion options of the promotion path

You can configure the promotion options of the promotion path as follows:

1. To require the person promoting the database to enter something into the Promotion comments window during promotion, ensure that the **Prompt for Comments** field is checked.

2. In the **Notify on failure** field, browse to select names from one or more address books to designate who to e-mail upon failure of a promotion.

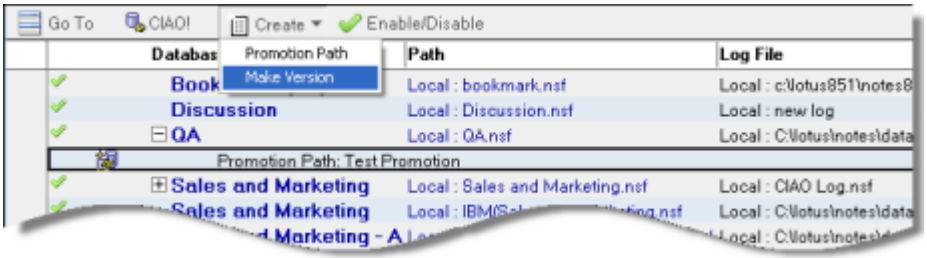
   The promoter (the person who clicks the Promote button) is always notified with a status window at the end of the promotion.

Working with Promotion Paths

Using CIAO's auto-promotion feature, you can define a process for promoting versions of your database design from one stage of usage to another, typically, from the development stage, through one or more testing stages and then into production.

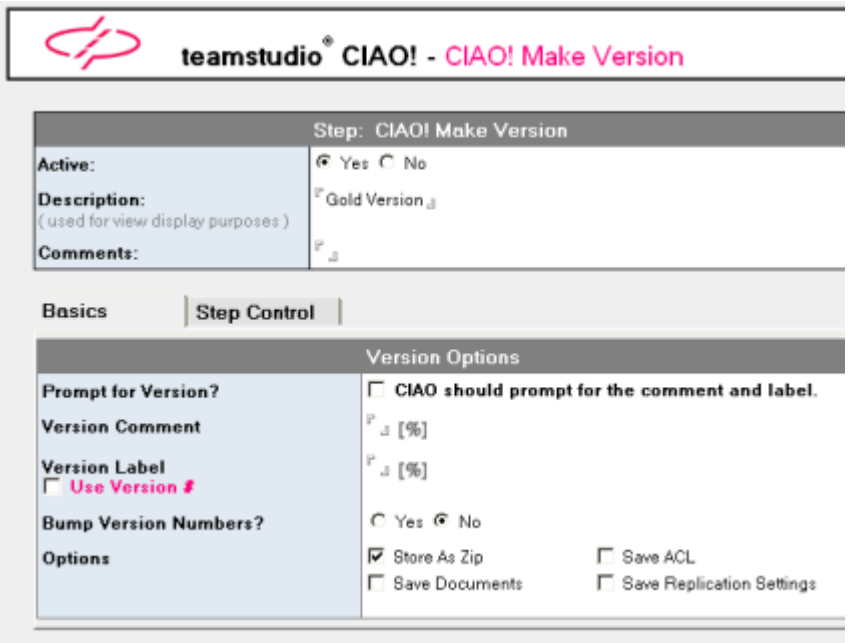
To add a Make Version step to a promotion path

1. Open the CIAO! Config database.
2. Select the Promotion path document to which you want to add the Make Version step.



3. From the **Create** menu, click **Make Version**.

   You see the **Make Version** document.



4. For the **Active** field, select **Yes** if not already selected.
5. In the **Description** field, enter a name to describe the version, for example, **Gold Version**.
6. To promote without user intervention, uncheck the **CIAO should prompt for the comment and label** option and enter the specified version comment and label, whether to bump version numbers, and which options to use: **Store As Zip**, **Save Documents**, **Save ACL** or **Save Replication Settings**).

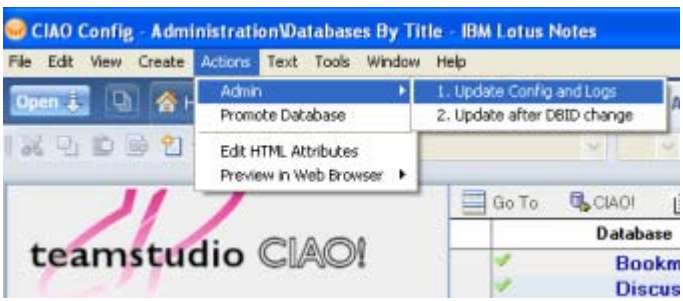
   Leave this option selected if you want CIAO! to prompt you with the Make Version window for each promotion.
7. Save and close the document.

   You see the new Make Version entry in the right pane, under the database to which it applies.

To upgrade existing promotion paths from CIAO! version 23

You can upgrade existing CIAO! promotion paths as follows:

1. Replace or refresh the design of the log or logs
2. Replace or refresh the design of the configuration database to the version 25 template.
3. From the CIAO! Config database, select **Actions** > **Admin** > **Update Config and Logs**.



Log Database Reference

CIAO! stores a history of design element changes and application template releases in the Log database. The database can store the history of a single application template, a group of templates (a project) or a group of projects.

Each time you check in a design element, CIAO! writes a copy of the design element to the log database you have specified in the CIAO! Configuration Database.

CIAO! also writes to this log when a new application template is released. In this case, CIAO! labels the design elements in the log and creates a new database version document.

The history for each element consists of the following:

- Developer who checked in the item or created the application release
- Date and time operation was performed
- Name of the design element as shown in the Notes design pane at the time the item was checked in
- Comment written by the developer describing the check-in or version
- Version label
- Version number
- Issues

The history for database version documents consists of the following:

- The ODS version with which the version database was created
- The actual database, stored as an attachment
- The original filename of the attachment before it was renamed to the version.nsf or version.zip

Understanding CIAO! Client and CIAO! Log Entries

The following table describes the types of entries in the CIAO! client and CIAO! log databases:

Entry	Description
	A check-in for a design element. These documents include the body of the Notes design document that was checked in by the developer.
	A check-in for a design element that has been deleted.
	A version of an application template. The application template is an attachment to this document.
	A design element label. The label does not contain any design information, it simply identifies when a release was made. The check-in before the label contains the body of the design element.
	A Grab of a design element.

Understanding CIAO Log Views

The following table describes the views in the log database:

View	Description
History	History of check-ins and versions by design element.
By Application	Check-ins and versions by application (database).
By Date	Check-ins and versions by day.
By Developer	Check-ins and versions made by each developer.
By Project	Check-ins and versions by project with most recent history first.
Flat	Flat file list of all elements checked in, labeled or versioned.
By Issues	Check-ins and versions by issues.
Versions	History of versions made.
Release Notes	Every check-in or check-out that has an issue number associated with it.

Understanding CIAO! Log Fields

You can build custom views of the data. The CIAO! Log Database uses field names prefixed by the $ character. As such, the field names do not appear in the programmer's pane. The log database uses the following fields:

	Field	Description
	$CIAOProject	Name of the project, taken from the CIAO! configuration file.
*	$CIAODatabase	Name of the database, taken from the CIAO! configuration file.
	$CIAOType	Type of design element, (for example, Agent, Form or View).
	$CIAOName	Name of design element, for elements that support aliases this is the first name/alias.
	$CIAODisplayName	Name of design element, displayed as titled in the History view.
	$CIAOTime	Date and time the design element was checked in.
	$CIAOUser	Developer's name.
	$CIAOComment	Check-in Comment.
*	$CIAODBID	Unique code identifying each database (hidden).
	$CIAOUNID	Unique code identifying each design element (hidden).
*	$CIAOODSVersion	Notes release with which this database is compatible, as specified in the Version Options window.
*	$CIAOOriginalName	The original name of the database before it was renamed to version.nsf or version.zip during Make Version.
	$CIAO Revision	Version number of the element.
*	$CIAOVersionNum Pos 1/2/3	Version number values, where 1/2/3 refer to major/minor/point values.

* Only found in Database Version documents.

Understanding CIAO! Log Forms

The log database uses the following forms:

Form	Description
CIAOHistory	History of a design element checked in.
CIAODeletion	History label identifying a design element deleted.
CIAOLabel	Version label for a design element.
CIAOVersion	Version document for an application template.

Moving a Database's History

To move a database's history to a different log database

You can move the history of a database under CIAO! control to a different log database as follows:

1. Create a new log database.
2. Cut and paste the history documents for this database from the current log database into the new one.
3. In the CIAO! configuration database, edit the values of the Log Server and Log Path fields to point to the new log database.

About the Log Database ACL

The ACL of the log database should be set so that any CIAO! user (including the server, if you are using CIAO! Server Edition) has author-level access or better with the Create Documents attribute set. CIAO! creates a document in the log database for every check-in operation.

Tip	*Do not edit any of the entries in the Log database using the Notes client.* Because the log database entries contain actual copies of the design elements, which the Notes client is not expecting, these will not be written out correctly, and will therefore cause problems with CIAO! later on. The Log database is *intended to be read-only*, and should not, under any circumstances, be changed using the Notes client.

Teamstudio Configurator

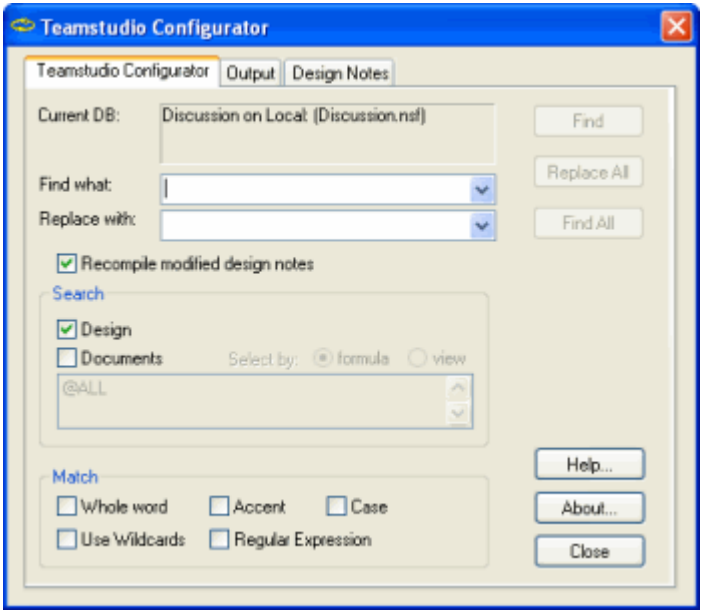
Using Configurator

Congratulations on your purchase of Teamstudio Configurator!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

With Configurator, you can easily find and replace text strings in Notes databases. Configurator searches design elements and documents, so you can change server or domain names in a single pass. You can select a view or write a formula to focus a search on a particular set of documents. When searching within a design, you can target just the elements or element types you want.

You can also use wild cards in your search criteria.



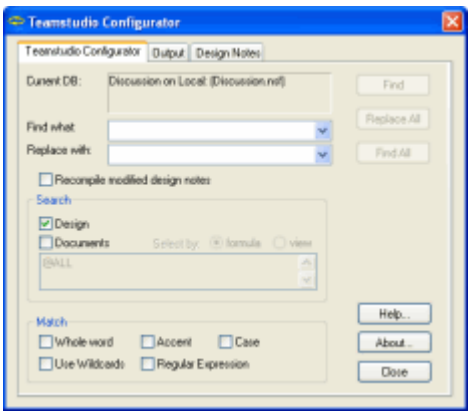
When viewing the results of a search, you can choose to replace all matches, or to review each match, individually confirming whether or not to replace. Configurator shows you the search results in context so you can quickly determine if a change is appropriate.You decide whether to view search results on-screen or to store them in a database to review later.

Getting Started

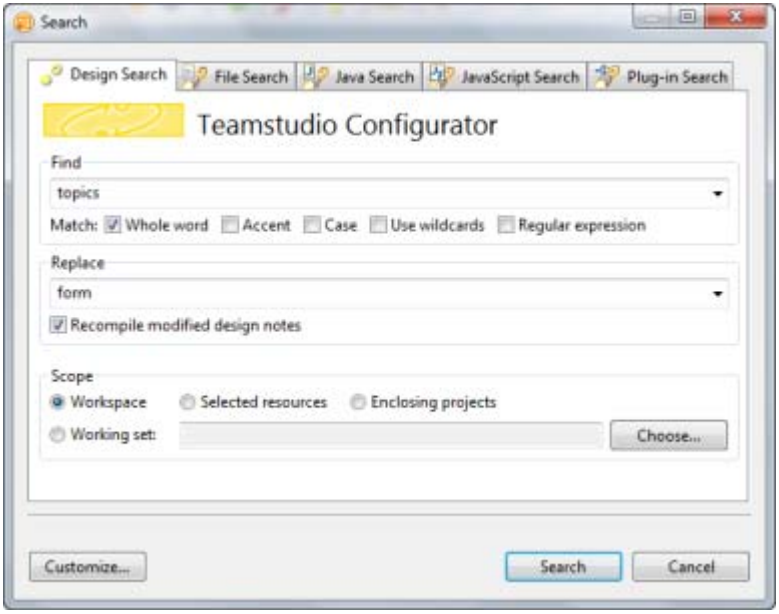
To start Configurator

1. In Designer, open the database you want to work with.
2. Click the Configurator button on the toolbar, or click **Search** from the Designer Search menu.

You see the Teamstudio Configurator window.



From the Designer Search button, the Configurator window looks slightly different.



Tip	The last few Search and Replace parameter entries for **Find what** and **Replace with** are saved. Click the arrow to the right of the field to quickly select these criteria. The **Find what** and **Replace with** boxes accept a maximum of 254 characters.

Specifying Where to Search

If you select the **Design** check box, Configurator can search for occurrences of the search text anywhere in the database design. This includes all of the formula code, LotusScript, static text on forms, subforms, help\using and help\about documents, field help, popups, element titles (for example, form titles and view titles)—in fact just about anywhere you can change text.

If you select the **Recompile modified design notes** check box, then when Configurator changes formula and LotusScript code, it checks the syntax and then recompiles the code. So if you make a change that causes a syntax error, you must fix the code before you can save the element.

If a change in source code causes an error, Configurator records that in its log. When you click **Replace All**, and your change causes an error, the original source code does not change. When you click **Replace**, and your change causes an error, Configurator gives you the option of saving the original source code or saving the source code with the error-causing changes. If you save an element with syntax errors, Configurator will not save the compiled (object) code for that element. Configurator only saves the object code from an error-free compile.

You use the **Documents** option to search and replace strings in any fields that contain text.

Notes	Configurator only changes text found in the field—not the actual field name.

Within the following items, Configurator can Search but cannot Replace:

- Composite Apps
- Wiring properties
- Components
- Outlines
- ACLs

You can specify which documents to include in a search by specifying a selection formula (like a selection formula in a view), or by selecting an existing view.

Specifying Your Selection by Formula or View

You can select documents by formula or by view.

To select documents by formula

- From the Teamstudio Configurator tab, click the **Select by: Formula** option button.

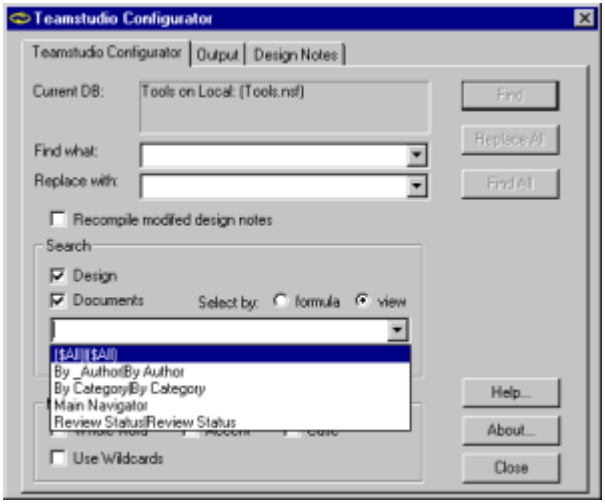
  When you select documents by formula, the default is the formula **@ALL**, which means all documents in the database. For example, you can select all documents that were created with the MainTopic form by specifying the formula:

  ```
  Form = “MainTopic"
  ```

To select documents by view

1. From the Teamstudio Configurator tab, click the **Select by: view** option button.

   You see a box containing a list of views in the database design.
2. Select the view you want.

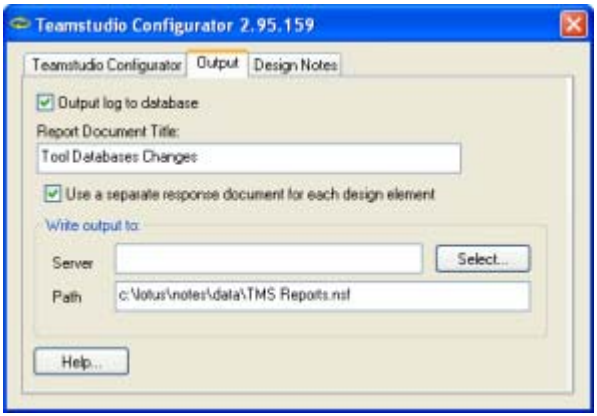


Specifying Where to Store Configurator Results

When Configurator finishes an action, it displays an on-screen log of the results. If you prefer, you can store the logs in a Notes database as a historical record of the changes you made using Configurator.

To store Configurator results in an output database

1. From the **Output** tab, select **Output log to database**.
2. Optionally select **Use a separate response document for each design element,** so that you can view a document for each element's results, rather than a single longer document for all results.



3. In the **Report Document Title** box, enter a title for the report.
4. Click **Select** to locate a database in which to store the report.

   You see only databases based on the reports template. The reports template name is TMSLogs, and the file name is **tmslogs.ntf**.

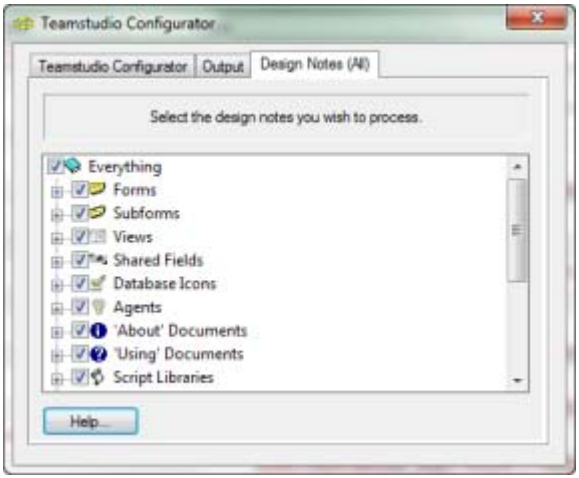
   – Select an existing database or specify a new database server/pathname.

   Configurator bases the new database on the TMSLogs template and creates the output database for you.You can store Configurator report documents for more than one database in the same output database.

Tip	Each time you run Configurator, whether on the same database or different databases, change the report title. This makes it easier to locate log reports in the output database.

Selecting Design Elements

You can select individual design elements for processing using the **Design Notes** tab in the **Teamstudio Configurator** window.



Select/Deselect design elements using the check box to the left of the desired element name. A checkmark indicates selection.

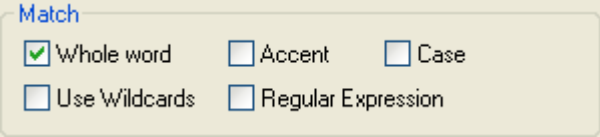
Use a category heading check box to select/deselect all of the elements contained within that category.

Select the **Everything** category to select all design categories and notes. If the **Everything** category is selected, de-selecting a child category or element will override (uncheck) the **Everything** selection.

Selecting Match Options for Searches

You can select options that further define what qualifies as a match.

Matching Whole Words



If you select the **Whole word** check box, Configurator matches the search string if the matched string is surrounded by spaces or punctuation.

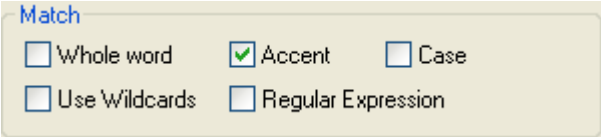
For example, without the **Whole word** check box selected, replacing the string “Heading” with the string “Topic” would have the following results:

“Heading”	would be changed to	“Topic”
“Headings”	would be changed to	“Topics”

With the **Whole word** check box selected, the same search/replace operation would have the following results:

“Heading”	would be changed to	“Topic”
“Headings”	would remain as	“Headings”

Matching Accented Characters



If the **Accent** check box is selected, and the search contains accented characters (for example, à ä ç é ë ï ô), Configurator will only match the search string if the characters in the matched string have the same accenting.

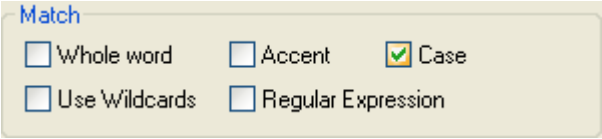
For example, without the **Accent** check box selected, replacing the string “Naïve” with the string “Innocent” would have the following results:

“Naïve”	would be changed to	“Innocent”
“Naive”	would be changed to	“Innocent”

With the **Accent** check box selected, the same search/replace operation would have the following results:

“Naïve”	would be changed to	“Innocent”
“Naive”	would remain as	“Naive”

Matching Case



If the **Case** check box is selected, a string will only match if the case of the two strings matches.

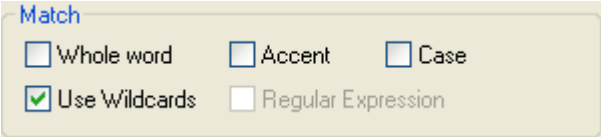
For example, without the **Case** check box selected, replacing the string “Customer” with the string “Client” would have the following results:

“Customer”	would be changed to	“Client”
“customer”	would be changed to	“Client”

With the **Case** check box selected, the same search/replace operation would have the following results:

“Customer”	would be changed to	“Client”
“customer”	would remain as	“customer”

Using Wildcards



Select the **Use Wildcards** check box to perform a wildcard search from the **Find Wha**t field. The ***** wildcard character lets you search on 0 to *n* number of characters, up to the first space character. The **?** wildcard character lets you search on one character, up to the first space character.

For example, entering **Lotus*** to find all instances of words starting with Lotus will find:

> "LotusScript" and "LotusNotes" but not "Lotus and IBM" (intervening space)

Entering **Lotus?otes** will find:

> "LotusNotes" and "LotusSotes" but not "LotusNootes"

Entering **www.ives.*** will find all instances of www.ives.com and www.ives.co.uk, so that you can replace them with www.teamstudio.com.

Entering **Field*** will find all instances of FieldA, FieldB and FieldC, so that you can replace them with FieldZ.

Using Regular Expressions

A regular expression is a formula for matching strings that follow some pattern. It is used to search and manipulate bodies of text based on certain patterns.With regular expressions, you can do the following:

- Extract a substring from a string based upon a pattern match.
- Validate data. Test for a pattern within a string. For example, you can test an input string to see if an email address pattern, a telephone number pattern, or a credit card number pattern occurs within the string.
- Replace text. You can use a regular expression to identify specific text and either remove it completely or replace it with other text.

Position Matching

Position matching involves the use of the ^ and $ to search for the beginning or ending of strings. Setting the pattern property to "^LotusScript" will successfully match "LotusScript is cool." It will fail to match "I like LotusScript."

Symbol	Function	Examples
^	Matches the beginning of a string.	^abc Some matches include abc, abcdefg, abc123
$	Matches the ending of a string.	$abc Some matches include abc, endsinabc, 123abc
\b	Matches at the position between a word character (anything matched by \w) and a non-word character (anything matched by [^\w] or \W) as well as at the start and/or end of the string if the first and/or last characters in the string are word characters.	Matches a backspace \u0008 if in a []; otherwise matches a word boundary (between \w and \W characters). .\b matches c in abc
\B	Matches at the position between two word characters (i.e the position between \w\w) as well as at the position between two non-word characters (i.e. \W\W).	\B.\B matches b in abc

Literals Matching

Literals include alphanumeric characters, ACSII, octal characters, hexadecimal characters, UNICODE, or special escaped characters. To match these special characters, we precede them with a "\" in a regular expression.

Symbol	Function
\n	Matches a new line.
\f	Matches a form feed.
\r	Matches a carriage return.
\t	Matches a horizontal tab.
\v	Matches a vertical tab.
\?	Matches ?
*	Matches *
\+	Matches +
\.	Matches .
\\|	Matches |
\{	Matches {
\}	Matches }
\\	Matches \
\[	Matches [
\]	Matches]
\(	Matches (
\)	Matches)
\xxx	Matches the ASCII character expressed by the octal number xxx
\xdd	Matches the ASCII character expressed by the hex number dd
\uxxx	Matches the ASCII character expressed by the UNICODE xxxx.

Character Matching

Character matching enables customized grouping by putting expressions within []braces. A negated character class may be created by placing ^ as the first character inside the []. Also, a dash can be used to relate a scope of characters.

For example, the regular expression "[^a-zA-Z0-9]" matches everything except alphanumeric characters. In addition, some common character sets are bundled as an escape plus a letter.

Symbol	Function	Examples
[xyz]	Match any one character enclosed in the character set.	a[bB]c Matches abc, aBc
[^xyz]	Match any one character not enclosed in the character set.	
.	Match any character except \n	a.c Matches abc, aac, acc, adc, aec
\w	Match any word character. Equivalent to [a-zA-Z_0-9]	
\W	Match any non-word character. Equivalent to [^a-zA-Z_0-9]	
\d	Match any digit. Equivalent to [0-9]	
\D	Match any non-digit. Equivalent to [^0-9]	
\s	Match any space character. Equivalent to [\t\r\n\v\f]	a\sc a c
\S	Match any non-space character. Equivalent to [^\t\r\n\v\f]	

Repetition

Repetition allows multiple searches on a clause within the regular expression. By using repetition matching, we can specify the number of times an element may be repeated in a regular expression.

Symbol	Function	Examples
?	Match zero or one occurrences. Equivalent to {0,1}.	ab?c Matches ac, abc a\s?b Matches “ab” or “a b”
*	Match zero or more occurrences. Equivalent to {0,}.	ab*c Matches ac, abc, abbc, abbbc
+	Match one or more occurrences. Equivalent to {1,}.	ab+c Matches abc, abbc, abbbc
{x}	Match exactly x occurrences of a regular expression.	a{3} \d{4} ab{2}c Matches Aaa From 10 to 99 abbc \d{5} Matches 5 digits.
(x,} where x>=1	Match x or more occurrences of a regular expression.	\s{2} Matches at least 2 space characters.
{x,y} where x>=1 and y>=x	Matches x to y number of occurrences of a regular expression.	a{2,4} Matches aa, aaa, aaaa \d{2,3} Matches at least 2 but no more than 3 digits.

Alternation and Grouping

Repetition allows multiple searches on a clause within the regular expression. By using repetition matching, we can specify the number of times an element may be repeated in a regular expression.

Symbol	Function	Examples
()	Grouping to create a clause. May be nested.	(abc){2} Matches abcabc (ab)?(c) Matches “abc” or “c”
|	Alternation combines clauses into one regular expression and then matches any of the individual clauses. The pipe has the lowest precedence of all operators. Use grouping to alternate only part of the regular expression.	bill|ted Matches ted, bill abc(def|xyz) Matches abcdef, abcxyz (ab)|(cd)|(ef) Matches “ab” or “cd” or “ef”

Back References

Back references enable the programmer to refer back to a portion of the regular expression. This is done by use of parenthesis and the backslash (\) character followed by a single digit. The first parenthesis clause is referred by \1, the second by \2, etc.

Symbol	Function
()\n	Matches a clause as numbered by the left parenthesis “(\w+)\s+1” matches any word that occurs twice in a row, for example, “hello hello”

Telling Configurator What Action to Take

Once you have selected the options, you are ready to select the Action, that is, what Configurator is actually going to do.

The actions are:

- Find
- Find All
- Replace All

Find

Click the **Find** button to locate the first occurrence of the search string in the database. Once Configurator finds a match, you can do one of the following:

- Replace that match and move on to the next match
- Skip that match and move on to the next match
- Replace that match and all subsequent matches
- Cancel out of the operation

See “When Configurator Finds a Match,” on page 159, for more information.

Find All

Click the **Find All** button to have Configurator locate all instances of the search match. While the process is running, you can interrupt it by pressing the **CTRL** key while simultaneously pressing the **BREAK** key (**CTRL-BREAK**) on your keyboard. When the search is finished, you see the Configurator Log, detailing the following:

- Number of notes searched
- Number of matches per element
- Total number of matches found

Configurator makes no replacements when you use **Find All**.

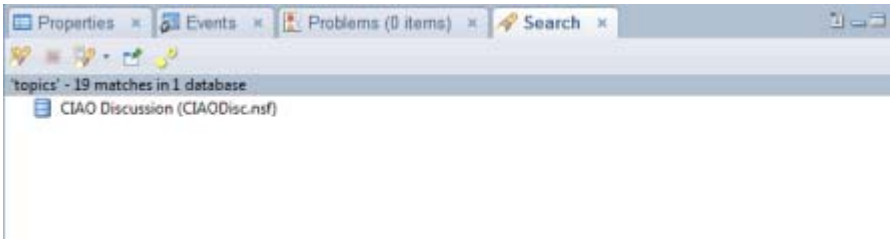
Replace All

Click the **Replace All** button to have Configurator replace all search matches with no prompting. While the process is running, you can interrupt it by pressing the **CTRL** key while simultaneously pressing the **BREAK** key (**CTRL-BREAK**) on your keyboard.

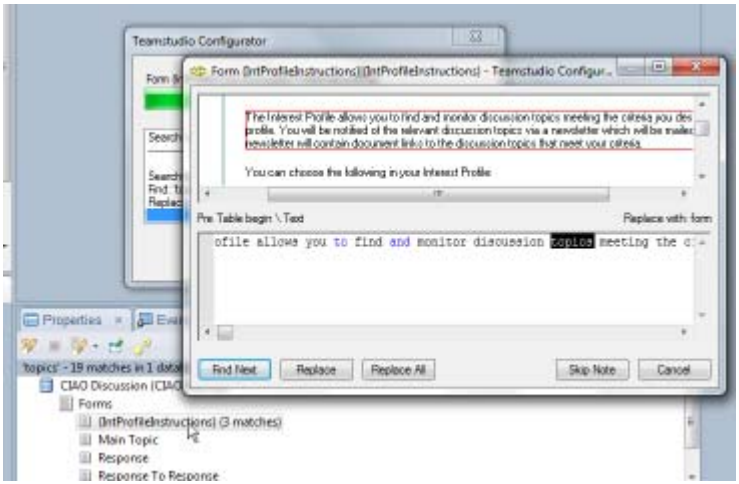
Caution	Clicking **Replace All** will replace all text without prompting.

When Configurator Finds a Match

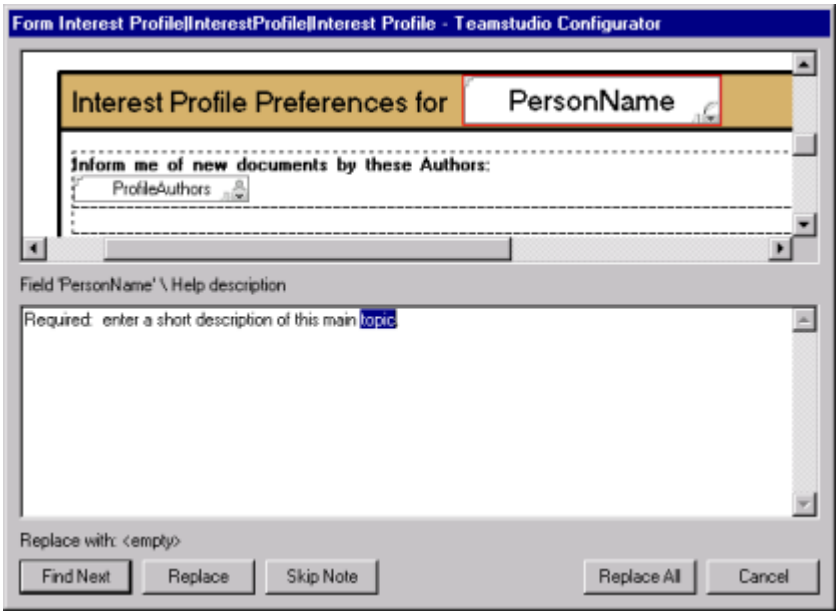
If you've used Configurator through Designer's Search menu, you'll see the search result summary in the search tab at the bottom of the window.



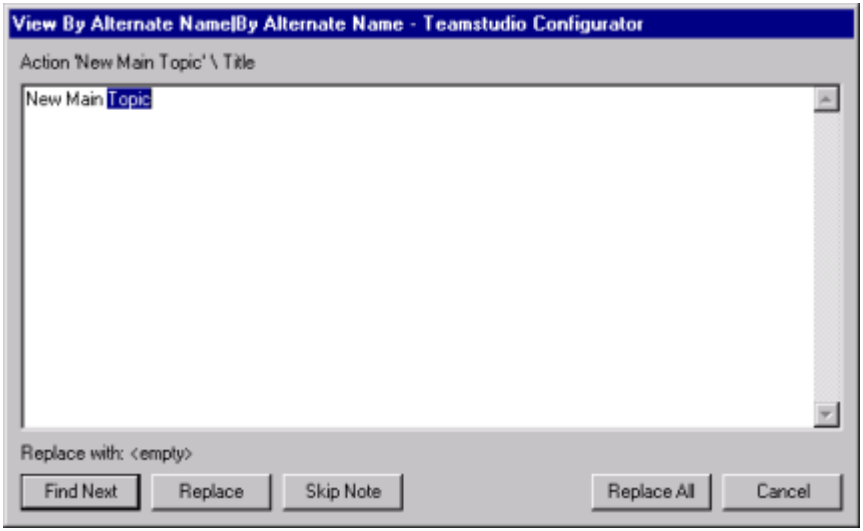
You can drill down to the matched item where you can decide what action Configurator should take.



The information you see when Configurator finds a match will vary depending on the element type. If the match is in an area that can use the preview pane, for example, a visual element or static text, then you see the split window with the match highlighted.



For simple text and code matches, you see the matched text in context as shown.



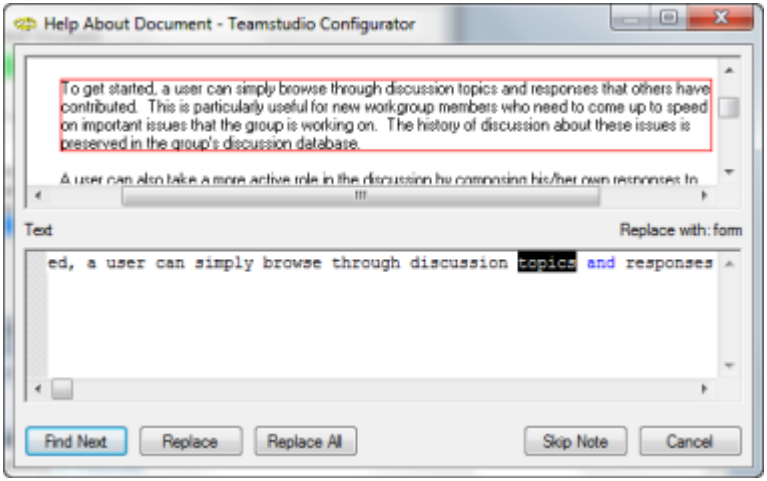
The window title reflects the name of the Note where the match is found.

From this window, you can do the following:

- Click **Find Next** to locate the next match, which may be within the same dialog box.
- Click **Replace** to replace the highlighted match text, and locate the next match.
- Click **Skip Note** to continue to the next element or document (if changes have been made, a dialog box displays asking if you want to save the changes, before continuing to the next element or document).
- Click **Replace All** to replace the current selection, and automatically replace all other matches in the database.
- Click **Cancel** to cancel the search.

Tip	To make a manual change to view names, edit in the highlighted area and click **Find Next**.

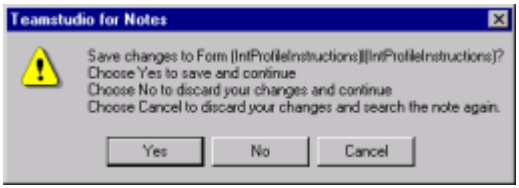
If the match occurs in static text on a form, subform or in help\using or help\about, the text appears in context on the form or subform in the top half, and an editable version of the text appears in the bottom half of the window.



You can click the **Replace** button to replace the highlighted text and move on to the next match, or you can manually edit any of the text you see in the lower half of the window and then click **Find Next**.

Note	If you make a change, and click **Skip Note**, Configurator prompts you to save or discard changes made to that point for the element being processed, or to cancel the action. Clicking **Cancel** will only cancel the Skip Note operation. Processing will continue with the next element found to match, if any.

Once Configurator finds all of the matches in a particular design element (and you have not clicked **Skip Note** to stop processing that element), if you have made any changes (either replacements or manual edits), Configurator asks if you want to save the element before continuing.



You click one of the following:

Yes Configurator saves the changes you made within this design element and continues to the next match.

No Configurator discards any changes you made in this design element, and continues to the next match.

Cancel Configurator discards any changes you made to this design element, and restarts the search at the beginning of the same element. This gives you a chance to undo any changes you have made to this design element and start over.

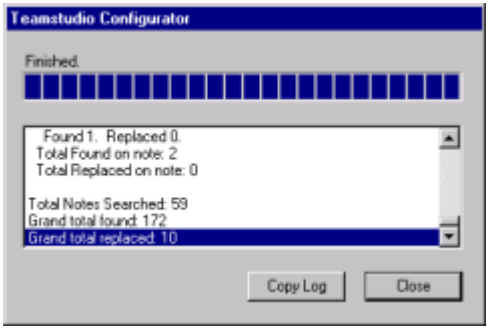
Viewing the Configurator Output Log

As matches are found in the target database, Configurator stores the following information in an on-screen log as well as in the optional output database:

- Where the match was found
- What action was taken
- A summary count of matches and/or replacements per element
- Any skipped notes
- If the changes made were cancelled
- The total number of notes searched
- The total number of matches
- The total number of replacements
- Any errors that occurred during the action

See “Specifying Where to Store Configurator Results,” on page 146 for more information on the output database.

The following is an example of the on-screen output log.



When the search/replace action is complete, you can scroll through this log. You can also copy this log to the clipboard, by clicking the **Copy Log** button. This allows you to create a full report of the changes that have been made in another

application, such as Notepad or Microsoft Word.

Before you run Configurator, you can optionally create a database to store the output log. The information you see in the output log database and in the on-screen log are identical.

The following is an example of the contents of a Configurator output log.

```
Action performed: Find
Matching: All
Searching: Design


Searching Discussion - Notes & Web (R5.0) on
Local (discsw50.ntf).
Find: 'Topic'
Replace with 'Subject'


Form
(IntProfileInstructions)|(IntProfileInstructions)
  Text
    Found 3. Replaced 2.
    Found 1. Replaced 1.
    Found 1. Replaced 1.
    Rest of element was skipped. *Changes
   abandoned*
  Total Found on note: 6
  Total Replaced on note: 0


Total Notes Searched: 2
Grand total found: 6
Grand total replaced: 0
```

The log starts by providing a note of the database against which Configurator was run. It also specifies the search and replace texts.

For each element in which a match was found, the log records the:

- The element name
- The lower level item in which the match was found (for example, the Topic column)
- A count of the number of matches
- A record of the action taken

The action may be *Replaced N* where N is 0 or more, corresponding to the number of straight replacements, or *Manually edited*, which indicates that the user changed something other than just replacing the matched text.

Where a match has been found in static text, the text is divided into blocks, each of which represents a block of text in the same font face. Each block has a separate entry in the log.

Building Configurable Database Designs

When you build configurable texts into your database design, you can use Configurator to make quick changes, tailoring your application to meet individual customer needs.

Say, for example, you're building a sales force automation system you will sell to a number of clients.You may have a field that captures the status of an account. When you define the static text for the field label as "[#Status#]", you can use Configurator to easily customize this static text for a client, who, for example, prefers the text label "Phase".

Similarly, the keyword list behind the Status field may consist of the following entries: "[#Prospect#]"; "[#Customer#]"; and "[#Ex-customer#]", which you can easily re-configure to meet your customer's requirements.

You can even make your application entirely configurable by creating completely generalized keyword lists that define list members as "[#Item1#]"; "[#Item2#]", and so on.

Using Configurator you can build a form where every piece of static text is configurable. Your application runs significantly more quickly and efficiently when you use Configurator than when you use run-time @DBLookup commands.

Teamstudio Delta

Introduction

Congratulations on your purchase of Teamstudio Delta!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio Delta is a comparison and reporting tool that compares the following:

- Two versions of a Notes database design
- Two versions of the same design element
- Design or documents within the same database
- Documents from two different versions of the same or different database

Delta can help you keep up with IBM Lotus Notes template updates made for each new release. If you changed your copy of the standard Notes e-mail template for one release and your organization is upgrading to a new release, you need to find out the following:

- The differences between the templates in those two releases of Notes.
- The differences between the template you are using (that includes your customizations) and the standard template you started with.

With this information you can decide whether to re-apply your customizations to the updated standard template or to integrate the upgrades made to the new template into your customized version.

How Delta Works

Teamstudio Delta compares two database designs and shows you what is different between them. If you ran Delta against an earlier Notes release e-mail template and the later Notes release e-mail template, you would quickly discover a number of changes.

Without the help of Delta, finding these changes would take hours.

Delta makes it easy to compare visual elements, such as two forms. You can examine two forms, and instead of seeing the code in text form, you see a visual representation of each design element, side-by-side. As you scroll left, right, up, and down, the two preview panes stay in sync making it easy to compare the two forms.

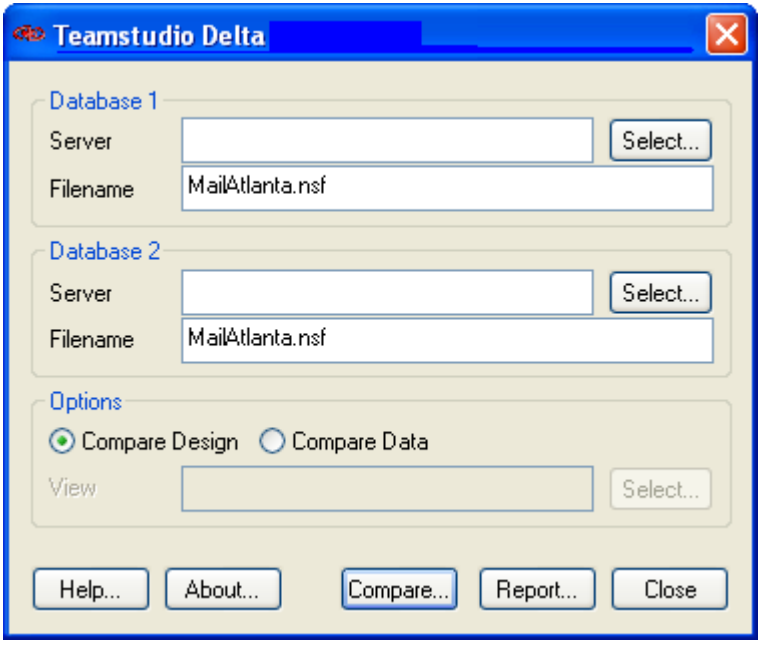
Using Delta

You can begin using Delta as follows:

To compare design elements within a single database

1. In Designer, open one of the databases you want to compare.
2. Click the Delta button on the toolbar.

   You see the Delta window, with both the **Database 1** and **Database 2** fields populated with the file name of the database you have open.



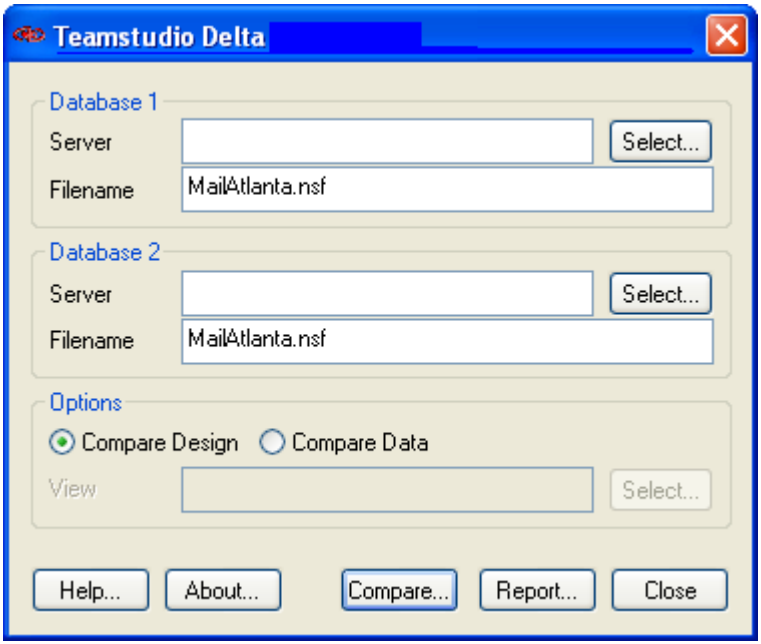
Note	If you start Delta without a database open, Delta starts with the databases last compared in the Database 1 and Database 2 File name fields. However, if you have not used Delta before, the program starts with both database fields blank.

   You can compare two different databases or compare one database with itself.

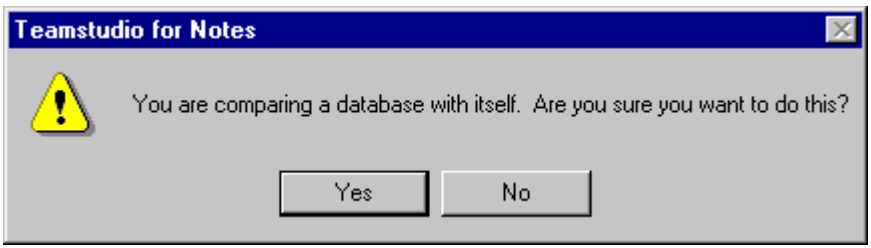
3. In the Delta window, select the database whose design elements you want to compare,

if not already selected.

4. In the **Options** area, select **Compare Design**.
5. Click **Compare**.



You see the following message.



6. Click **Yes**.

   Delta's main window opens when the Delta comparison process is complete. The design of the databases is represented hierarchically.
7. Uncheck **Hide Identical Objects**.

The windows in the two panes are synchronized, so that as you scroll through one, the other scrolls with it. The display always starts with all headings collapsed. To expand/collapse the list of elements, click the plus or minus sign beside a heading in either pane. Corresponding elements are always listed side-by-side. Corresponding design elements always have identical names and are of the same type.

An arrow pointing right indicates that the element exists in Database 2 only. If there is no corresponding element in Database 2 to an element in Database 1, the corresponding line in database 2 is blank. An arrow pointing left indicates that the element exists in Database 1 only.

To drill down to successively lower levels of detail, continue clicking plus signs. To expand everything, press the asterisk key on the numeric keypad.

Comparing Elements or Documents

To compare items in two different databases

1. In the Delta window, select the two different databases whose elements or documents you want to compare, if not already selected.
2. In the **Options** area, select **Compare Design** or **Compare Data**.
   If you selected **Compare Design**, move ahead to step 3.

   If you selected **Compare Data**, Delta requires you to specify a view that will display the data sorted on a common field.

   a. Beside the **View** box, click **Select** to open the **Select Data View** window.

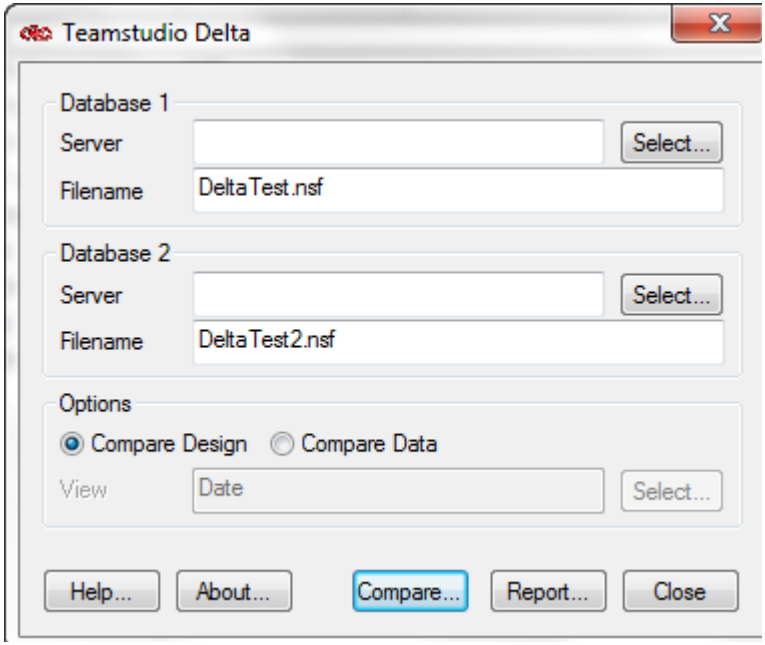
   b. Expand the **View** dropdown.

   c. Select a view that categorizes documents on fields that will match documents across the two databases, making it easy for you to locate documents and show their differences.

Tip	• Select a familiar view to make it easier to locate the data documents of interest.

   d. Click **OK**.

3. Click compare.



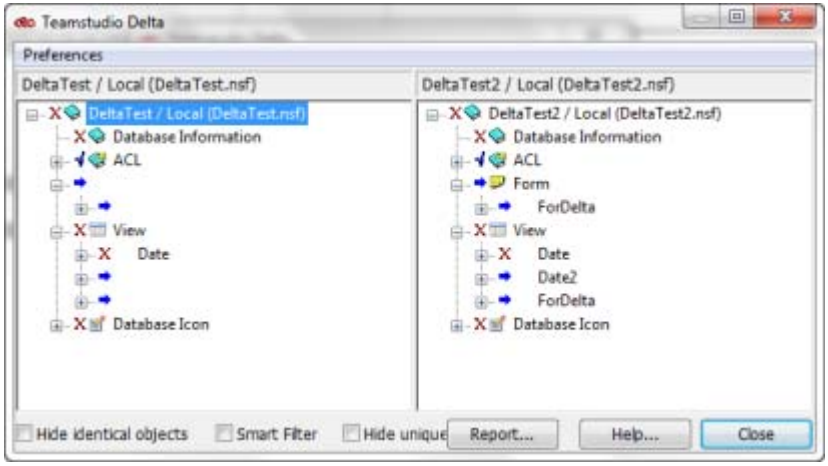
Delta's main window opens when the Delta comparison process is complete.

Each database is represented in a pane, with Database 1 on the left and Database 2 on the right. The design of the databases is represented hierarchically.

When comparing documents, the documents are listed in the sequence determined by the view you selected. They may be represented hierarchically, for example, with parent or main documents preceding their descendant. Documents are identified with a note icon .

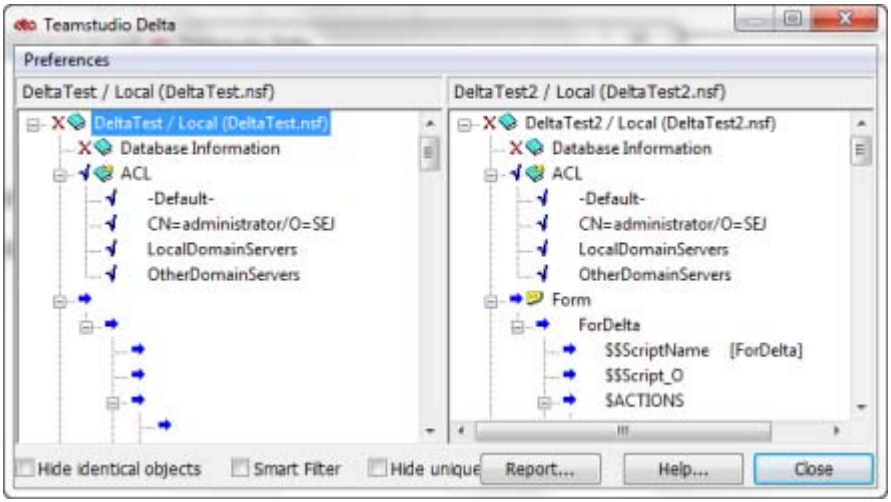
The windows in the two panes are synchronized, so that as you scroll through one, the

other scrolls with it. To expand the list, click the plus sign in either pane. Corresponding items are always listed side-by-side, have identical names, and are of the same type.



An arrow pointing right indicates that the item exists in Database 2 only. If there is no corresponding item in Database 2 to an item in Database 1, the corresponding line in database 2 is blank. An arrow pointing left indicates that the element exists in Database 1 only.

4. To drill down to successively lower levels of detail, continue clicking plus signs.



About Difference Symbols

A symbol displays beside each element or document compared using Delta.

Mark		Description
	Blue checkmark	Items are identical. Clear the **Hide Identical** check box to show identical items.
	Checkmark with an asterisk	There are differences among child documents. This only appears when comparing data.
	Red X	Items are different from each other.
	Green left arrow	Item exists in Database 1 (on the left) but not in Database 2 (on the right).
	Blue right arrow	Item exists in Database 2 (on the right) but not in Database 1 (on the left)
	Gray diamond	Identifies a save conflict for two corresponding items.

Delta Options

You use the check boxes in the lower left corner of the main window to filter the comparison results:

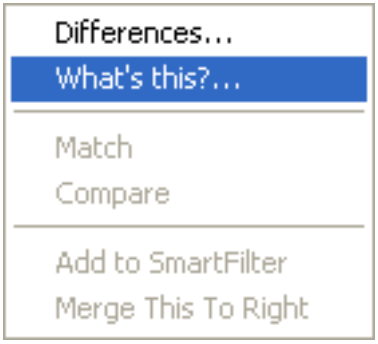
Check box	Description
☑ Hide identical objects	Select **Hide Identical Objects** (the default) to list only elements and documents that are different in the two panes. Clear this check box to see the complete database design—elements and documents that are identical *and* elements and documents that are different.
☑ Smart Filter	Select **Smart Filter** to hide or filter information that is of no practical interest when comparing the database designs. For example, an Agent stores information about the last time it was run. This is likely to be different between two different copies of a database, but does not really mean that there are differences in the design. With **Smart Filter** selected, Delta ignores that attribute.
☐ Hide unique notes	Select **Hide Unique Notes** to hide notes that exist in only one of the databases you are comparing.

Viewing Design Element Descriptions

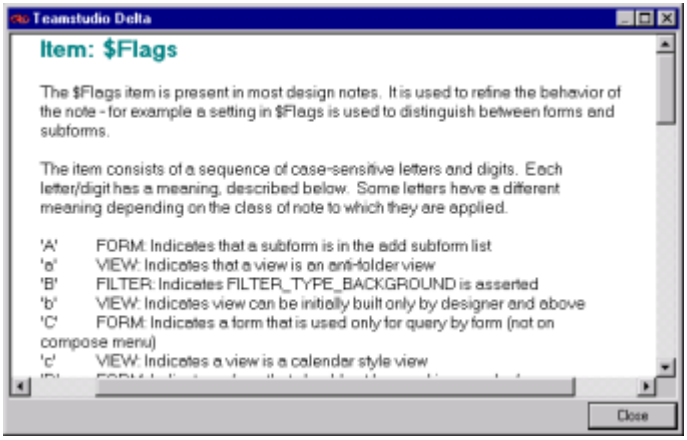
You can view descriptions of the various parts of the design using Delta's context-sensitive help.

For example, if you are not sure what the $Flags item within a form means,

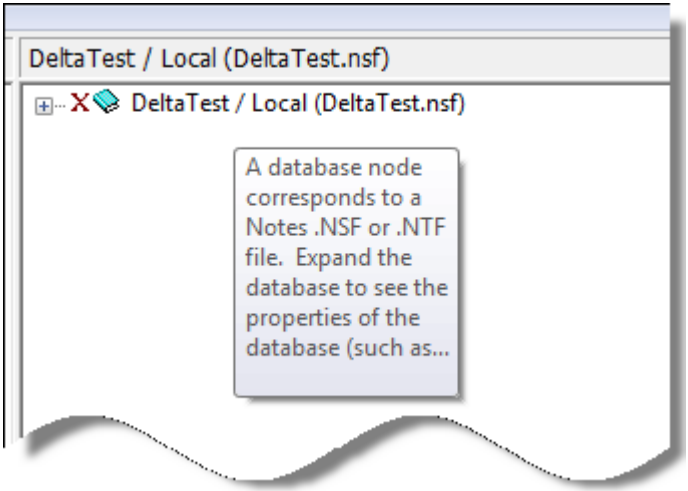
right-click the item and choose **What's This** from the shortcut menu.



You see a window with the item description.



Hovering your cursor over a design element also gives you the item description in a ToolTip popup.



To toggle the ToolTips feature

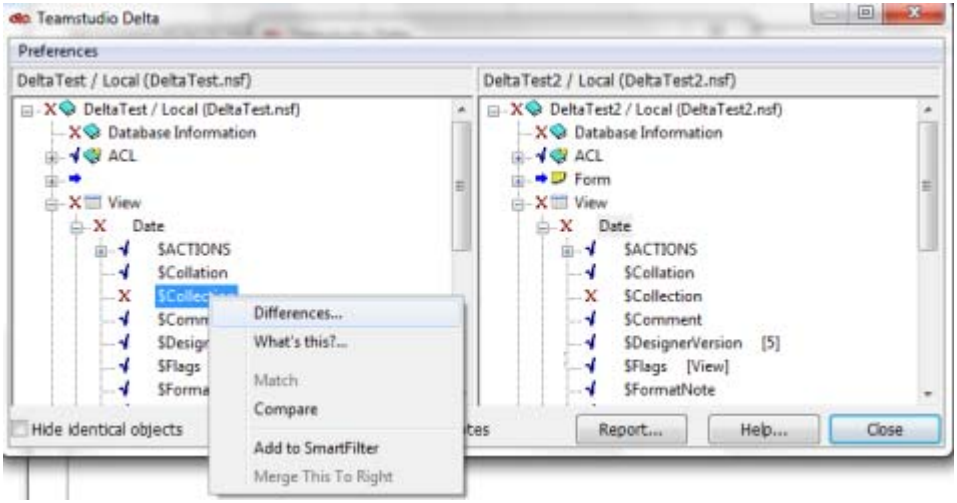
Click **Preferences** > **Enable ToolTips**.

Note	Delta displays the first 128 characters of the help topic. To view the entire topic, choose **What's This** on the shortcut menu.

Viewing Differences

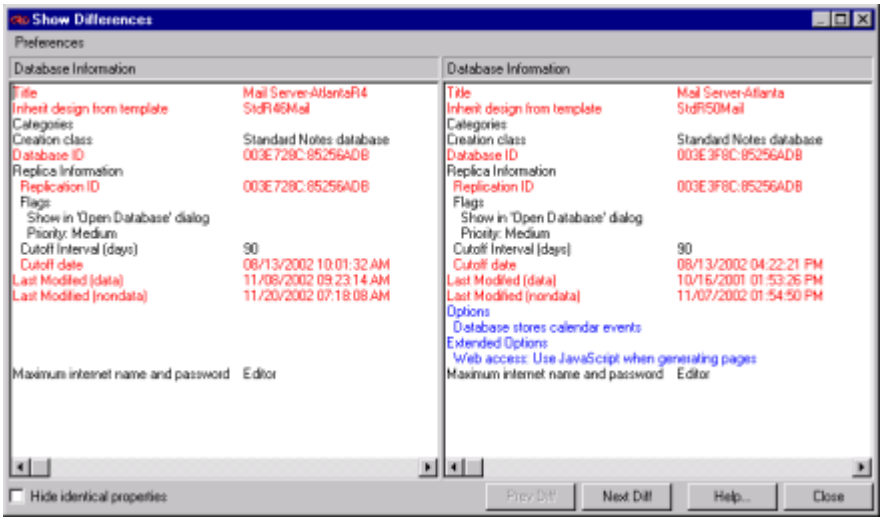
Once you have determined which corresponding items are different, you can compare them to learn how they differ.

To compare and display the differences between two individual items, double-click the item in either pane. Alternatively, right-click the item and choose **Differences** from the shortcut menu.



The **Show Differences** window displays the attributes of the two corresponding design elements side-by-side. The element from Database 1 is in the left pane and the element from Database 2 is in the right pane.

In this example, we compared the Database information for each of the two databases to see the differences between each database's general attributes.



Note	Data stored in a format other than text, for example, binary data, is converted to text for the Delta comparison. In the example, the field Database ID's original binary data was converted to hexadecimal data. Some fields require special interpretation by Delta. In the example, the two lines that follow the Flag field were Delta's interpretation of the flag values. If you select a design element that exists in one database but does not exist in the other, the attributes of the existing element display in the appropriate pane and the other pane is empty.

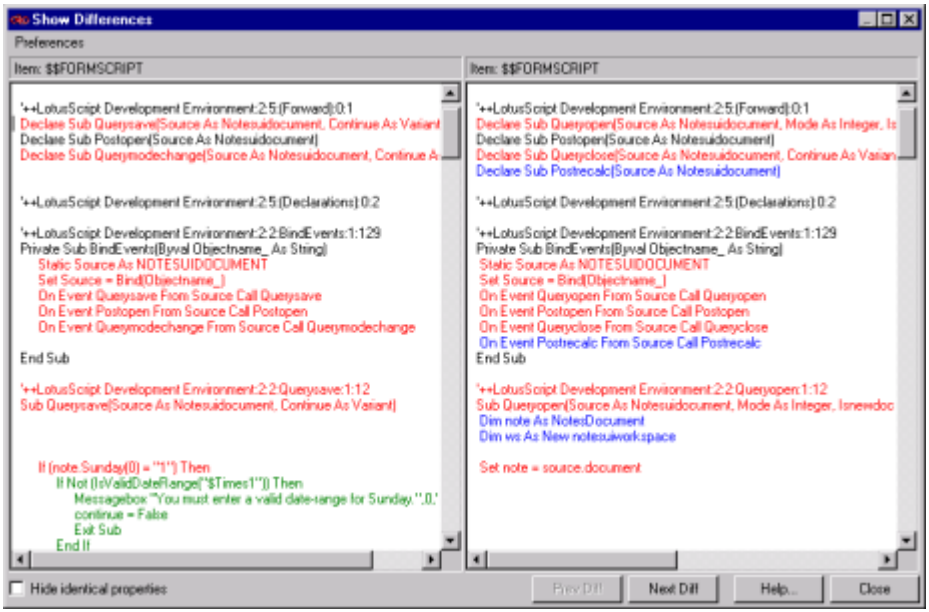
You use Delta's Differences feature to learn the differences in the structure of two design elements or the differences in two fields, or code, such as LotusScript. These types of differences display as text. See "Viewing Differences," on page 181, for more information.

You can also show a visual preview of differences when the design element is a form, subform, page or other visual design element.

Tip	See “Setting Delta Preferences,” on page 193, if you want to change how the Delta Show Differences window displays fonts and white space.

Note	The Differences function can only be used with two corresponding, side-by-side items. To learn the differences between two items that do not correspond, try Matching them first (See “Matching Elements or Documents,” on page 188). If the two items are too dissimilar to be matched, use Compare to see their differences (See “When You Can’t Match Elements or Documents,” on page 190).

When you compare two elements that contain code, such as LotusScript, you see that programming code in the Show Differences window.



Color-coded Text

The Show Differences window displays differences as color-coded text.

Text Color	Description
Black	Corresponding lines of text in both databases are identical.
Red	Corresponding lines of text in both databases are different.
Green	Line of text appears in Database 1 (on left) but not in Database 2.
Blue	Line of text appears in Database 2 (on right) but not in Database 1.

Note	You can customize Color-coding. See “Setting Delta Preferences,” on page 193 for more information.

Locating Differences within the Show Differences Window

Use these two buttons to locate differences.

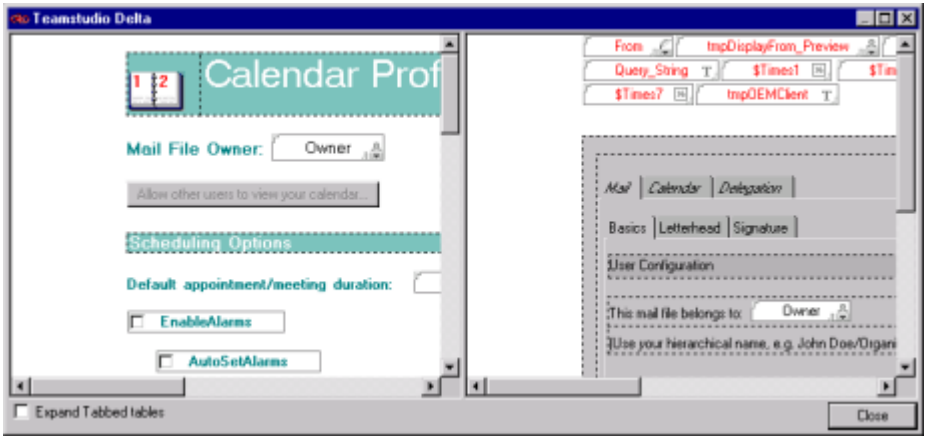
Click **Prev Diff** to navigate to the previous difference.

Click **Next Diff** to navigate to the next difference.

Hiding Identical Properties

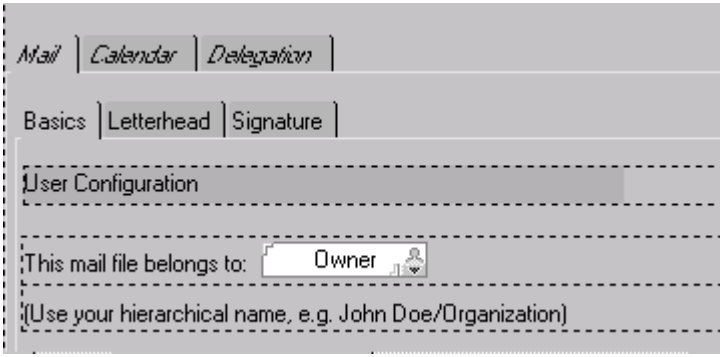
Select the **Hide identical properties** check box to show only those design properties that are different. For example, in LotusScript code, identical subroutines in the two databases do not display.

When you select Show Differences on a form, you see a preview window displaying the element from Database 1 in the left pane and the element from Database 2 in the right pane.



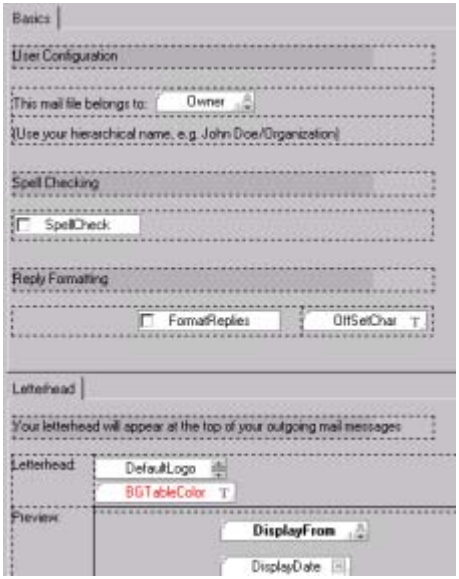
Showing Tabbed Tables

By default, tabbed tables within a form are hidden and display the same as they appear on the actual form, one on top of the other.



To view the content on each tab, select the **Expand Tabbed tables** check box.

This lists each tab one below the other. You scroll down to review the content on each tab.



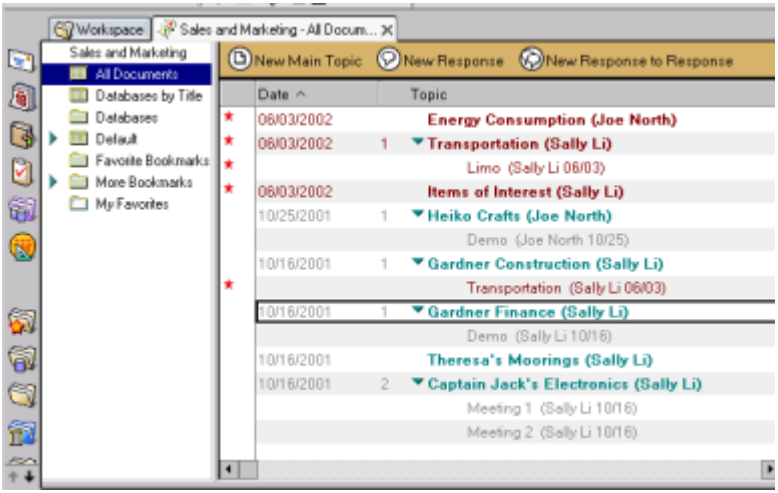
Showing Data Document Differences from the Notes Client

Delta lets you compare two data documents without leaving their database.

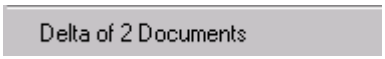
To compare two data documents from within their database

1. Open the database in Notes.
2. Select two documents in the same view to compare. (You cannot select documents from

two different views.)



3. Choose **Delta of 2 Documents** from the **Actions** menu in Notes. (This menu choice is unavailable until two documents are selected.)



4. The **Show Differences** window opens, displaying the first document in the view in the left pane and the second document in the view in the right pane.

Matching Elements or Documents

When Delta compares design elements, it identifies *corresponding design elements* as those with identical names and of the same type. When Delta compares data documents in a view, it identifies *corresponding data documents* as those in the same position in the view.

In Delta's main window, corresponding design elements or corresponding data documents display side-by-side in two panes. Design elements or documents in Database 1 display in the left pane and design elements or documents in Database 2 display in the right pane.

The two panes are synchronized, so that as you scroll through design elements or documents in one pane, the content in the other pane scrolls with it, keeping corresponding items side-by-side. You click the plus/minus signs to expand/collapse the content.

Why Use Matching?

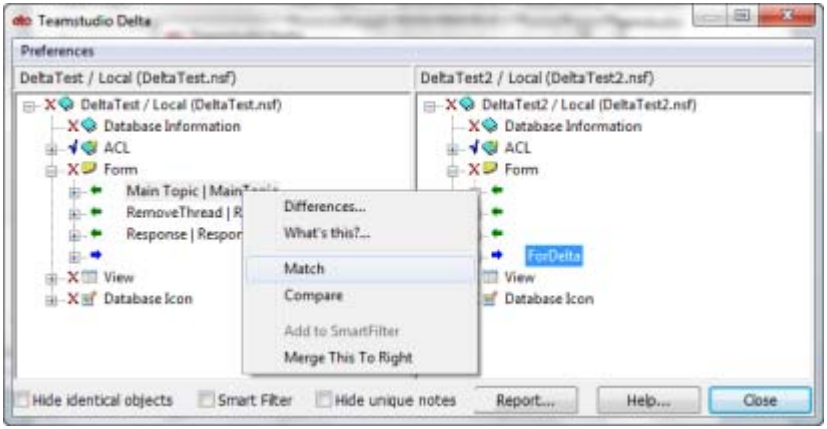
If two elements are of the same type, but their names have changed, Delta will not consider them corresponding and will not automatically list them side-by-side for comparison. Using Delta's Match feature, you can force the two elements to correspond so you can show the differences between the two.

Delta matches documents that correspond to each other in a view. If a document's position in the view has changed between the two versions of the database you are comparing, Delta will not be able to automatically list them side-by-side for comparison. Similarly, two documents may be versions of each other, but if column sorting causes them to appear in different positions in the view, Delta will assume they are unrelated documents. Using Delta's Match feature, you can force the two documents to correspond so you can show the differences between the two.

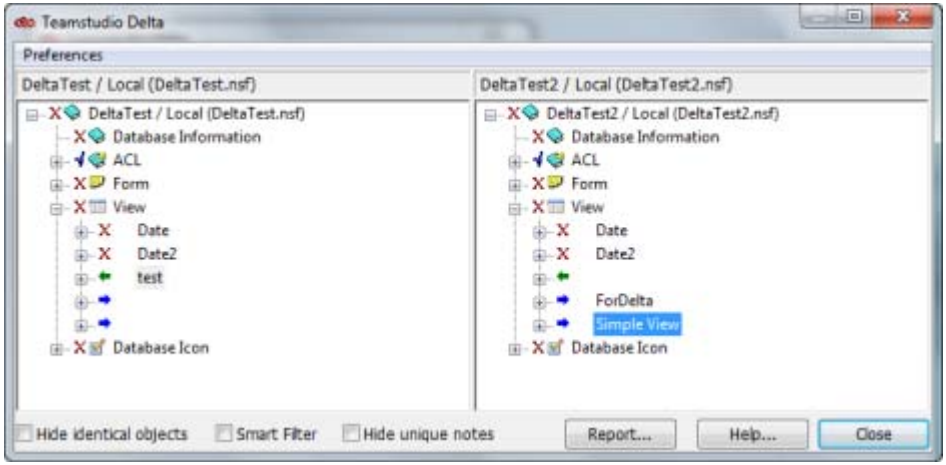
The two elements or documents you match remain matched until you exit Delta or you match them to something else.

To match two elements

1. Select an element title in one pane.
2. Select the element title you want to match in the other pane.
3. Right-click one of the two element titles.
4. Choose **Match** from the shortcut menu.



Delta matches the two elements by redrawing the view with the elements you selected aligned. The matched element in the right pane will display without a name.



You can now compare the differences between the two elements. See “Viewing Differences,” on page 181, for more information.

If the two elements you have selected are too dissimilar, the Match option will be inactive. Instead, you can use Compare to quickly view differences between the two elements without matching them.

When You Can’t Match Elements or Documents

With Delta, you can compare two non-corresponding or dissimilar design elements to view their differences. The elements or documents could differ in many ways. These two elements may be of the same type but have different names, for example, two completely different forms. They may be of two different types, for example, a form and a subform. They may be hierarchically below the design element level, for example, two fields on a form. Or they may be CD records, the sub-elements of rich text fields.

In any of these cases, you must **Compare** the two elements to display their differences.

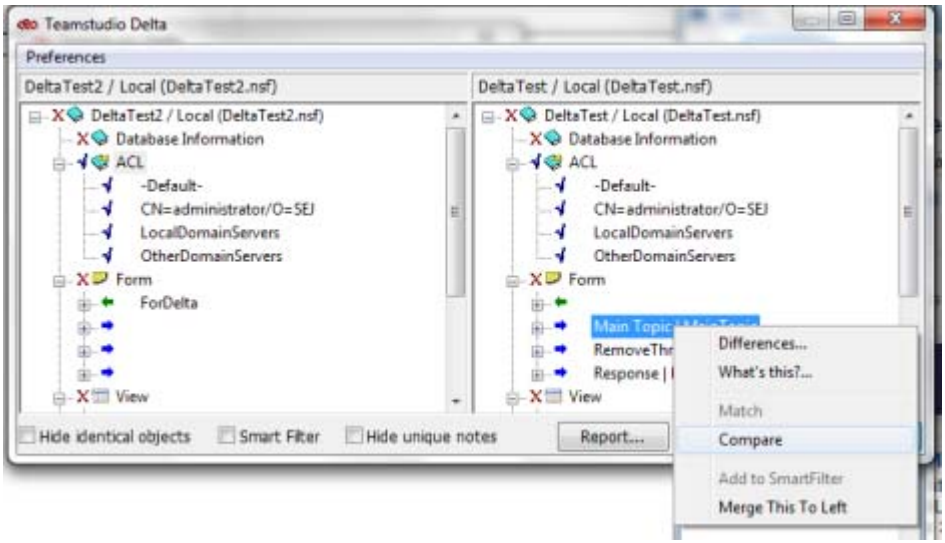
You may want to look at the difference between two documents but not want to match them. Since you can't view **Differences** for non-corresponding documents, you will have to **Compare** them.

Using **Compare**, you can view the differences between any two design elements or two documents, even though they are not similar.

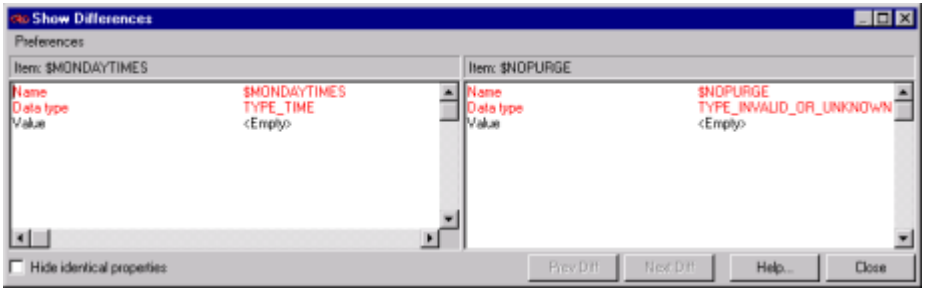
To compare two unmatchable design elements

1. Select one element in each pane.
2. Right-click one of the two element titles.
3. Choose **Compare** from the shortcut menu.

Note	When you use **Compare**, the two design elements or documents are not considered matched for reporting purposes.

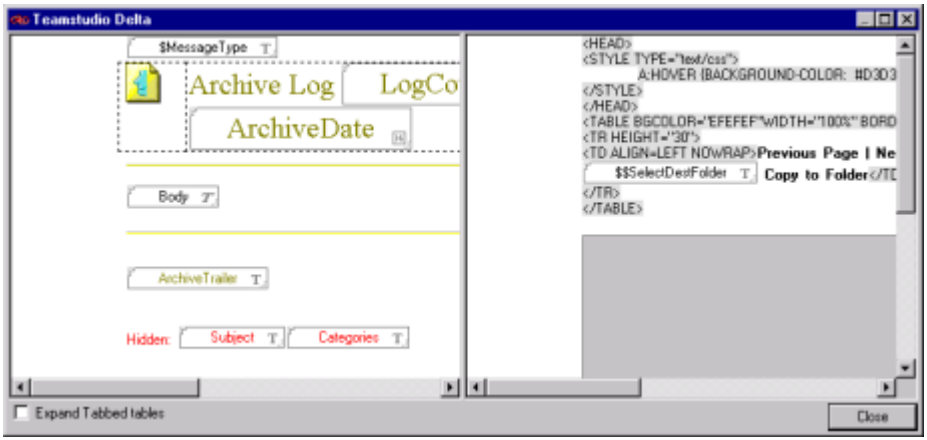


The **Show Differences** window opens, displaying the element from Database 1 in the left pane and the element from Database 2 in the right pane.



Note	The displayed information differs depending on the type of elements being compared.

4. Double-click one of the form names at the top of the panel to show the form's visual representation of forms, sub-forms, pages or navigators and compare for differences.



You use the **Differences** feature for items that are lined up with the like item in the other pane. You use the **Compare** feature for items that are anywhere on the lists.

If you use **Compare** to show differences for a visual design element, you will first see the text differences in the **Show Differences** window. To see the visual differences, double-click an item within the **Show Differences** window.

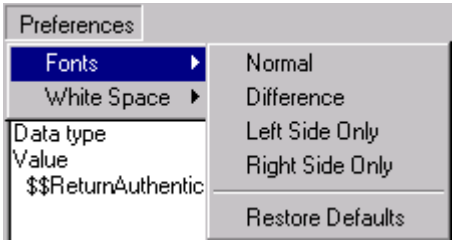
Understanding Comparison Results

Setting Delta Preferences

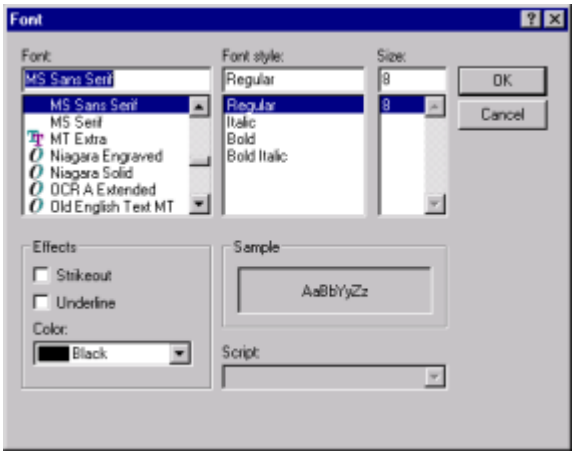
You can set preferences for how the Delta **Show Differences** window appears. You can specify the fonts used in one or both panes and you can specify how white space is seen in Delta.

You can set font preferences as follows:

- Define the font for elements that are identical
- Define the font for elements that are different
- Define the font for elements that only exist on the left side
- Define the font for elements that only exist on the right side
- Restore defaults

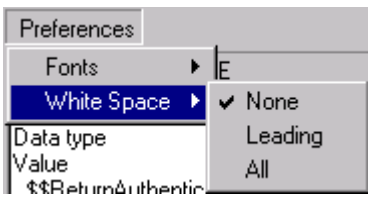


The following window shows the normal font. This window is the same for other font definitions.



You can define how white space appears. If one area contains spaces and the other contains tab characters, Delta treats this as a difference. Though this is not a difference that affects other functions of the code, it is still a difference.

- Click **None** to treat each difference in white space as a difference.
- Click **Leading** to ignore all white space characters at the start of a line.
- Click **All** to ignore white space characters throughout each line: at the beginning, between words and at the end. Multiple white space characters between words are treated as one.



Note	Delta defines white space as space or tab characters only.

Filtering Data Document Comparison Results

You use the following check boxes to filter the comparison results:

Check box	Description
☑ Hide identical objects	Select **Hide Identical Objects** (the default) to list only elements and documents that are different in the two panes. Clear this check box to see the complete database design—elements and documents that are identical *and* elements and documents that are different.
☑ Smart Filter	Select **Smart Filter** to hide or filter information that is of no practical interest when comparing the database designs. For example, an Agent stores information about the last time it was run. This is likely to be different between two different copies of a database, but does not really mean that there are differences in the design. With **Smart Filter** selected, Delta ignores that attribute.
☐ Hide unique notes	Select **Hide Unique Notes** to hide notes that exist in only one of the databases you are comparing.

How the Smart Filter Works

Advanced users may be interested in how Delta's Smart Filter works and what Delta hides when the **Smart Filter** check box is selected.

Default data document fields filtered out are:

- Anything beginning with $CIAO
- $Links
- $Ref
- $Revisions
- $UpdatedBy

See "Configuring the Smart Filter," on page 197 for information on how to configure the Smart Filter.

Hiding an Item with the Smart Filter

You use Smart Filter to hide items you don't want to see when viewing the results of a comparison. First, you add an item to the Smart Filter. Then you enable Smart Filter.

To add an item to the Smart Filter list

1. Right-click the item or CD record's name to display the shortcut menu.
2. Choose **Add to Smart Filter**.

   When Smart Filter is enabled, Delta hides the item or CD record.

   You can change settings about what to hide using the **Configure Smart Filter** window.

Configuring the Smart Filter

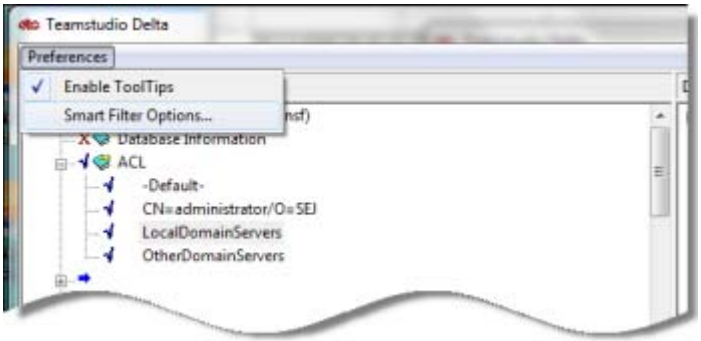
Delta filters a standard set of element items and fields when the **Smart Filter** check box is selected on Delta's main window.

You can customize the Smart Filter to filter only what you specify. These element items and fields include:

- CD Records (for example, individual paragraph records or text records)
- Particular design element fields (for example, $$$FormScript_O or $$SCRIPT_O)
- Anything you have added with the **Add to Smart Filter** feature

To configure the Smart Filter

1. Click **Preferences** > **Smart Filter Options**.



You see the Smart Filter window. Highlighted elements are always visible.

2. Select a type.
3. Do one of the following:
   - Deselect (unhighlight) the elements you want to hide.
   - Click **Show All** to select (highlight) all elements, so that all will appear when the Smart Filter is turned on.
   - Click **Hide All** to deselect (turn off highlighting) all elements, so that none will appear when the Smart Filter is turned on.
   - Click **Default** to accept Smart Filter's defaults. This is information that is typically of no interest to a developer. This restores factory settings.

Sharing Design Changes through Merging

Delta's merge feature lets you quickly share design changes you choose between two databases. When you merge, you replace an object from one database with a copy of the object from another database. Note that merges in Delta happen in realtime.

Manual merging in Delta works on the object level. You can merge most objects from one database to another as long as the target database has the same "container" as the source. For example, a button in a form called Employees can be merged into another form called Employees in another database.

To merge elements from two databases

You can merge elements from one database to another as follows:

1. With the source and target database displayed in Delta, right-click in one database on the element you want to merge to the other database.
2. Select **Merge to the Right** or **Merge to the Left** from the menu that appears.

The element is merged into the other database.

Common Uses for Manual Merging

You can use manual merging in a variety of ways:

- Moving bug fixes or changes in an older version of an application to a newer version.
- After upgrading a third party application, merging modifications you have made to a previous version.
- Adding action buttons to forms.

Creating Difference Reports

You can save and print a report listing all of the design element or document differences in a database. If the report provides too much or not enough detail, you can filter the results using the **Options** on the **General** tab (See “Delta Options,” on page 178) on the Teamstudio Delta Reporting window, or the settings on the CD Filter tab (See “Filtering Low-level Information,” on page 207).

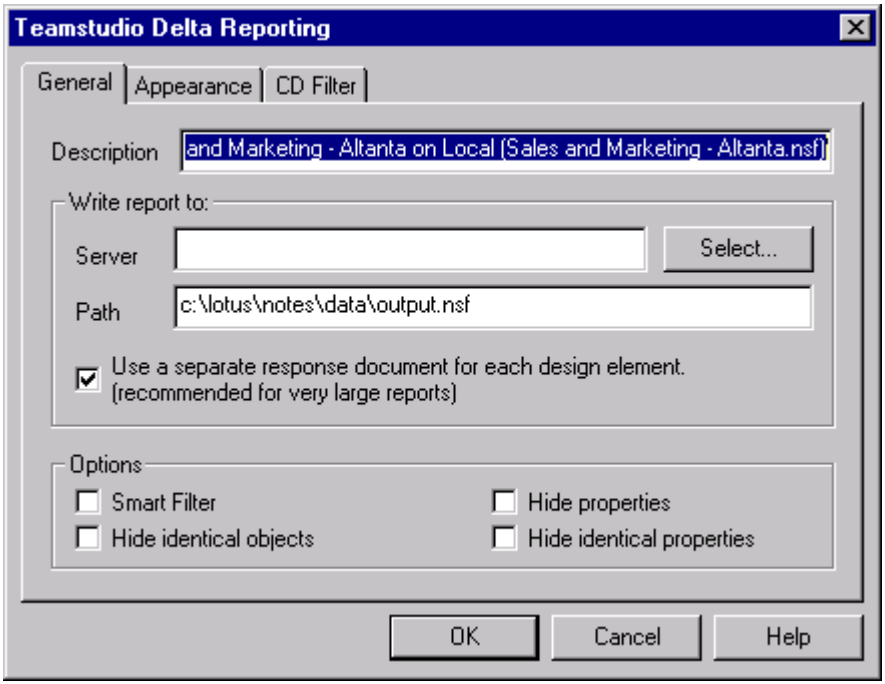
If you are printing document differences, be sure to read “Simplifying Data Document Reports,” on page 209.

To create a Difference Report

To create a Difference Report, you specify the report's description and output database location. Then you specify any options you want that will filter or change the report results.

1. To create a Difference Report, choose **Report** from the Delta main window.

   You see the **General** tab of the Teamstudio Delta Reporting window.



In the **Description** box, Delta provides a default description for the report, based on the names of the databases being compared. This title identifies the report document in the output database, which is a Notes database.

2. Optionally, replace the default description with your own description.

Note	If you plan to run a report more than once, consider providing a different report description, perhaps including the date and time, each time you generate the report.

3. In the **Write report to** section, click **Select.**

   You see a list of databases based on the reports template.

Note	The reports template name is TMSLogs and the file name is **tmslogs.ntf**.

4. Select an existing database or specify a new database server\pathname.

   By default, Delta creates a separate document for each comparison of two design elements or of two documents. This makes it easier for you to navigate through large Delta reports.

   If your database is small (or if you prefer) you can create the report as a single document.

5. If you want the report as a single document, clear the **Use a separate response document for each design element** check box.

Tip	Remember that if you clear this check box, your report may be extremely long, because all design elements or documents (depending on what Delta is comparing) are contained within one report document.

6. In the **Options** section, click to select the options you want that will filter the report items displayed, as described in the table.

7. Click **OK**.

Report Options

The following report options are available:

Option	Description
Smart Filter	Select **Smart Filter** to hide or filter information that is of no practical interest when comparing the database designs. For example, an Agent stores information about the last time it was run. This is likely to be different between two different copies of a database, but does not really mean that there are differences in the design. With **Smart Filter** selected, Delta ignores that attribute.
Hide identical objects	Select the **Hide identical objects** check box to include in the report only elements or documents that are different. Clear this check box to include in your report the complete database design--elements and documents that are identical *and* elements and documents that are different.
Hide properties	Select the **Hide properties** check box to list the name only of design elements or documents that are different. Details about the differences are not included in the report, so you cannot learn what or where the differences are. This option produces a significantly shorter report.
Hide identical properties	Select the **Hide identical properties** check box to exclude from the report any identical individual properties for an object with differences. This means that objects with differences are included in the report, but within those differences any identical properties are excluded. This option produces a shorter document for each design element or document comparison.
Hide unique Notes	Select the **Hide unique Notes** check box to exclude from the report any Notes that exist in only one of the databases you are comparing.

About Difference Report Symbols

A symbol displays beside each element or document.

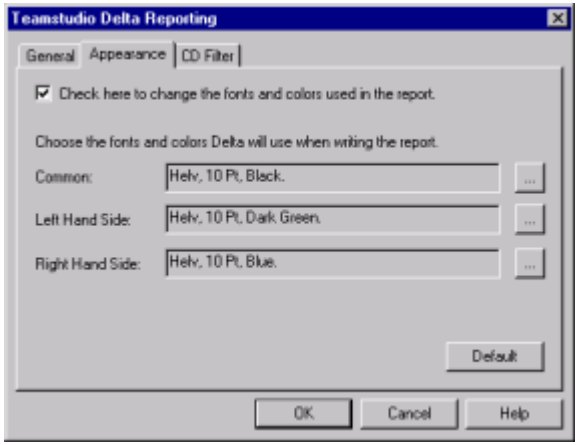
Mark		Description
	Blue checkmark	Items are identical. Clear the **Hide Identical** check box to show identical items.
	Checkmark with an asterisk	There are differences among child documents. This only appears when comparing data.
	Red X	Items are different from each other.
	Green left arrow	Item exists in Database 1 (on the left) but not in Database 2 (on the right).
	Blue right arrow	Item exists in Database 2 (on the right) but not in Database 1 (on the left)
	Gray diamond	Identifies a save conflict for two corresponding items.

About Difference Report Fonts and Colors

You use options on the **Appearance** tab to specify how Delta indicates differences in the report. By default, Delta uses the Helv font as follows:

Text Color	Representation
Black	Items in both databases are identical.
Red	Items in both databases are different.
Green	Items appear in Database 1 (on left) but not in Database 2 (on the right).
Blue	Items appear in Database 2 (on right) but not in Database 1 (on the left).

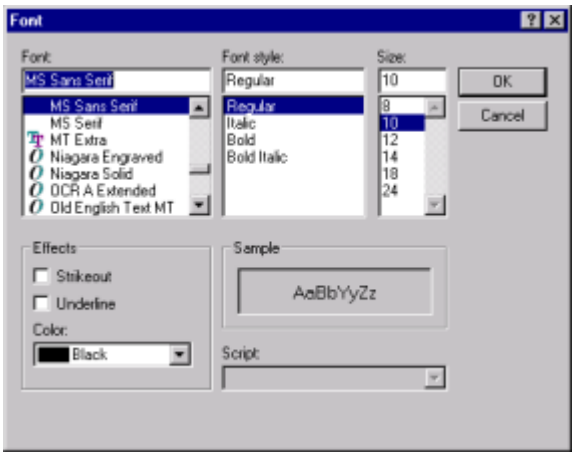
You can change these default typefaces and colors on the **Appearance** tab.



To change any one of the font typefaces

1. From the **Appearance** tab of the Reporting window, click the check box at the top of the window.
2. Click the ellipse **"…"** button to the right of the appropriate font definition.

   You see the font window.



3. Make the font changes you want.
4. Click **OK** to accept the changes.

Filtering Low-level Information

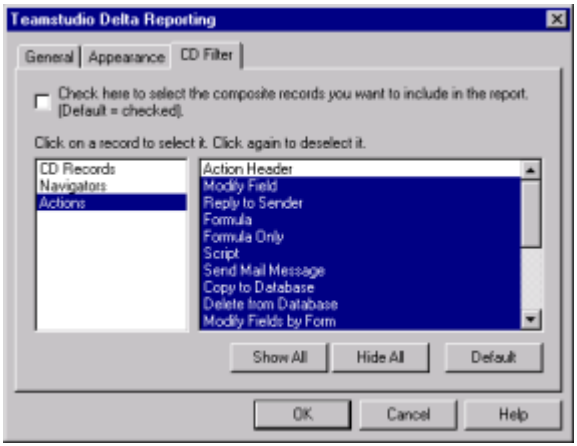
CD records store the rich text definitions of form and subform design layouts. They are complex by nature. Making even a small change in the layout of a form can cause significant differences at the CD record level. From the CD Filter tab, you can filter out low-level information that is not significant in comparing two design elements or two documents, for example, differences that show up as a result of a simple form layout change.

Important	Working with the CD Filter is an advanced option. Use the CD Filter only if you understand the internal structure of a design element.

The CD filter gets its initial settings from the Smart Filter. You can make changes in the filter for a single report as follows:

To filter CD records

- To filter CD records in the report, select the **Check here to select the composite records you want to include in the report** check box.



The list box on the left lists the following container types:

Container Type	Description
CD Records	A container for rich text such as $BODY
Navigators	A container for navigators
Actions	A container for actions on forms and views

The list box on the right lists all the CD records for the selected container type.

- Click **Show All** to select every CD record for the selected container type.
- Click **Hide All** to clear any selections for the selected container type.
- Click **Default** to use Delta's default CD record selection for all container types.

The various types of CD records are defined in the *IBM Lotus Notes C API* manual. For most users, Delta's default settings are sufficient and you will not need to change them.

Note	Keep in mind that the custom CD Filter selections you make are not saved. You must re-customize CD Filter the next time you create a report with Delta.

See "Configuring the Smart Filter," on page 197 for information on how to use the CD Filter.

Caution	If you are customizing the CD record selection for only one container type, click **Default** before you begin. This sets up the default selection for all containers types. You can then select the container you want to customize and proceed. If you click **Default** after you customize the selection for a container type, that container type's selection reverts to the default.

Simplifying Data Document Reports

Notes' internal handling of various fields such as rich text items may make it difficult for you to get a simple report for documents. The following procedure can help.

To configure a simple data document report

1. From the **Report** window, click the **CD Records** tab.
2. Click the **CD Records** container type in the left list box to display all of its CD Records in the right list box.
3. Click **Hide All** to clear any selections for CD Records. Selections for other container types are not affected.
4. Select the following CD records from the CD Records container:

   – Text

   – Field

   – Keyword

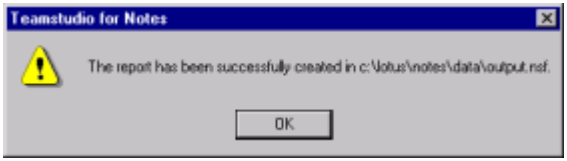
   – Ext Field

   – Ext2 Field

Note	Keep in mind that the custom CD Filter selections you make are not saved. You must re-customize CD Filter the next time you create a report with Delta.

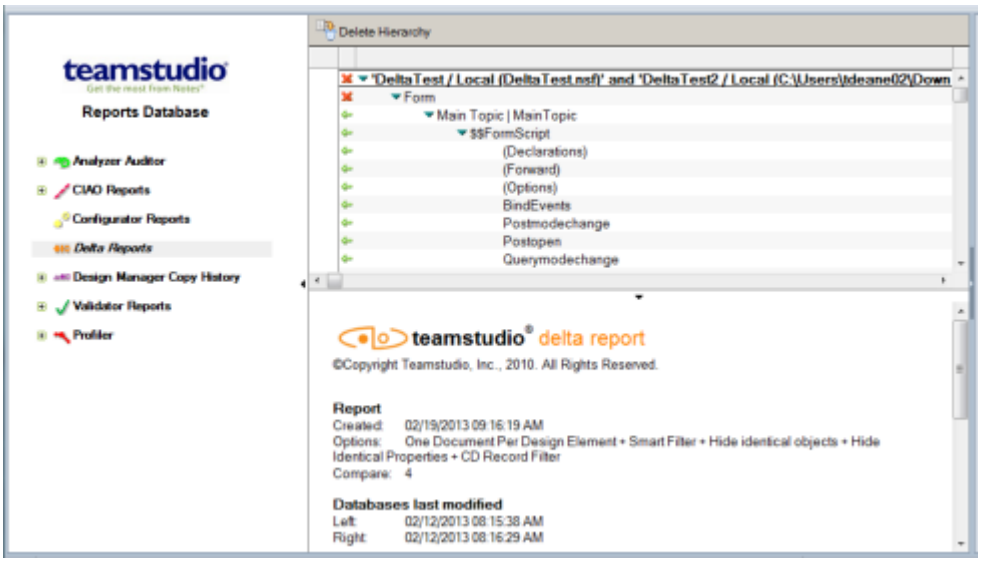
Viewing Reports

After you set up any options on the Teamstudio Delta Reporting window, click **OK** to generate the report. A status bar appears while the report is generated. Upon completion, you see a confirmation message.



Viewing Delta Reports

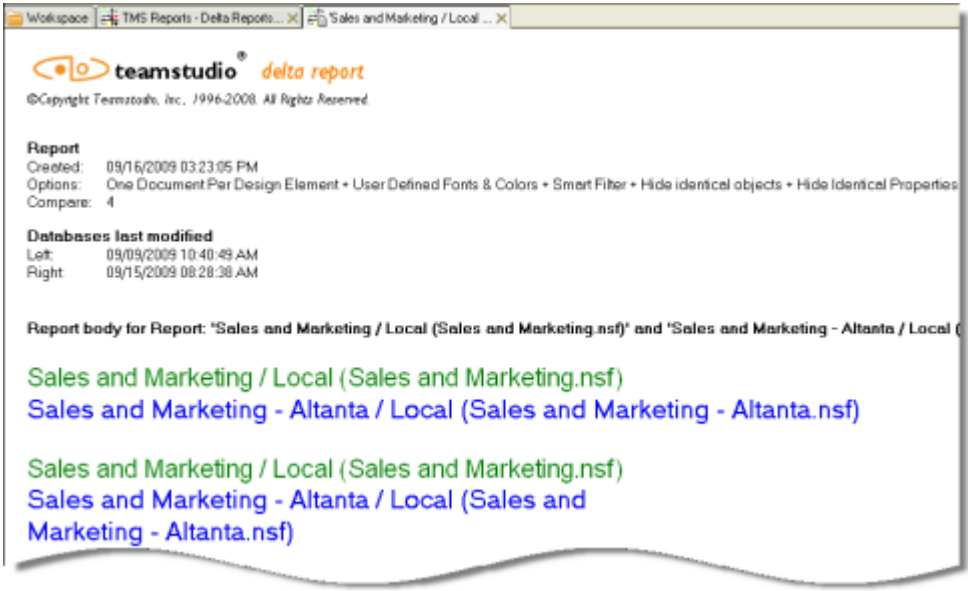
To view a report, open the output database where you stored the report. Then locate and open the report document.



The icons beside each item tell you whether items are identical or different.You can drill down within the view by clicking twisties. You double-click an item to see its report.

At the top of the report you see the report options in effect when this report was generated. Within the body of the report, you see the text in the default colors or the

colors you selected on the Appearance tab.



Teamstudio Design Manager

Introduction

Congratulations on your purchase of Teamstudio Design Manager!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio Design Manager enables and encourages code reuse by letting you build and share libraries of reusable design elements. The elements are stored in Notes templates. Design Manager helps you to organize, search, preview and use these elements in a database design.

With Design Manager you can quickly and easily create Notes databases from standard libraries of components.

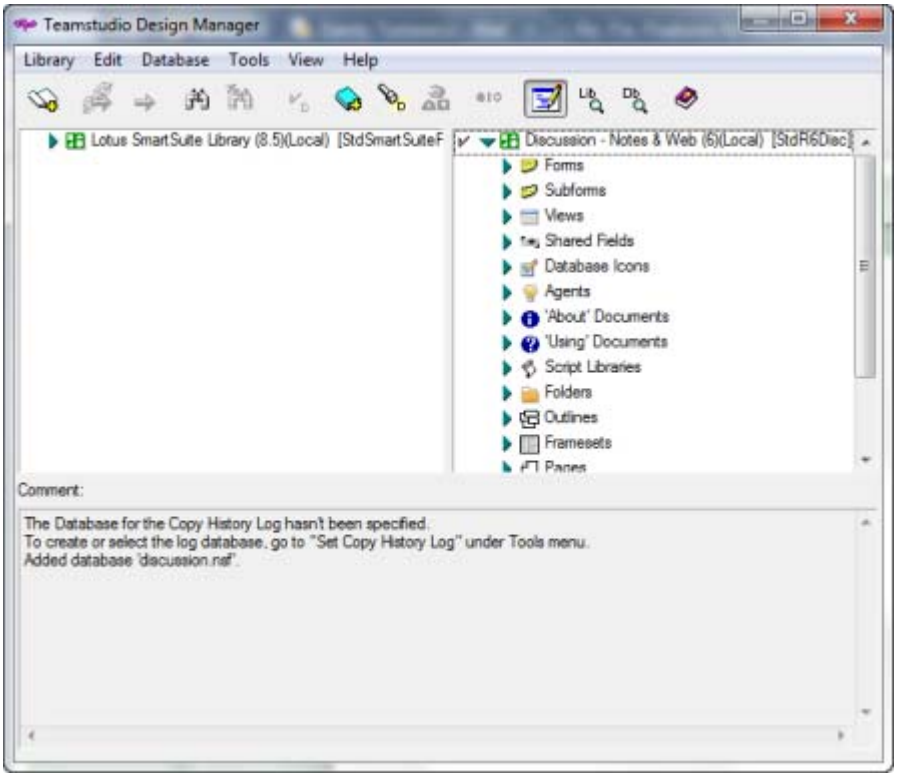
You can use any Notes database or template as a library. Using Design Manager to manage these templates provides several benefits that complement linking elements using Notes templates:

- You can manage and control linking with Design Manager. Design Manager's Library (left) and Database (right) panes show template-linked elements in bold typeface, making it easy to determine from which template elements are inherited.
- Design Manager includes additional features to help you with development and to improve consistency. For example, Scan for Dependencies finds any missing dependent elements. Group Objects allows you to associate a set of design elements into a single reference name that you can then drag and drop into target databases.
- Design Manager identifies dependencies and automatically copies them to the target database design if necessary.
- With Design Manager, you can track the history of elements copied from a library file to a database you specify.
- Design Manager lets you view all elements copied to a database and all databases that an element has been copied to.
- Design Manager lets you change the design refresh property on one or more databases at a time.

Starting Design Manager

In Designer, open a Notes database and then click the Design Manager button on the toolbar.

Once Design Manager has started, you see the Design Manager main window.



About the Design Manager Window

The Design Manager window is divided into the following panes:

Pane	Description
Left	You use the **Library>Open** command to open any template or database in the left pane. The left pane is a read-only area from which you can copy elements to databases or templates you display in the right pane. You can refer to databases or templates you see in the read-only area as libraries. When you have one or more libraries open, the design elements in each library are listed in the left pane. Template-linked elements appear bolded in this pane. See “About Template Inheritance,” on page 237 for more information.
Right	You use the **Database>Open** command to open any template or database in the right pane. You can add or delete elements in the right pane. To add elements, you copy the elements you want from the left pane into the right pane. Template-linked elements appear bolded in this pane. See “About Template Inheritance,” on page 237 for more information. The CIAO! icon appears beside databases that are watched by CIAO!.
Bottom	The bottom pane is a multi-purpose area that, by default, displays log entries. Log entries give you a history of the operations that Design Manager has executed. You can also use this pane to preview visual design elements (forms, sub-forms, navigators, database icons, help/about and help/using documents). If you select an element in the left or right pane, you can preview it in the bottom pane.

Note	You can copy text in a Log pane to the clipboard by choosing **Copy** from the **Edit** menu, or pressing **CTRL+C** on your keyboard. You can then paste that text to another location.

Building a Library You Can Share

You can build a library of the elements you choose from one or more databases or templates. Once you build a library, you can share it with other users by placing it on a Domino server.

Opening a Database

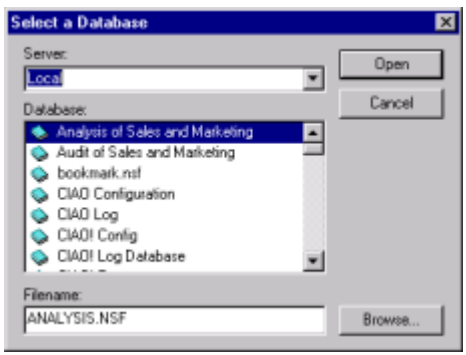
With Design Manager you can open a database you want to add elements to. The database elements display in the right pane.

To open a database

1. Choose **Open** from the **Database** menu (or click **Database > Recent Files** to select from the last ten databases opened).

   You see a list of databases and templates in your local data directory.

Note	You can select a server from the **Server** dropdown to display a list of databases and templates on the server you select.

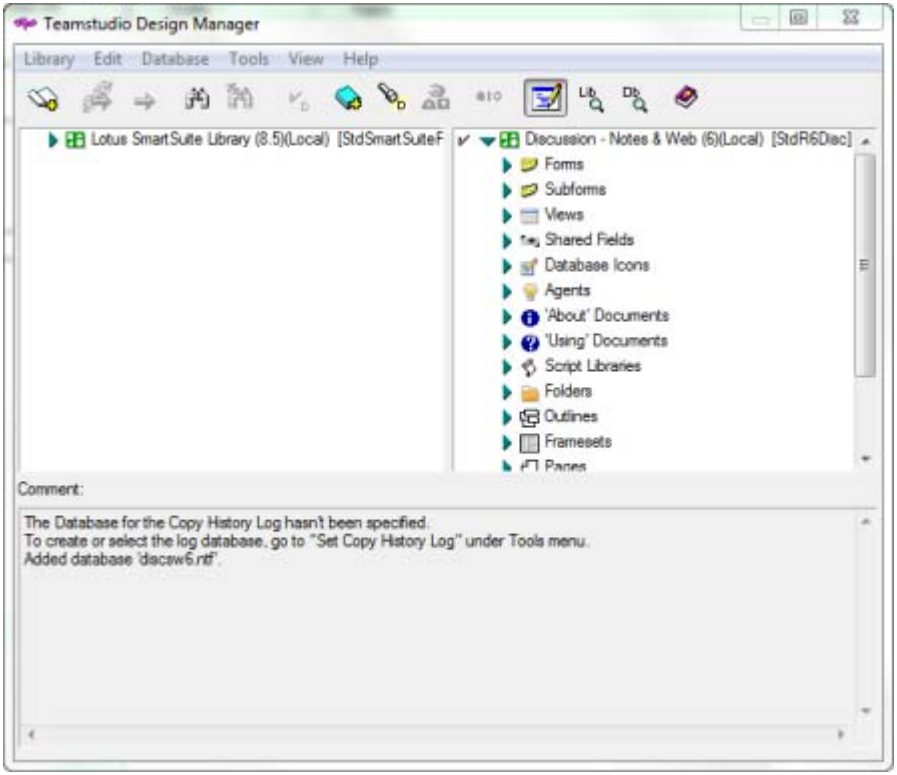


Use the **Open Database** toolbar button as a shortcut to the **Database > Open** command.

2. Select the database you want to open.

3. Click **Open**.

   You see the database elements in the right pane.



Note	Use the right-click menu in the left pane to open the selected library in the right pane where you can change it.

Opening a Library

A *library* is a Notes template or database you open in the left pane that holds reusable elements that you can copy to databases in the right pane. You can open any database or template as a library.

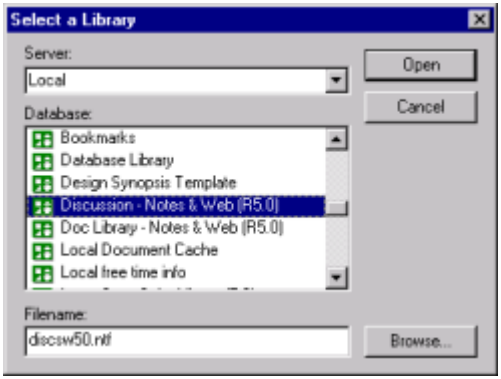
To open a library

1. Choose **Open** from the **Library** menu (or click **Library** > **Recent Files** to select from the last ten libraries opened).

   You see a list of databases and templates in your local data directory.

2. Select a server to display libraries on your network, or use the Local server.

   In the Database list, you see a list of databases and templates on the selected server.



Use the **Open Library** toolbar button as a shortcut to the **Library > Open** command.

3. In the Database list, select the template or database you want to use as a library.
4. Click **Open**.

   You see the library elements in the left pane.

Once you have opened a library for the first time, you need not select the library from the list again. The next time you start Design Manager, it will automatically open the same libraries that were open previously.

Opening Used Libraries

When you open used libraries, it is easier to find the library you may need for a design refresh.

To open all libraries that a database design inherits from, select at least one database in the right pane and then choose **Open Used Libraries** from the **Database** menu. Design Manager then prompts you for a server to search. Design Manager displays a list of matching templates in the left pane.

To identify and open all the libraries used by a particular database design

1. Select at least one database in the right pane.
2. From the **Database** menu, choose **Open Used Libraries**
3. From the **Server** dropdown, select the server you want to search, then click **OK**.

Note	Use the right-click menu in the Database pane to open the selected database in the Library pane.

Closing Libraries

- To close one or more libraries in the left pane, select the library (click the library name in the left pane) and press the **DELETE** key.

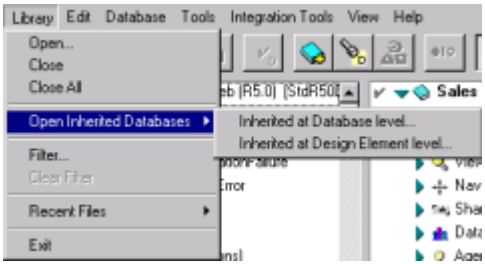
  The library is immediately removed from the pane.
- Alternatively, select the library by clicking its name in the left pane, and then choose **Close** from the **Library** menu.
- You can also choose **Close All** from the **Library** menu to close all open libraries.

Opening Inherited Databases

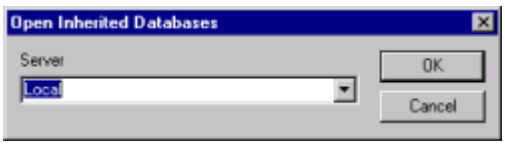
Inherited databases inherit their design from templates. If you made a change to a template, you may want to update all databases that inherit from that template.You can open inherited databases as follows:

To open inherited databases

1. Select one or more templates in the left pane.
2. From the Library menu, click **Open Inherited Databases>Inherited at Database level** or click **Open Inherited Databases>Inherited at Design Element level**.



You see the **Open Inherited Databases** window.



3. From the **Server** dropdown, select **Local** for databases that are on your PC or select a

server for a remote database, then click **OK.**

You see the inherited databases in the right pane.

Note	Databases to which you have insufficient access will not appear in the right pane.

Grouping Objects

Using Design Manager, you can group design elements that are frequently used together, making it easier to drag-and-drop a group of two or more design elements into a database design. For example, if there are several design notes you often use together to capture customer information, you can group them together to form one object you call Customer Data.

Notes	• All selected elements must reside in the same database. • A group object cannot be a member of another group object • Actions cannot be members of group objects. • Group object members must be elements.

If the Copy History Log is active, Design Manager records information about a group object every time you create or edit a group object.

Creating Group Objects

To create a group object

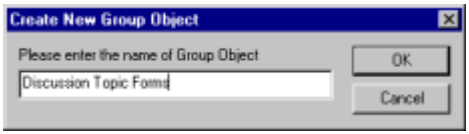
1. Hold down the **CTRL** key as you click each of the elements in the right pane that you want to group together.
2. From the **Database** menu, choose **Create Group Object**.

Use the **Create Group Object** toolbar button as a shortcut to the **Create Group Object** command on the **Database** menu.

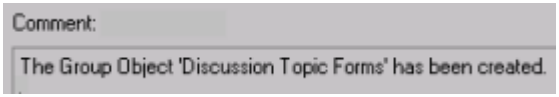
3. Enter the name of the Group Object.

   For example, if you chose Main Topic, Response and Response to Response to form a new Group Object, you may want to name that Group Object “Discussion Topic

Forms."



Design Manager then records in the Log pane that the Group Object has been created. If the Copy History feature is active, Design Manager records details of the group object creation and its component elements in the Copy History Log.

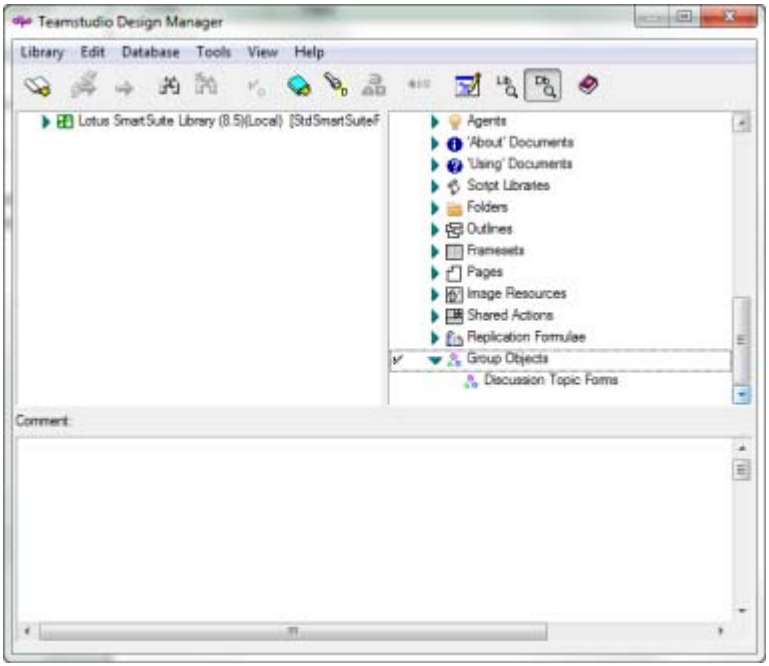


If there are any group objects in a database, the Group Objects category is added to the list of categories in the Database pane.

4. Expand the category to reveal the groups you have created.

5. To view the elements in a group, select that group.

   Its elements are listed in the preview pane. Now that the Group Object has been created, you can easily drag-and-drop the Group Object into your open database. Although you create a group object in the right pane, you can only drag and drop it from the left pane.

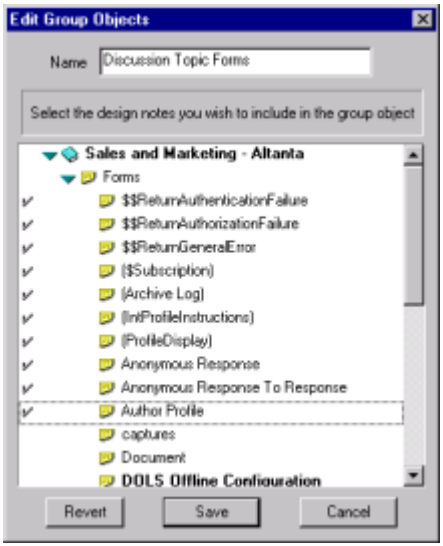


Editing Group Objects

Once you create a Group Object, you can add or remove elements from the group or rename the Group Object. You can also identify dependencies, that is, find out which elements are dependent on other elements.

1. Expand **Group Objects** at the bottom of the Database pane to reveal groups you have created.
2. Select a group name and then choose **Edit Group Object** from the **Database** menu.

   You see the **Edit Group Objects** window that shows a checkmark beside each element included in the group.

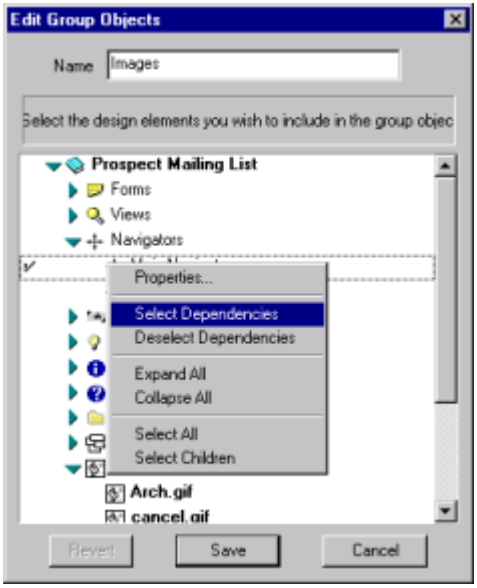


3. Select additional elements to add them to the group or clear checkmarks beside selected elements to remove them from the group.

   a. If you want to find out which elements are dependent on another element, right-click the element and then choose **Identify Dependencies** from the shortcut menu.

      The element you selected and its dependent elements display as blue, underlined typeface. Selections containing those dependent elements are expanded. This does not change the group. You can use this feature to help determine what to add or remove from the group.

b. Choose **Deselect Dependencies** from the shortcut menu to clear highlighted dependencies.



4. When you are finished editing the Group Object, do one of the following:

– Click **Cancel** to exit the **Edit Group Objects** window without saving any changes.

– Click **Revert** to restore the original group definition. The **Edit Group Objects** window remains open.

– Click **Save** to save your changes and close the **Edit Group Objects** window.

Organizing a Library

You can organize a library by comparing elements and deleting the elements you no longer need, adding those you want, arranging actions in the order you want, and adding comments to or changing properties of design elements.

Action example	Description
Ok	Actions appear with the action icon as children of notes.
Cancel	Shared Actions appear with italicized text under the Shared Action note.
~~*broken action*~~	Broken Shared Actions are action references where the original action has been deleted. They appear with a strike-through and italicized text.

Organizing Actions in a Library

As you organize a library, you can make actions shared or unshared, copy actions, and change the location of actions on the action bar.

Making Actions Shared or Unshared

You can make an action shared or unshared as follows:

To make an action shared or unshared

- From the right-click menu, select the Make action(s) Shared command to convert a regular action into a shared action.
- This menu command is context-sensitive. If the action is already shared, select the Unshare Action(s) command from the right-click menu to convert the action into a regular action.

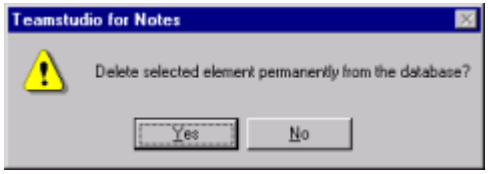
Moving Actions on the Action Bar

Use the right-click menu and select **Move Action Up** or **Move Action Down** to change the order in which actions appear on the action bar. Use **Move Action Up** to move an action to the left on the Action Bar. Use **Move Action Down** to move an action to the right on the Action Bar.

Note	Shared actions cannot be moved up or down.

Deleting Elements

You can delete an element in a database design from within Design Manager. Select the element you want to delete and press the **DELETE** key. Design Manager prompts you for confirmation before it deletes the element.



Note	If you have the database design open in the Notes Designer client, the view of elements will not be automatically refreshed when you exit Design Manager. You can refresh a view of design elements in Notes Designer by pressing the function key, <F9>.

Comparing Elements

You can use Design Manager to compare any two design elements, either in the same pane or in different panes. For example, if you believe that the version of an element in a library may be an updated version of the same element in the database, use Compare Elements to compare the two elements. Similarly, you can compare two elements with the same name in two different libraries.

To compare two design elements

- Select the two elements to be compared (use the **CTRL** key if they are in the same pane), and then choose **Compare Elements** from the **Tools** menu.

You can also use the **Compare Elements** toolbar button as a shortcut to the **Compare Elements** command on the **Tools** menu.

Adding Comments and Changing Properties

You can add comments to a design element. The comments display in Design Manager's Comment field when you select the element. You can also change design element properties, for example, the **Title**, the **Inherit from Template** name or the flag that stops a design refresh or replace operation from changing the element's code.

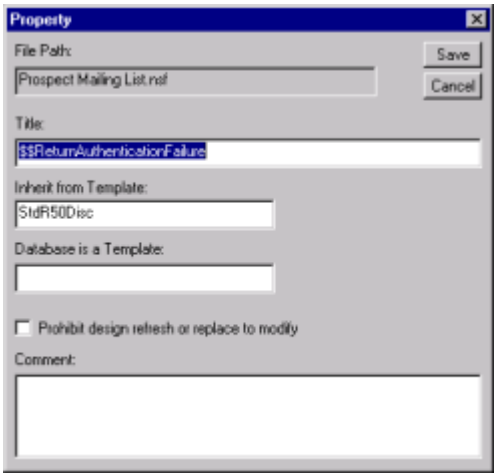
To add a comment and change the properties of a design element

1. In the right pane, right-click the element you want to add the comment for.

   You see the shortcut menu.

2. From the shortcut menu, choose **Properties**.

   You see the **Property** window.



3. Enter the following:

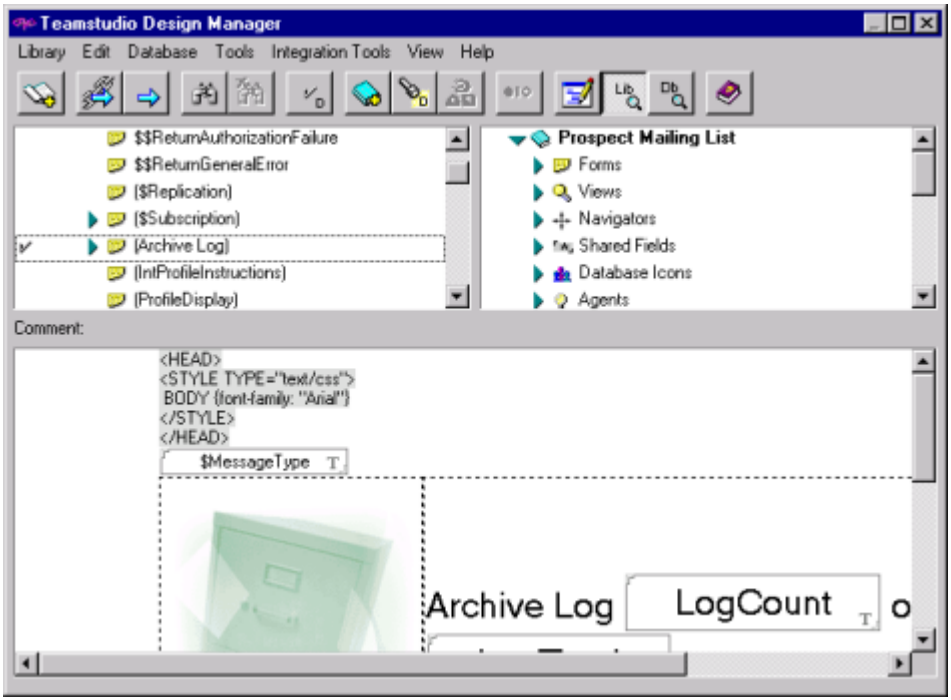
Item	Description
Title	Element, action or database name
Inherit from Template	The template from which you want this template to inherit
Prohibit design refresh or replace to modify	Select to ensure the design element's code remains unchanged by any design or refresh operation
Comment	Any text you wish to use as a comment

   If the database is a template, the template name will appear in the **Database is a Template** field.

4. Click **Save**.

Previewing Visual Elements

As you work with select elements in Design Manager, the *preview pane* (the bottom pane) shows you how certain element types will look.



To switch from the log view to the preview mode

- From the **View** menu, choose either **Library Preview** or **Database Preview**.

Use the **Library Preview** toolbar button as a shortcut to the **View > Library Preview** command.

Use the **Database Preview** toolbar button as a shortcut to the **View > Database Preview** command.

When you choose **Library Preview**, the Preview pane shows a preview of the element that you selected from the left pane. When you choose **Database Preview**, the Preview pane shows a preview of the element you have selected from the right pane.

Tip	Click any element in either the left or right pane. This automatically switches the bottom pane to the appropriate view, with the selected element displayed.

To switch from the Preview mode to the Log mode

- Choose **Log** from the **View** menu to switch the Preview pane back to the Log mode. You will see a text log of Design Manager's actions.

Use the **Log toolbar** button as a shortcut to the **View > Log** command.

Viewing Elements

Use **Expand/Collapse All** on the **View** menu to view the sub-elements of a database or library.

Alternatively, select the database or library for which you want to view sub-elements, and right-click to display the short-cut menu. Then click **Expand All** or **Collapse All**.

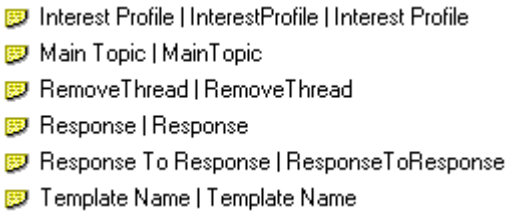
You can click the twisties at each hierarchical level; or use the following keyboard shortcuts to quickly expand and collapse the twisties.

Shortcut	Usage
*	Expand All
+	Expand
-	Collapse

Viewing Aliases

Click the **Show Alias** command on the **View** menu to view alias names in both the left and right panes.

This is with **Show Alias** enabled.



This is with **Show Alias** disabled.

Selecting Child Elements

If you want to perform operations on multiple elements, you can automatically select the child elements of library or database elements by choosing **Select Children** from the right-click menu.

Working with Databases and Libraries

Using Library Filters to Display Fewer Elements

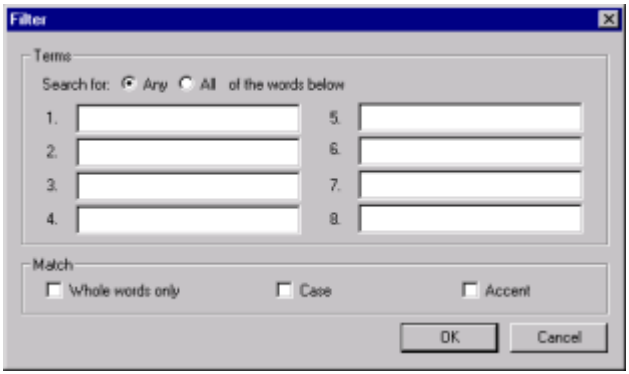
Use the *library filter* to search, then filter the left pane. A library filter is a text-based search that restricts the entries in the left pane to just those that match your search criteria.

When you specify a filter, Design Manager searches all design elements in all libraries for a match. Because this search includes the contents of each element, rather than just its name, you can include searches for field names and LotusScript subroutines.

To set up a filter

1. Choose **Filter** from the **Library** menu.

   You see the **Filter** window.



2. In the numbered fields, enter one to eight terms to search for.

   – To match by any of the words you entered, click the **Any** option.

   – To restrict search matches to only those design notes where all of the text items match, click the **All** option.

3. Further define the search by selecting the options you want from the following check boxes:

Check Box	Description
Whole words only	Only matches if the words are surrounded by white space (or punctuation).
Case	Switches case sensitivity on.
Accent	Switches sensitivity on for accented characters.

4. When you are satisfied with your selection criteria, click **OK** to begin the search.

   When the search completes, the left pane shows only those design elements that match the criteria you defined.

Use the **Filter** toolbar button as a shortcut to the **Library > Filter** command.

To clear the filter

- To clear the filter, choose **Clear Filter** from the **Library** menu.

Use the **Clear Filter** toolbar button as a shortcut to the **Library > Clear Filter** command.

Saving the Database List

You can automatically save the list of databases that are open in the Database pane when you exit Design Manager.

- To save the list of databases, click **Database** > **Save Db List on exit**.

When you next start Design Manager, it automatically opens the list of databases you had open the previous time it ran.

Closing Databases

You can select one or more databases to close, or you can close all open databases in Design Manager.

To close one or more databases

- To close one or more databases in the right pane, select the database by clicking its name in the right pane. Then click **Close** from the **Database** menu.

  The database is removed from the right pane.

To close all databases

- You can also click **Database** > **Close All** to close all open databases.

Copying Design Elements Using Drag-and-Drop

You can use drag-and-drop to copy design elements, along with their dependencies, from an open library template or database into an open database. (See "Identifying Dependencies," on page 239 for more information.)

Copying Actions

You can copy actions from the left pane to the right pane using drag and drop or by clicking the blue arrow buttons.

- If you drag and drop an action onto a database name, the action is copied into the Shared Actions note.

  Design Manager creates a Shared Actions note if one does not already exist.
- If you drop an action onto a form or view, the action reference is copied into that form or view.
- When you copy an Action reference from a form, for example, Teamstudio Design Manager looks up the shared action, then creates a copy in your destination form that is not shared.

To copy an element from the left pane to an open database

See “About Template Inheritance,” on page 237 before you begin copying.

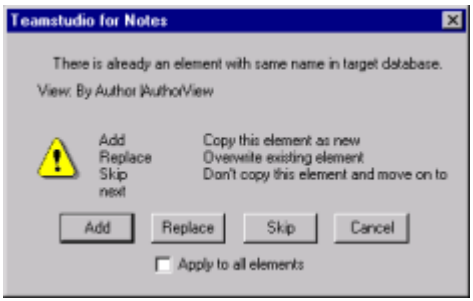
- To copy an element from the left pane into the open database in the right pane, click the element in the left pane, and then drag it into the right pane.

Notes	
	• You cannot copy from the database in the right pane to the template or database in the left pane. • When using drag and drop, you can only copy into one target database.

If you are using the Copy History Log feature(See “Setting the Copy History Log,” on page 245), each copy activity from Design Manager is recorded.

Copying Duplicate Elements

Design Manager checks the target database to determine if elements with the same name already exist. It compares the title and aliases, not the design. When it finds the same element, you see the following message:



Then you can choose from the following options:

Button/Check box	Description
Add	Add another copy of the element.
Replace	Replace existing element with new element.
Skip	Don't copy the element. Move on to the next (only available when multiple elements are selected to copy).
Cancel	Cancel the operation.
Apply to all elements	Selected option (above) is applied to all duplicate elements found (only available when multiple elements are selected to copy).

About Template Inheritance

By default, when you copy a design element from a Notes template in the left pane using drag-and-drop, Design Manager will template-link the copied element to the template. In other words, the resulting element is set up to inherit its design from the original template.

To copy without template inheritance using drag-and-drop

You can override the default behavior, copying an element to a new database from the template without maintaining the inheritance as follows.

1. Choose **Tools** from the **Design Manager** menu bar.
2. Choose **Inherit Design on Copy** to clear the checkmark.
3. Drag-and-drop the element.

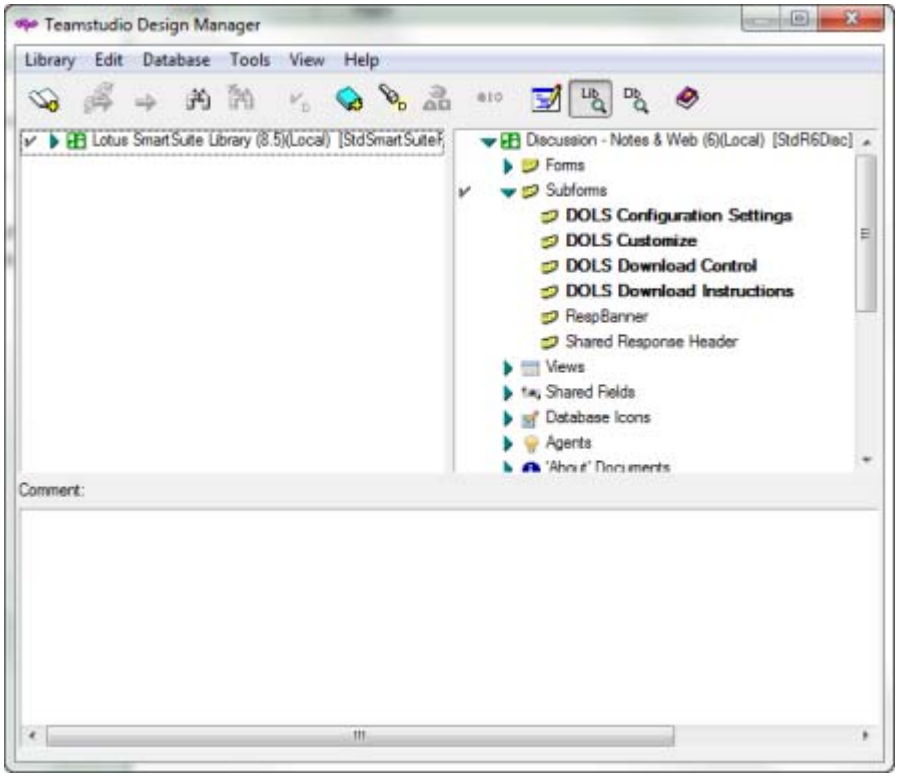
   The element is not linked to the originating template.

You can also use the following toolbar buttons to copy elements from the left pane to the right pane, with or without inheritance:

This button copies selected design element(s) from the library pane to all selected databases in the database pane, *maintaining* template inheritance.

This button copies selected design element(s) from the library pane to all selected databases in the database pane, *without maintaining* template inheritance.

Elements linked to a template display in bold typeface in both the left and right panes; elements not linked to a template display in a normal typeface.



Identifying Dependencies

A *dependency* is an element that another element requires in order to work properly. For example, if you have a form that uses a subform, the subform is a dependency of the form. The form will not work properly without the subform. When you copy an element, consider whether the element has dependencies you should also copy.

If you have a library with a number of reusable elements, you can quickly create a customized application simply by dragging or copying standard elements from the left pane to the right pane.

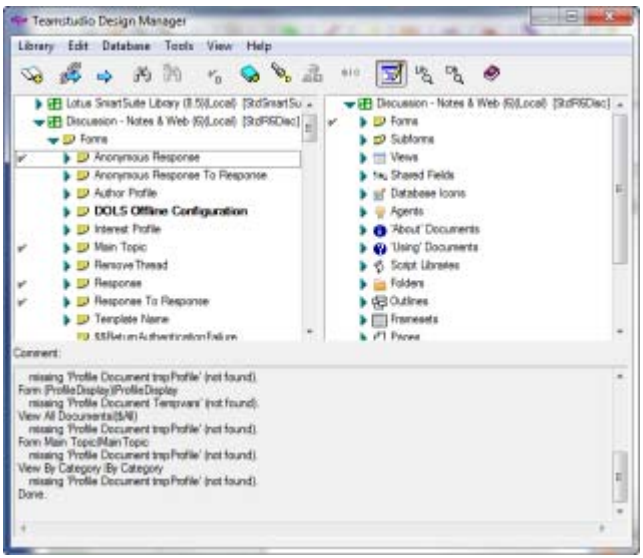
You can see which elements are dependencies as follows:

To see which elements are dependencies

1. Select the element you want to copy.
2. From the **Edit** menu, choose **Select Dependencies**.

   Elements that the element you selected is dependent on display with a checkmark.

Use the **Select Dependencies** toolbar button as a shortcut to the **Edit > Select Dependencies** command.

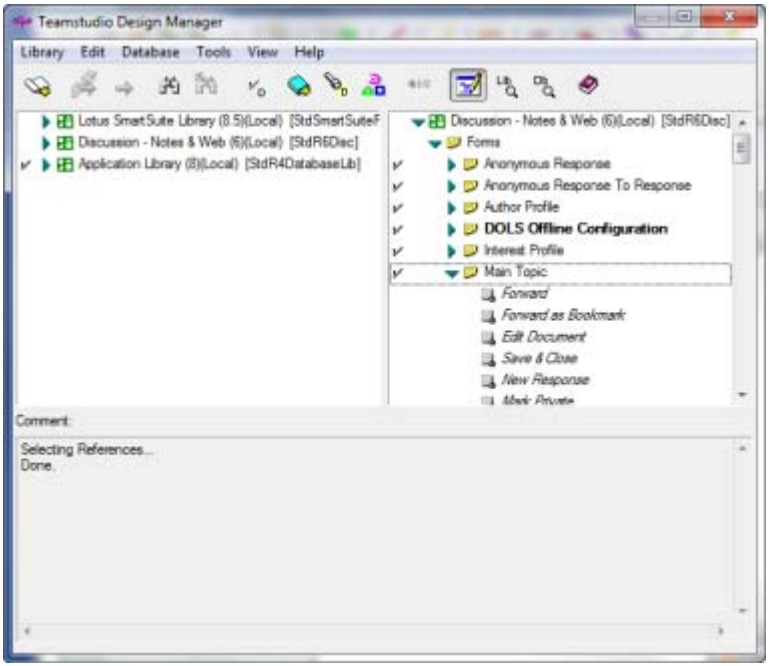


To select references

Element *references* show which design elements reference the selected element(s). You can select references as follows:

1. Select an element you want to select references for.
2. Right-click to display the short-cut menu and choose **Select Reference of Selected Elements(s)**.

   All forms that reference the element you selected are now selected.



To open used libraries

You can open libraries used by a database or template as follows:

1. Select a database or template in the right pane.
2. From the **Database** menu, choose **Open Used Libraries**.
3. Select the server where the libraries are located.

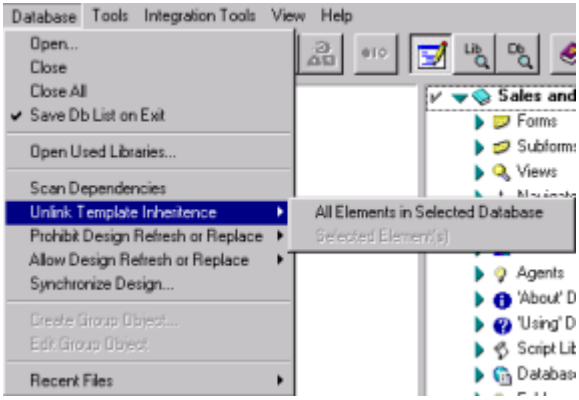
   You see additional libraries in the left pane.

Unlinking Template Inheritance

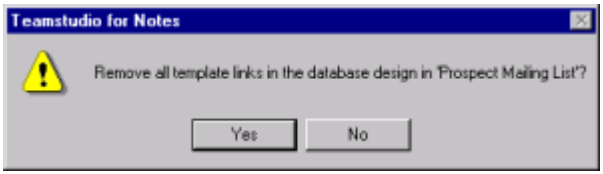
You can remove all template links in one or more target databases as follows:

To unlink template inheritance for a database

1. Select at least one database.
2. From the **Database** menu, choose **Unlink Template Inheritance** > **All Elements in Selected Database**.



3. Click **Yes** to confirm.



All links to templates for all selected databases are removed.

To unlink template inheritance for selected element(s)

1. Select the items in the right pane
2. Do one of the following:

   – From the **Database** menu, select **Unlink Template Inheritance > Selected Element(s)**.

   – Right-click a selected element in the right pane, and then choose **Unlink Selected Element(s)** from the shortcut menu to unlink that element from the template it was associated with.

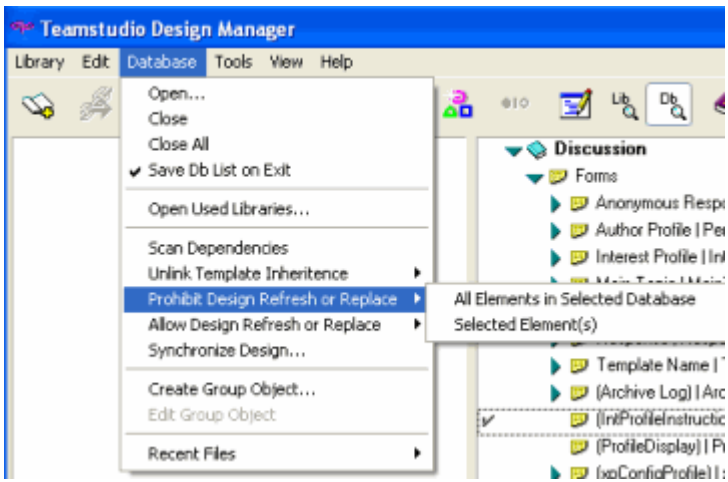
   Only those items you've selected are unlinked from their templates. All other template links in the target database design remain intact.

Prohibiting / Allowing Design Refresh or Replace

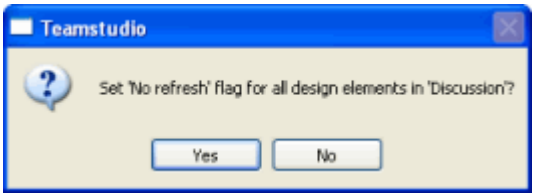
You can prohibit design refresh or replace on elements in one or more databases.

To prohibit / allow design refresh or replace

1. In the right pane, select your element(s) or Database(s).
2. Click **Database > Prohibit (**or **Allow) Design Refresh or Replace**.
3. Select **All Elements in Selected Database** or **Selected Element(s)**.



If you selected one or more database, you see the following window for each database:



4. Click **Yes** to accept.

Scanning for Missing Dependencies

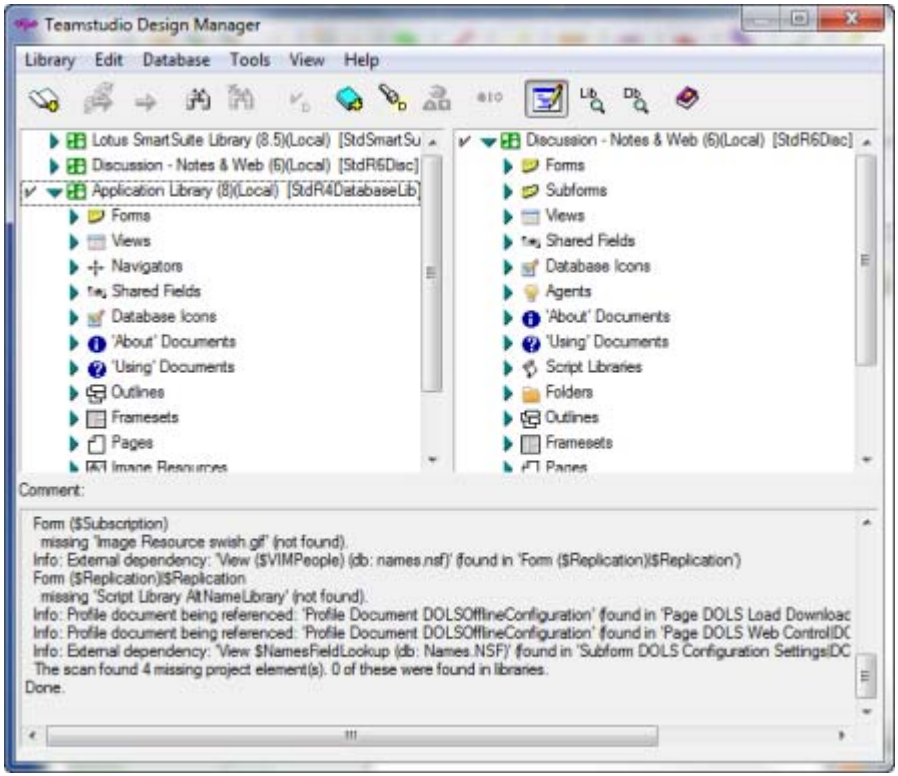
With Design Manager, you can scan to find any dependent elements that are missing from a database design. For example, if you copied Form A, which uses Subform B, from a library into a database design, but you did not also copy Subform B, you can scan for dependencies to detect the missing dependency.

To scan for missing dependencies, select at least one database and choose **Scan Dependencies** from the **Database** menu.

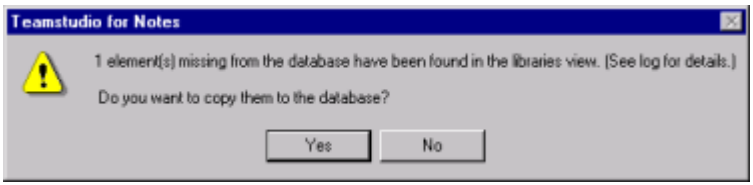
Use the **Scan Dependencies** toolbar button as a shortcut to the **Scan Dependencies** command on the **Database** menu.

Design Manager scans for dependencies in all selected databases. If you select more than one database, Design Manager processes one database at a time and prompts you for any missing dependencies in each database. You must select at least one database.

When Design Manager has finished scanning for missing dependencies, you see the search results in the Log pane.



Design Manager scans the open libraries for elements matching the names of the missing dependencies. If Design Manager finds the matching element, it gives you the option to copy the missing element to the database to resolve the dependency.



Note	Design Manager only scans those databases that are listed in the Library pane.

Synchronizing

Use the **Database > Synchronize Design** command to copy all new or changed design elements from a template into a database.

If the database inherits at the database level, then when you synchronize you'll see options to synchronize **Database Options**, **ACL**, and **Replication Settings**. The **Synchronize Design** command considers the date and copies design elements that are new or have changed.

This functions differently than Notes design replace/refresh, as follows:

- When synchronizing designs, matches are made based on a design note's name and type. If there is more than one note with the same name and type, the UNID is checked. If the UNID doesn't match, then the unmatched design note is added to the database.
- All of the database options are synchronized except those that are template-specific including the **List as Advanced Template in 'New Database'** window, **Copy profile documents with design**, **Single copy template**; unlike design/refresh where only the specific elements are synchronized.

Setting the Copy History Log

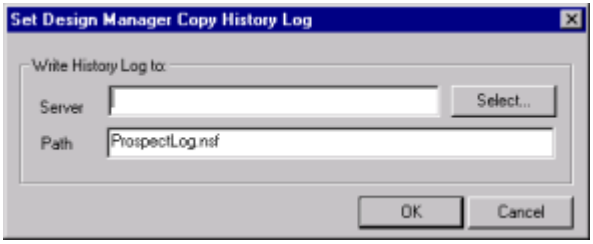
Each time an element is copied from a source library file (database or template) to one or more target databases, Design Manager records that action in the *Copy History Log*. The Copy History Log records information about group objects each time you create or edit a group object in the target database. The Copy History Log is a Notes database.

To set the Copy History Log

1. Choose **Set Copy History Log** from the **Tools** menu.

   You see the **Set Design Manager Copy History** window.

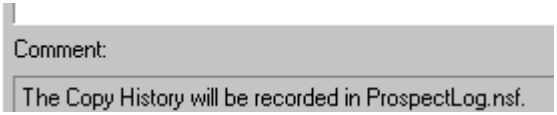
2. Click **Select** to locate an existing database, or enter a path and a new database name in the **Path** field.



3. Click **OK**.

   If the database does not exist, Design Manager creates it.

   When Design Manager finishes setting up the Copy History Log, you see a confirmation in the Log pane.

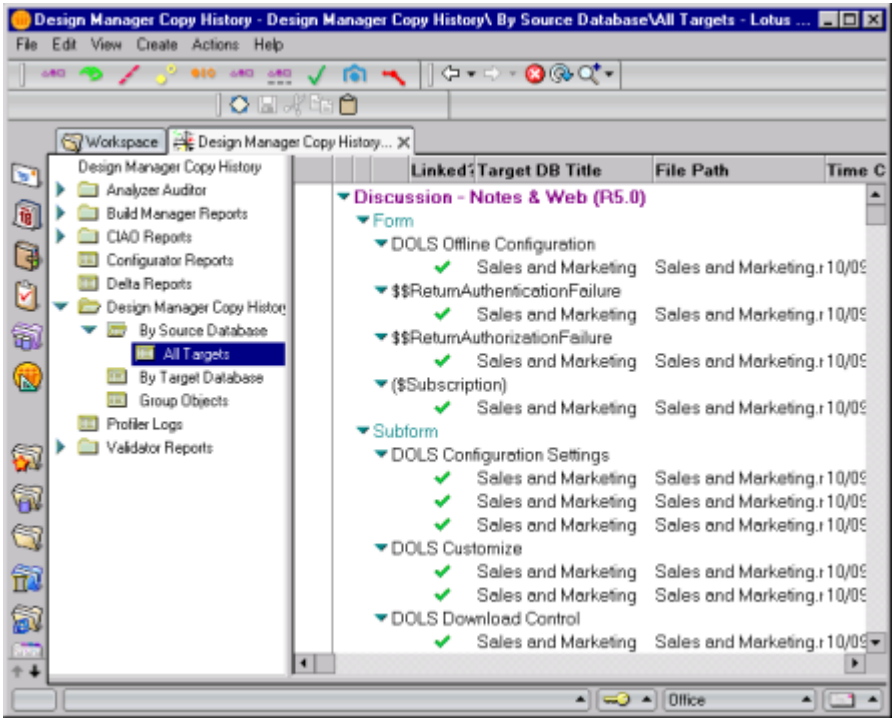


Once set up to record the copy history, Design Manager creates a document in the copy history log database each time you paste or drag-and-drop a design element from a source database or template to one or more target databases. Design Manager records, among other data, what activity occurred and who was responsible for the action.

When a Group Object is copied from a source database to one or more target databases, only the elements within that group are copied. If you want to group them in the target database(s) as well, you must create the group again. The Copy History Log database shows the individual elements that make up the Group Object in both the **By Source Database** and the **By Target Database** views. If you open a document for an individual element, and that element was copied as part of a group, the **Action** field reads **Copied as Group Object** and lists the original group object name.

The **Group Objects** view in the Copy History Log database shows the history of group objects as they are created and edited, but not as they are copied.

- To view copy history, open the **Copy History Log** from your Notes workspace.



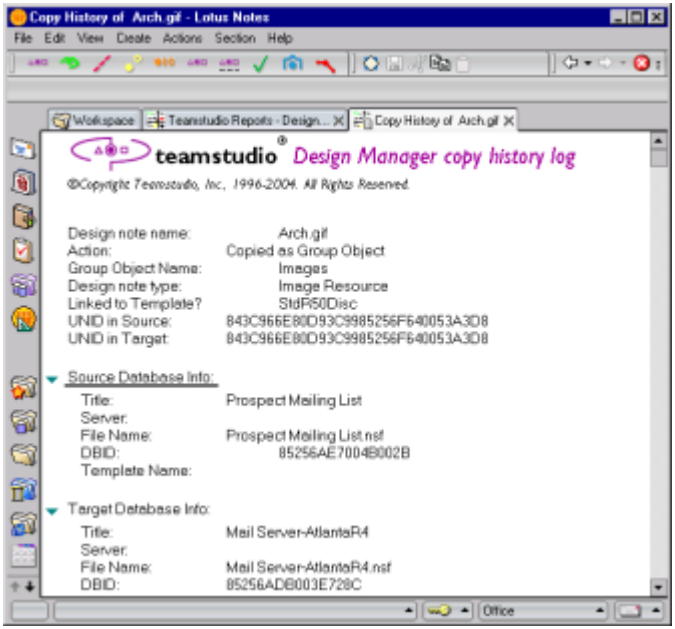
These are the views:

View	Description
By Source Database	Shows the copy history of objects copied from the source database. Double click a document for more detail.
All Targets	Shows where an element has been copied.
By Target Database	Shows the copy history of objects copied to the target database(s). Double click a document for more detail.
Group Objects	Shows the history of group objects when they are created or edited. See “Setting the Copy History Log,” on page 245, for more information.

Note	Template-linked elements appear in the Copy History Log with a green checkmark. They appear bolded in the Design Manager right pane.

Copy History Log document example

The following is an example of the **Copy History** Log.



In this example, the element was originally part of a group object called “discussion group” in the source database. Information is recorded in a **Copy History Log** document for that element.

The **Copy History Log** document provides the following information:

- The user action (copy) causing the history event to be recorded
- The group object name, if the element was originally part of a group object
- The design element name and type
- The UNID in both the source and target databases
- Information about the source database where the element was copied from
- Information about the target database where the element was copied to
- Who copied the element
- The date and time the element was copied

Teamstudio Profiler

Introduction

Congratulations on your purchase of Teamstudio Profiler!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio Profiler helps identify the LotusScript performance issues of Notes applications.

Lots of things can impact the performance of Notes applications. One area which often causes performance problems is poorly written LotusScript code. This type of problem can be difficult to pinpoint. Troubleshooting is time-consuming and error-prone. When you use Profiler, you remove much of the “guess-work” from troubleshooting.

Client and Server

Teamstudio Profiler has both a client and a server component. The client component lets you collect detailed timing information on applications as they run on your client.

The server component runs on a server to monitor agents that run on that server, for example, event-driven, scheduled and Web agents.

Using Teamstudio Profiler Client

To use Profiler client, you run Profiler with your application, and then you review the results. Some circumstances are especially appropriate times to run Profiler.

When to use Profiler

- At the end of a development cycle, as part of final QA, where the code is stable, yet would benefit from performance improvements
- If you have assumed responsibility for older IBM Lotus Notes or Domino applications that would benefit from performance improvements, as opposed to additional, costly hardware upgrades
- If you have been assigned to maintain older applications, with which you are unfamiliar

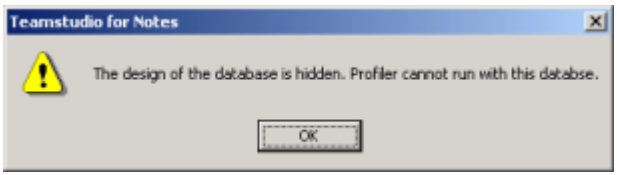
Running Profiler With Your Application

To run Profiler with your application, you select your target database, specify Profiler configuration settings, run your application, and then stop Profiler.

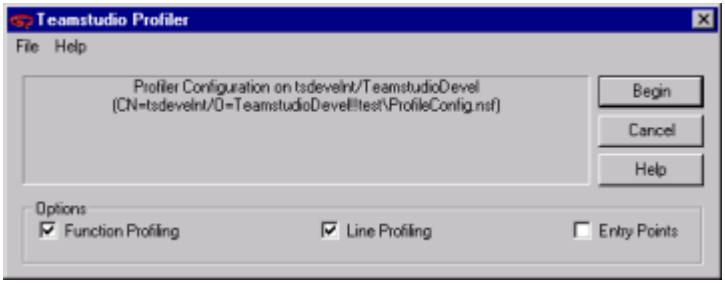
Note	Because of the way the Notes Client performs caching, you should restart the Notes Client before running Profiler.

To start Teamstudio Profiler

1. In Designer, open the application you want to profile.
2. Click the Profiler button on the toolbar.

Note	Profiler will not let you profile a database that has a hidden design. An error will appear.  Click **OK** to accept the error and the Teamstudio Profiler window will appear. The **Begin** button will be inactive.

You see the Teamstudio Profiler window with the name of your database in the top field.



Setting Profiler options

You can set Profiler options as shown in the following table.

Option	Description
Function Profiling	Collect timing information on functions. If you choose this option, you can also choose the Entry Points option.
Line Profiling	Collect timing information on lines of LotusScript. This option gives the most detail.
Entry Points	Collect information on entry points to a function. Entry Points are functions like Initialize, Terminate, Click and Bind Events. This option gives the least detail, and can show you where to start. You can only select this if you have also selected the Function Profiling option.

Note	Line profiling is not available for code included from .lss files.

To begin profiling

1. From the Profiler window, click **Begin** to start Profiler.

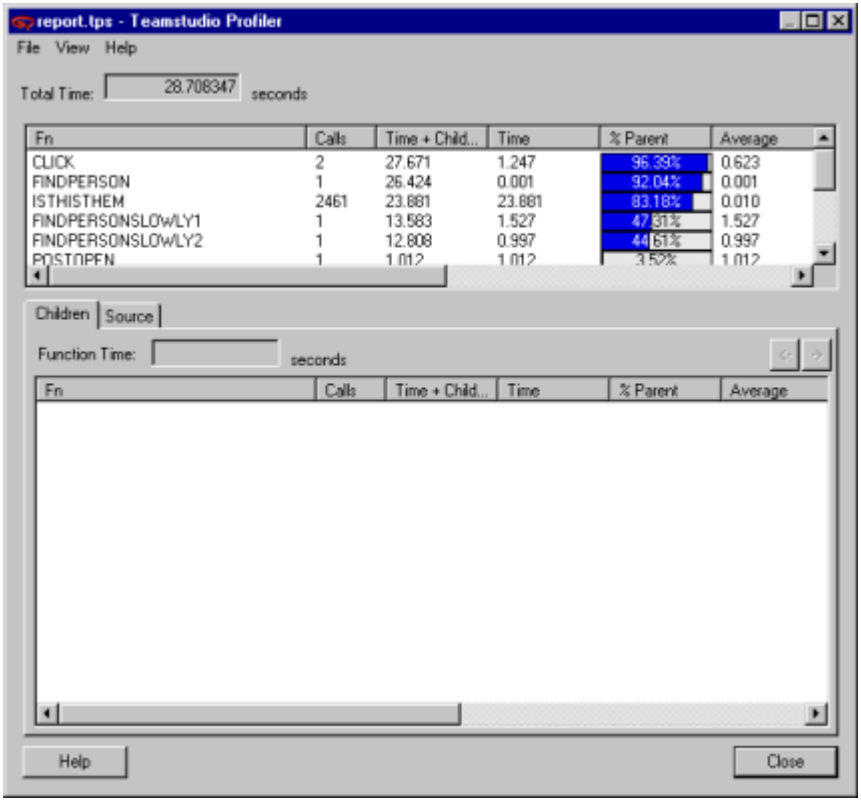
Note	Do not save things in Designer while Profiler is running. Unpredictable results will occur.

2. Open your database and use it as you normally would to trigger the code that you want to profile.

To view the results Profiler has collected

- When you are finished, click the Profiler icon to stop Profiler.

  You see the Teamstudio Profiler results window.



Reviewing Profiler Results

The **Total Time** field reports the number of seconds that your application ran. Seconds are the default units of time.

- Click **View** > **Units** to change from seconds to milliseconds, or milliseconds to seconds.
- Click a column heading to sort by that column.

The pane at the top shows the list of functions that were running during Profiler's collection interval and information about those functions.

Column	Description
Fn	The function name.
Calls	The number of times the function was called.
Time + Children	The combined time including the time the function took plus the time its child functions took to execute.
Time	The time the function took.
% Parent	The percentage of total time that the function took to run in relation to the calling function.
Average	The average time the function took to run once.
Average + Children	The average time taken by the function and its children for each call ((time + children)/calls).
Element	The name of the design element in which the code is located.
Item	The name of the NoteItem in which the code is located.

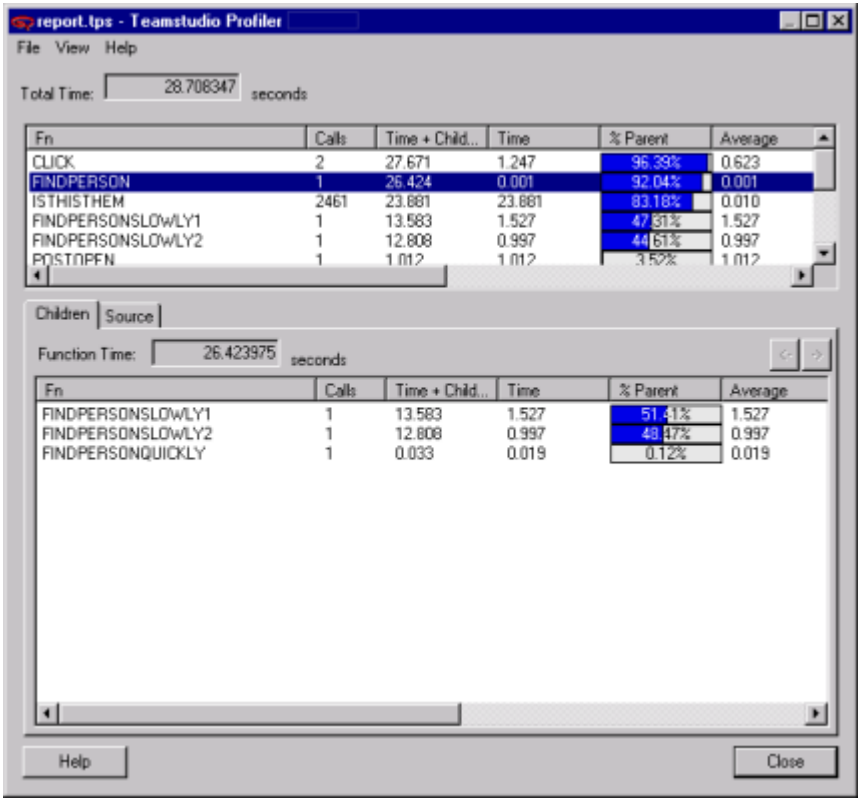
Profiler uses the following naming convention to represent classes and methods:

```
<class name>::<method name>
```

To work with Profiler results

1. In the upper pane, select a function you want to investigate further.

   You see more detailed information in the lower pane, with the Children tab selected by default. The function selected in the Summary pane called the functions listed in the **Children** tab.



Notes	
	• Child functions do not include LotusScript language functions such as Print or Message Box. They also do not include Product Classes such as NotesDocument or NotesDatabase. • Time in the Detail pane is relative to the Parent function's time.

In the example, the FINDPERSON function called the three child functions listed:

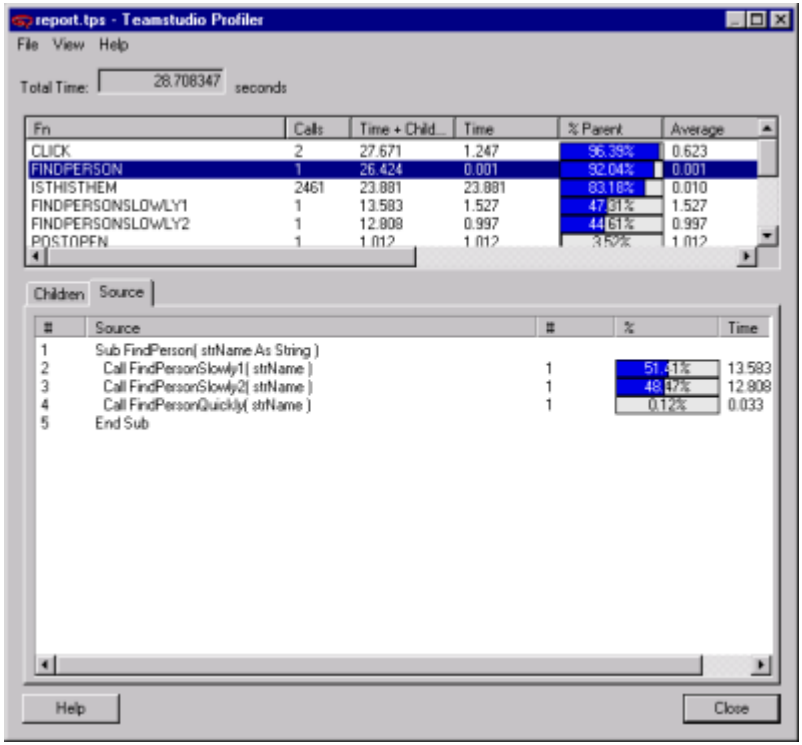
– FINDPERSONSLOWLY1

– FINDPERSONSLOWLY2

– FINDPERSONQUICKLY

The first two child functions took most of the FINDPERSON function's time, which may warrant further investigation.

2. Double-click a function on the **Children** tab to view information about its child functions.
3. Use the arrow buttons at the top of the **Children** tab to go between levels of child functions.
4. Click the **Source** tab to view LotusScript source.



The example shows that line number 2 took the most time.

Using the Call Tree

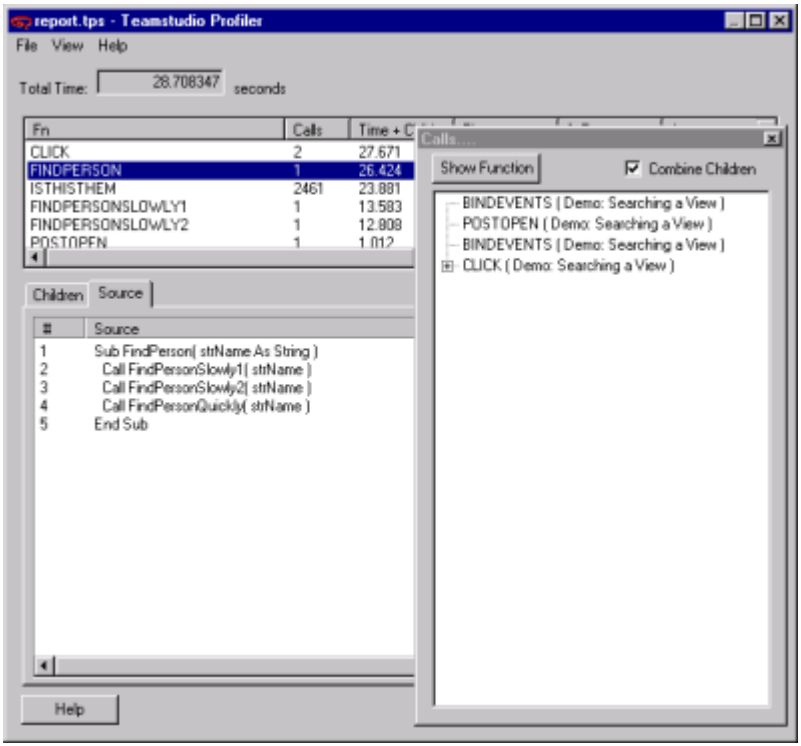
You can also use the Call Tree to investigate your results. The Call Tree gives you a different way to look at the functions called while Profiler ran.

To use the Call Tree

1. Click **View** > **Call Tree**.

   You see the **Calls** window.

2. Select a function and click the **Show Function** button to automatically highlight that function in the main results pane.



3. Select the **Combine Children** check box so that similar calls appear in the **Calls** window as a single entry.

This feature simplifies the tree. For example, if you have a loop that calls a particular function hundreds of times, the call tree will only show that function once. If you uncheck the box, all function calls will appear in the tree even if they are duplicates.

4. When you are finished with your investigation, click **Close**.

   Profiler will ask if you want to save the file. After you specify where to save it, it is saved as a Profiler snapshot (.tps file).

   You can also click **File > Save As** to save your report.

Using Teamstudio Profiler Server

Install the Profiler Server on your Domino server so you can monitor the performance activity of a scheduled or Web agent.

Profiler Server uses the following databases on your server:

Teamstudio/ProfilerConfig.nsf – Where you tell Profiler what to monitor.

Teamstudio/ProfilerLog.nsf – Where Profiler keeps its results.

Note	Profiler is not intended to be used to monitor agents all of the time. Profiler creates a significant performance hit each time it is triggered by an agent. When not using Profiler, we recommend that you disable every agent in the Profiler Configuration database.

Profiler Configuration Database

Before you can use Profiler on the server, you must create a Profiler Configuration database.

To create a Profiler configuration database

1. Install Profiler on your server.
2. From a Notes client, click **File** > **Application** > **New**.

   You see the **New Applications** window.
3. From the **Server** dropdown in the **Specify New Application** section, select the server you just installed to.
4. In the **Title** box, enter the title you want.
5. In the **File Name** box, enter Teamstudio\ProfilerConfig.nsf.
6. From the **Server** dropdown in the **Specify template for New Application** section,

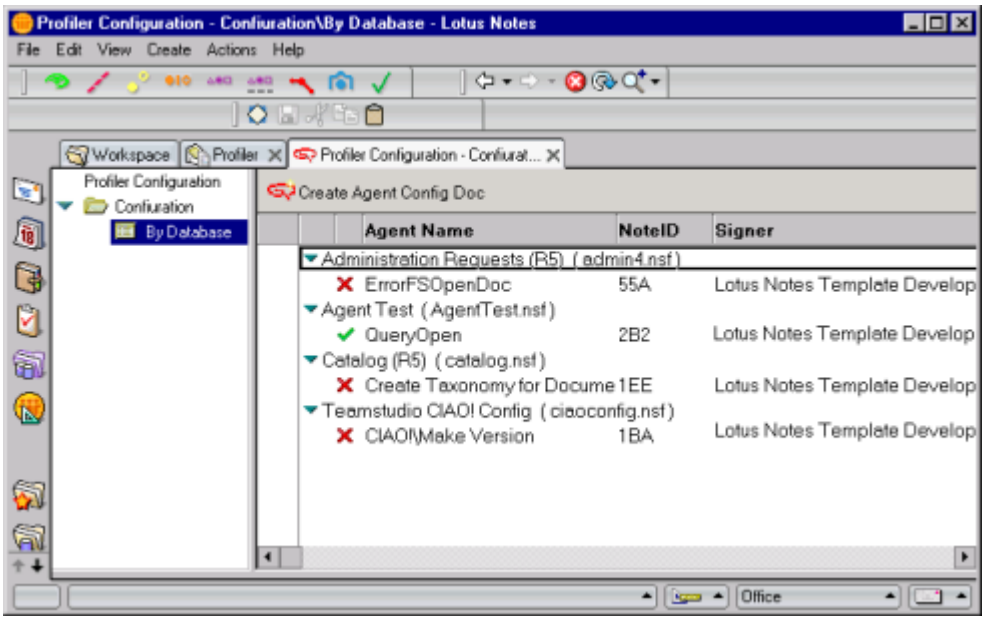
select the server you just installed to.

7. From the template list, select **Teamstudio Profiler Configuration** (profile.ntf).
8. Make sure that **Inherit future design changes** check box is selected.
9. Click **OK**.

   Your Profiler configuration database has been created.

To profile selected agents

1. Open the Profiler configuration database.



2. Click **Create Agent Config Doc** to add an agent to be profiled.

You see the **Select agent to profile** window.

3. Click the **Browse** button to select a database to monitor.

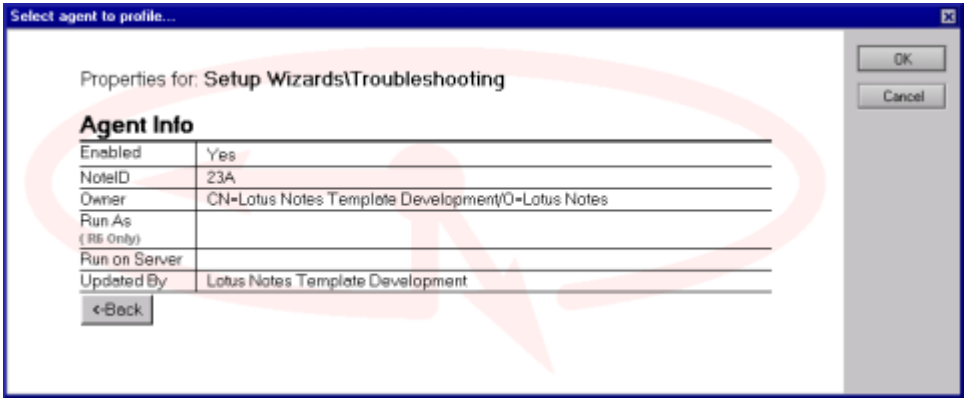
Note	You must select a database on the same server as the Profiler configuration database.

4. Click the **Get Agents** button to view all the agents in the database.
5. Use the dropdown to select an agent from the database.

Note	Only LotusScript agents will be listed.

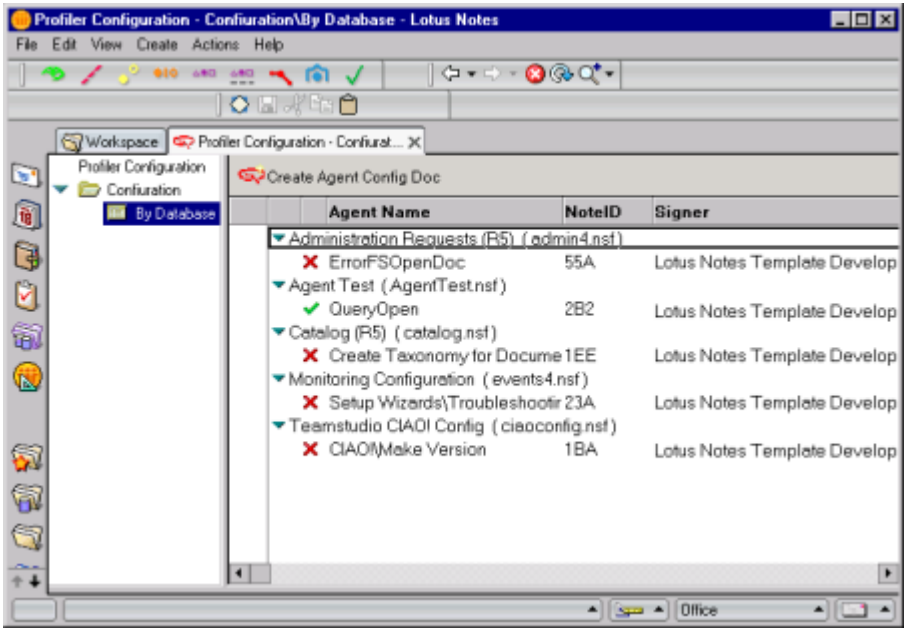
6. Click **Select Agent** to select an agent.

   You see information about the agent you selected.



7. Click **OK**.

   Profiler will monitor the next time the agent runs.



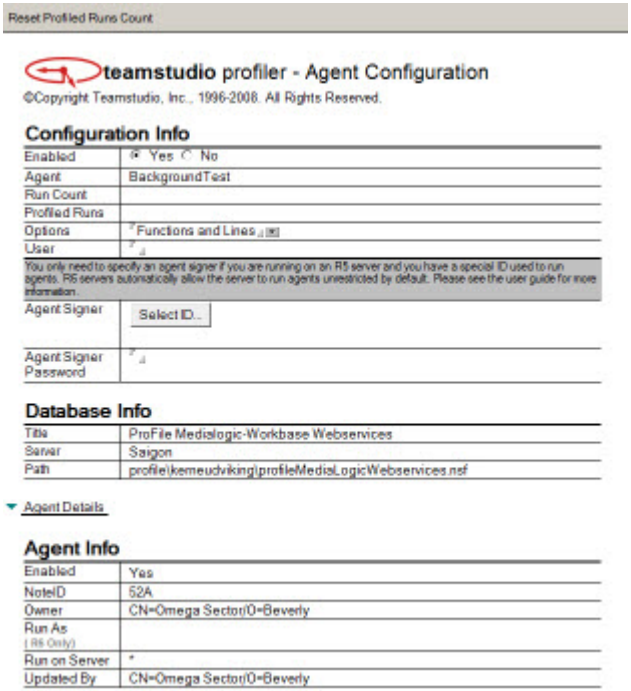
– The green check mark means that Profiler will collect information about the agent when it runs.

– The red X means that Profiler is not collecting information about the agent.

The next time the agent runs, Profiler will collect timing information and create a document in the Profiler Log database on the server.

Note	This configuration does not affect agents run by a user.

8. Open a document for editing.
9. Select **Yes** for the Enabled option.



Reset Profiled Runs Count

teamstudio profiler - Agent Configuration

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Configuration Info

Enabled	◉ Yes ○ No
Agent	BackgroundTest
Run Count	
Profiled Runs	
Options	Functions and Lines
User	
You only need to specify an agent signer if you are running on an R5 server and you have a special ID used to run agents. R6 servers automatically allow the server to run agents unrestricted by default. Please see the user guide for more information.	
Agent Signer	Select ID...
Agent Signer Password	

Database Info

Title	ProFile Medialogic-Workbase Webservices
Server	Saigon
Path	profile\kerneudviking\profileMediaLogicWebservices.nsf

Agent Details

Agent Info

Enabled	Yes
NoteID	52A
Owner	CN=Omega Sector/O=Beverly
Run As (R6 Only)	
Run on Server	*
Updated By	CN=Omega Sector/O=Beverly

The following configuration information is provided in this document:

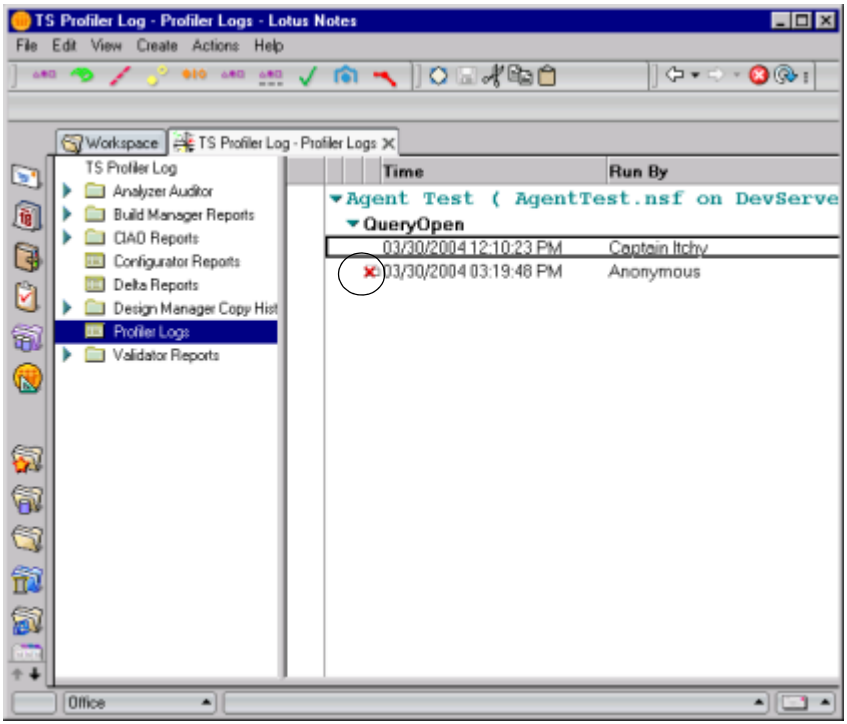
Information	Description
Enabled	Select **Yes** or **No** to enable or disable Profiler from monitoring this agent.
Agent	The name of the agent.
Run Count	Specify how many times Profiler should collect information on an agent.
Profiled Runs	The number of times the agent has been run since this was set or reset.
Options	Specify an option, as selected on the Profiler window: • Function Entry Points - collect information on function entry points • Functions and Lines - collect information on functions and lines of LotusScript • Functions - collect information on functions
User	Profiler will only run when the agent is triggered by a particular user.
Agent Signer	The ID file used to sign agents. This is only required when run on an R5 server.
Agent Signer Password	The password for the attached ID. **Note**: This field is not encrypted and is stored as plain text.

Note	
	Agent Signer and Agent Signer Password in the above table have some restrictions. When running on a Notes Release 6 server, these fields can be ignored. Profiler server runs using the Server ID. On Release 6, code signed by the server ID is allowed to run unrestricted. Signing with a special ID is unnecessary. On Release 5, however, the server is not granted these rights by default. After Profiler modifies and resigns code, the server may not be able to execute it. To avoid this problem, use one of the following options: • Add the server name to the **Run unrestricted LotusScript agents** field on the server configuration document. • Add the signer ID to the agent configuration document.

Profiler Log Database

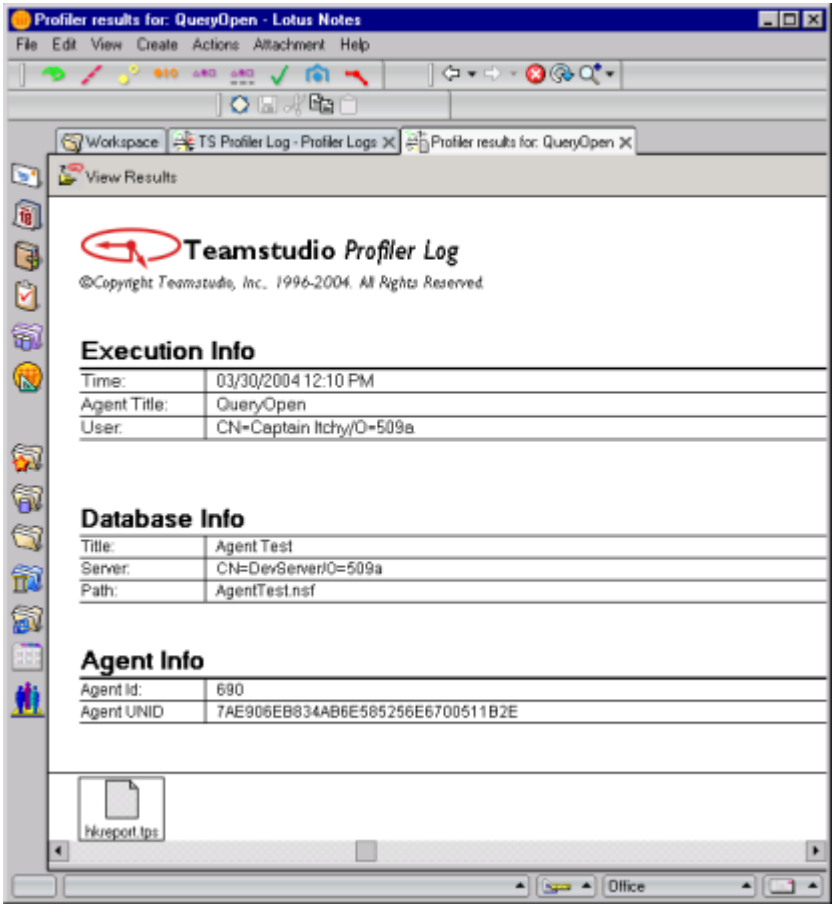
To view Profiler log information

1. Open the Profiler log database.



The red icon in the **Time** column indicates that Profiler encountered an error that prevented it from running on the selected code.

2. Open a document to view more details.



3. Click the **View Results** button at the top of the form.

   This launches Profiler to view the attached results.

Note	Profiler Client must be installed.

You can also save the attachment to your hard drive, launch Profiler from your Notes client and click **File > Open** to open the file.

Troubleshooting

The following tips may help prevent or resolve issues you could encounter when running Profiler:

- Because of the way the Notes client performs caching, you should restart the Notes client before running Profiler.
- Line profiling is not available for code included from .lss files.
- Make sure the code you want to profile has not yet been loaded when you start Profiler. For example, if you want to profile the LotusScript code for a button, make sure that the form that the button is on is not open. Otherwise, Profiler will not recognize that the code is running.

Teamstudio Undo

Introduction

Congratulations on your purchase of Teamstudio Undo!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio Undo keeps track of changes to a database so you can roll back the individual design elements of either templates or databases.

If the target database is already under CIAO! control, you can use Undo between check-ins.

You can use Undo to retrace your steps to the previous save if you are not satisfied with the changes you have made.

About the Undo Log Database(s)

Undo saves the history of your elements in the Undo log database, undolog.nsf, which is located in the Teamstudio directory.

Configuring Undo to Track Changes to Your Databases

To configure tracking of all NTF files

Undo automatically keeps track of changes for all NTF files you work with, whether on your local computer, or on a server, so you don't have to configure that. If you are wondering if Undo knows about your NTF file - no worries - it does!

If you prefer, you can manually configure Undo to keep track of changes to NSF files, or to keep track of changes within the files or folders you choose.

To configure tracking of all NSF files or only selected databases or folders

1. In a text editor, open the **Teamstudio.ini** file, which is located in the data directory.
2. In the [Undo] section, change the line that says “IncludeFiles=*.ntf” as follows:

To track the following	Change “IncludeFiles” line as follows
All NSF files only	IncludeFiles=*.nsf
All NTF and all NSF files	IncludeFiles=*.ntf,*.nsf
Just a few databases you want, for example, mytest1.ntf and mytest2.ntf	IncludeFiles=mytest1.ntf,mytest2.ntf
One directory only, for example, the mail folder	IncludeFiles=mail/*

Note	Teamstudio recommends you only modify the IncludeFiles line if you have a very good reason. By leaving the default, you don’t have to try to remember to add a new database or update the line again for a database whose name has changed.

Using Undo

Using Undo you can view Design Element changes and you can choose which changes to undo.

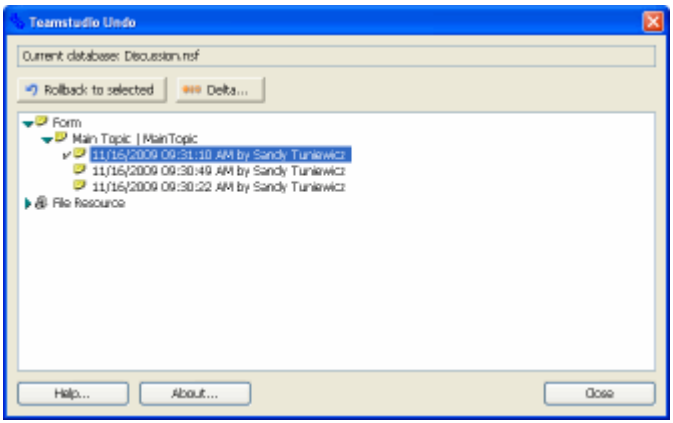
Note	Undo does not keep track of changes to documents.

Viewing Design Element Changes

To view design element changes

1. From Designer, click the Undo button on the toolbar to open the Undo window.

Note	If you select a database icon from the Notes workspace and then click Undo, you'll be prompted to browse to the database file. You can avoid having to browse to the database file by first opening the file in Designer and then clicking Undo from the toolbar.



2. Select the version of the design element you want to view changes for.
3. Click the **Delta** button to view the difference between the element in the undo buffer

and its current version.

4. Click **Close** to return to the Undo client.

Note	You can also use Delta to compare two undo buffer design element versions. To compare two undo buffer design element versions: 1. Select one version. 2. Press and hold the **CTRL** button. 3. Select the second version (the two elements must be of the same type). 4. Click the **Delta** button.

See "Using Delta," on page 171 for more information on using Delta.

Undoing a Change

To rollback database design element changes

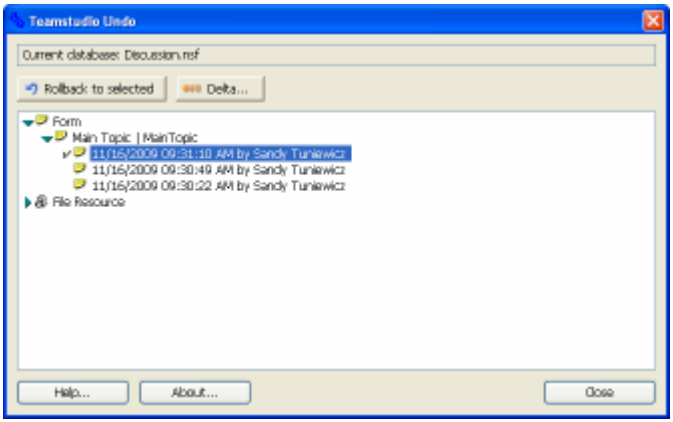
1. From Designer, click the Undo button on the toolbar.

Note	If you select a database icon from the Notes workspace and then click Undo, you'll be prompted to browse to the database file. You can avoid having to browse to the database file by first opening the file in Designer and then clicking Undo from the toolbar.

You see the **Teamstudio Undo** window with the following element change information:

The design element type, the element name, the changes in the order they were made,

the date and time of the changes and the signature before the changes were made.



2. Select version of the design element you want to roll back to.
3. Click **Rollback to selected**.

   The copy of the design element captured at that time will replace the design element in the database.

Teamstudio Validator

Introduction

Congratulations on your purchase of Teamstudio Validator!

Download the *Teamstudio Installation Guide* for instructions on installing and removing your Teamstudio tools.

Teamstudio Validator lets you report on areas within your database documents that no longer function correctly. Use this tool during the upgrades of an existing application where design changes have occurred and you want to determine where existing documents in the database no longer work as expected.

Validator reports on static links that no longer function by checking the target of both Notes document links and standard URL links. Validator reports on fields that no longer exist on the form/subform design, but still exist on documents.

Validator also checks keyword fields to ensure that values stored in the document still agree with values in the field design. Validator reports on orphaned documents.

Validator lets you create detailed reports including:

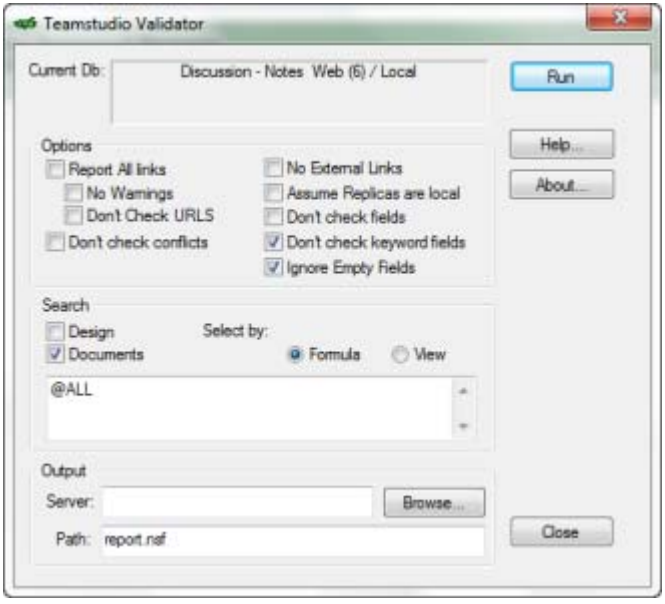
- Errors
- Error descriptions
- Document links to the actual document

Working with Validator

Starting Validator

- From Designer, click the Validator button on the toolbar.

  You see the Validator window with the name of the database you selected in the **Current Db** box.



Running Validator

To run Validator, you first set options and parameters and then you specify the output database's server name and path.

To run Validator

1. Set the following Validator options:

Options	Description
Report All Links	This will generate report documents for all doclinks, good or bad. Selecting this option disables the **No Warnings** and the **Don't Check URLs** options.
No Warnings	Validator will not report errors that are classified as warnings; for example, hotspots with no link specified.
Don't Check URLS	Validator will not check URLs. Do not try to check URLs if you are not connected to the internet.
No External Links	If you select this option, Validator will report as an error any link that doesn't point to the current database.
Assume Replicas are local	If you select this option, Validator will not look at replica databases on external servers.
Don't check fields	Validator does not check for field errors.
Don't check keyword fields	Validator ignores keyword fields.
Ignore empty fields	Validator ignores empty fields (fields on documents with no data).
Don't check Conflicts	Validator does not check conflicts.

2. You can set Validator to report on design elements or documents or both. If you set Validator to report on documents, you must specify *By Formula* or *By View.*

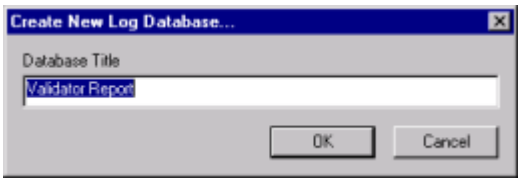
   – If you specify *By Formula*, @ALL appears as the default. You can enter a valid selection formula for your search.

   – If you specify *By View*, available views appear in the dropdown list, allowing you to select one of the views in the source database.

3. Enter the server name and path of the Reports database (Output).
4. Click **Run** to create the Reports database.

   Validator will create the Reports database and automatically open it.

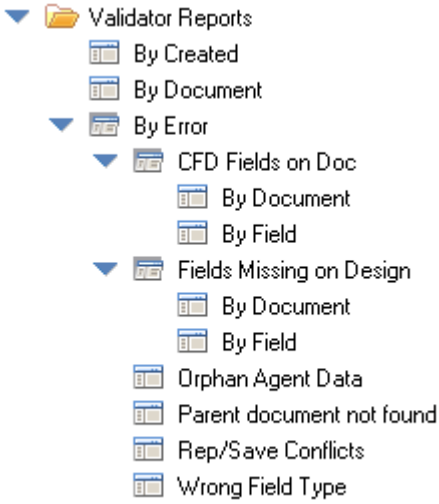
Notes	• Pressing **CTRL-BREAK** while Validator is running will cause Validator to halt in place and open the report database. • When the output database does not exist, you see the **Create New Log Database** window where you can enter the new **Database Title**.



Note	All reports for Teamstudio products can use the same Teamstudio report database which is TMSlogs.ntf

Understanding Validator Report Views

The report database provides the following views:



By Created

The **By Created** view lists all errors found by the order created.

By Document

The **By Document** view lists all errors found by order of ascending note (element) ID.

By Error

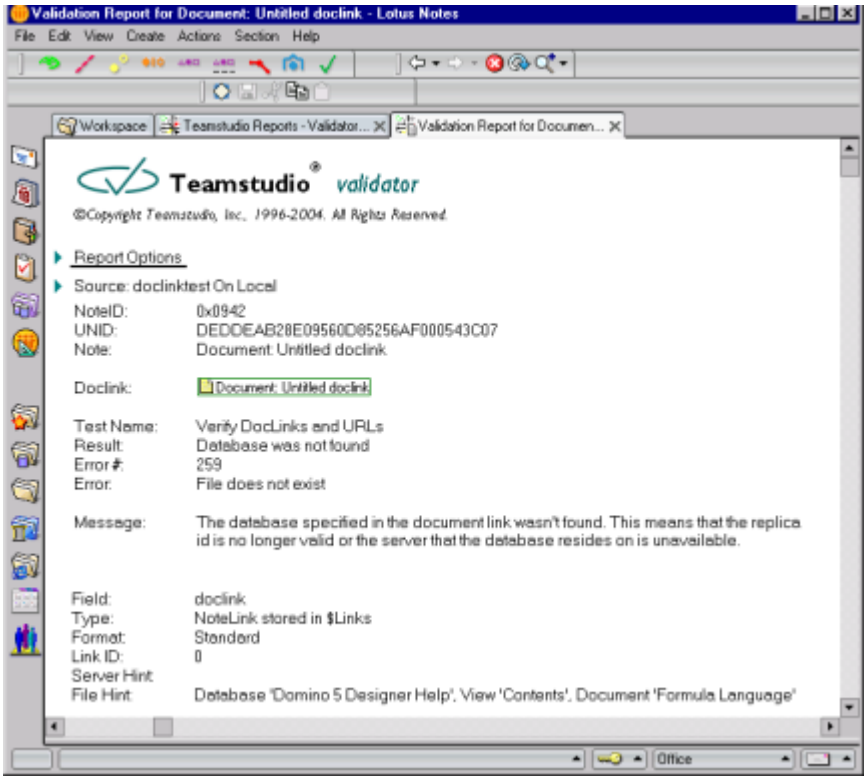
The **By Error** view lists all errors found by error type.

Validator provides the following sub-views:

- Computed for Display (CFD) Fields on Doc (by Document or Field)
- Fields Missing on Design (by Document or Field)
- Orphan Agent Data
- Parent document not found
- Rep/Save Conflicts
- Wrong Field Type

Viewing an Error

To view a Validator error, select a report document.



The Validator report shows the following:

- The options you have selected
- Database information
- Information about the error
- Information about where the error was found

Use this information to correct your database design.

Common Information

The following information is common to all Validator reports.

Field	Description
Time Run	The time Validator generated the report.
Options	The options you set when you ran the report (for example, include valid links in report and ignore empty fields).
Title	The name of the database you searched.
Server	The server location of the database you searched.
Database	The database against which the report was run.
NoteID	The failing element ID.
UNID	The 16-byte value that is assigned to a note when the note is first created. This value uniquely identifies a note.
Note	The name of the element.
Doclink	A doclink to the failing document.
Test Name	The type of test run. This is internally defined, consequently you cannot customize it.
Result	The result of the test (for example, *Database was not found*).
Error #	The error number (for example, *259)*. This is internally defined, consequently you cannot customize it.
Message	Information about the potential causes of the error.

Understanding Common Error Types

When reviewing your reports, it helps to understand the most common error types.

The most common error types are:

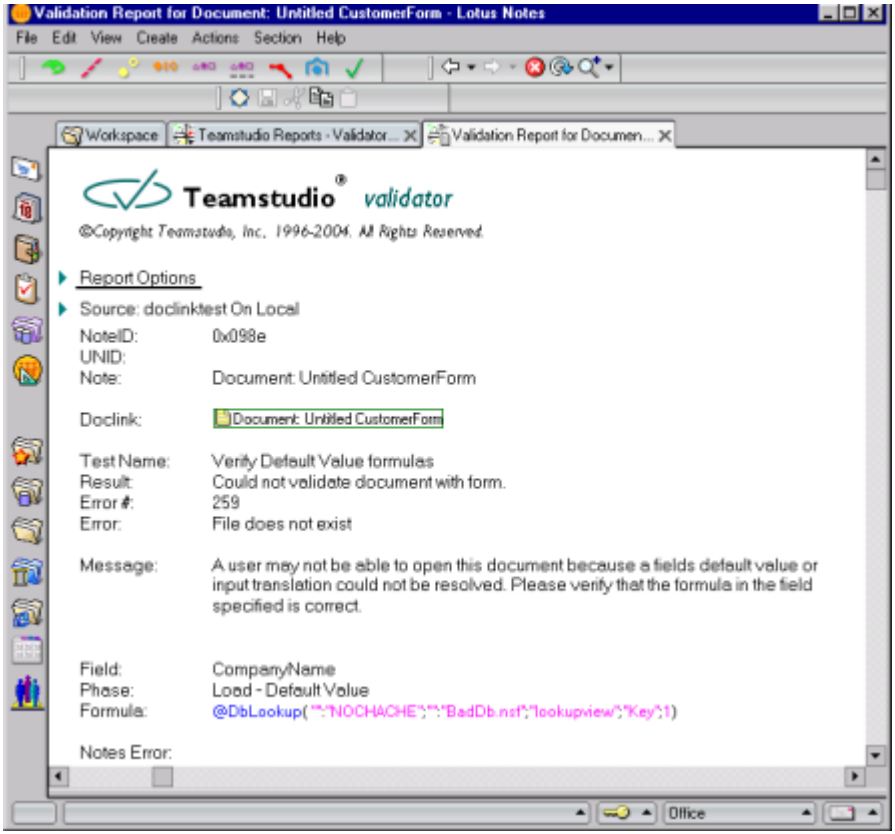
- Could Not Validate Document with Form
- Database was not Found
- Document/Note was not Found
- Fields Inconsistency
- Keyword Field Contains Incorrect Values
- Missing Dependency
- Orphaned Agent Data Notes
- Save / Replication Conflicts
- URL is Invalid

Notes	Validator reports on many other types of errors, as provided by Notes.

Some report document types (for example, orphaned agent data notes) provide buttons that correct problems within the database being validated. You must have the proper access rights to this database in order to use these buttons. If you don't have the proper access rights, an error appears.

Could Not Validate Document with Form

This test attempts to calculate the default value formula and the input translation/ validation formula against values stored in the document. The following is an example:



In addition to the information common to all reports, the **Could Not Validate Document With Form** report shows the following:

Field	Description
Field	Field where the formula was found.
Phase	This entry can have the following values: • *Load - Default value:* An error occurred while checking the field's default value • *Save - Input Translation:* An error occurred in the field's input translation formula • *Data Conversion:* An error occurred when trying to convert the data in the document to the type of the field (for example, text to number)
Formula	The failing formula.
Notes Error	The resulting Notes error, if available.

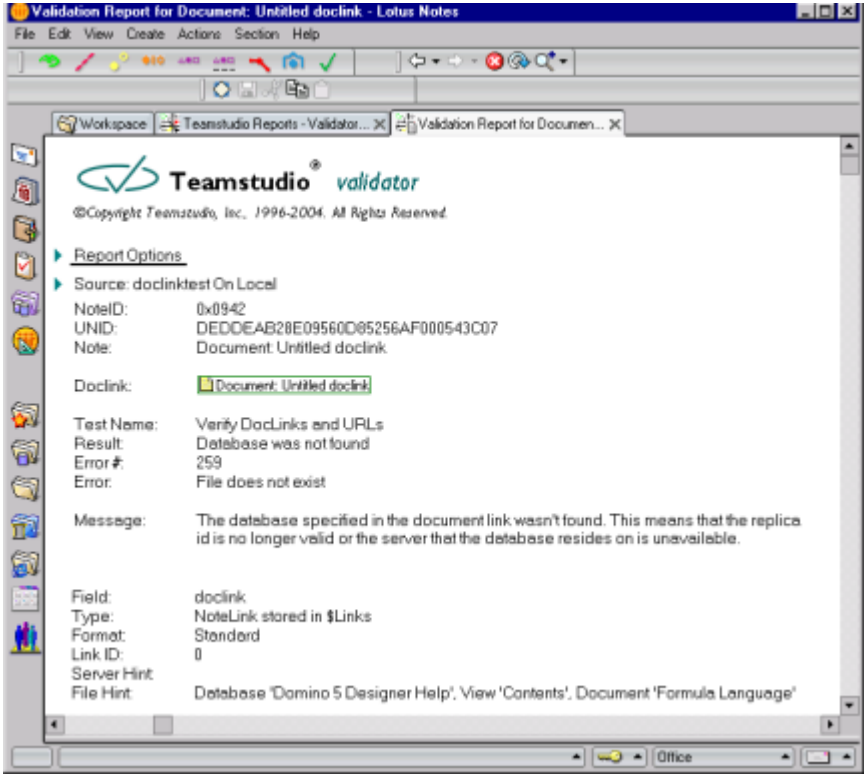
Database was not Found

The database specified in the document link wasn't found. This means that the replica ID is no longer valid or the server that the database resides on is unavailable.

Reported errors can include the following:

- File does not exist
- File not found or not a Notes database
- You are not authorized to perform that operation

The following is an example:



In addition to the information common to all reports, the **Database was Not Found** report (unique for DocLink Reports) shows the following:

Field	Description
Field	The field on the document where the link was found.
Type	The type of link (for example, DocLink or URL).
Format	How the link was stored (for example, standard, computed or special).
Element Name	Name of the element linked to by Named Element Link (only for the Type: Named Element).
NoteLink Type	Type of NoteLink (For example, Named Element, DocLink).
DBID	Database RepID.
View	View UNID.
Note	Note UNID.
Nearby Text	Text near the error, provided as a hint.

Note	A document link is composed of three parts: DBID, View and Note. Each must be valid for Notes to locate a doclink in the database.

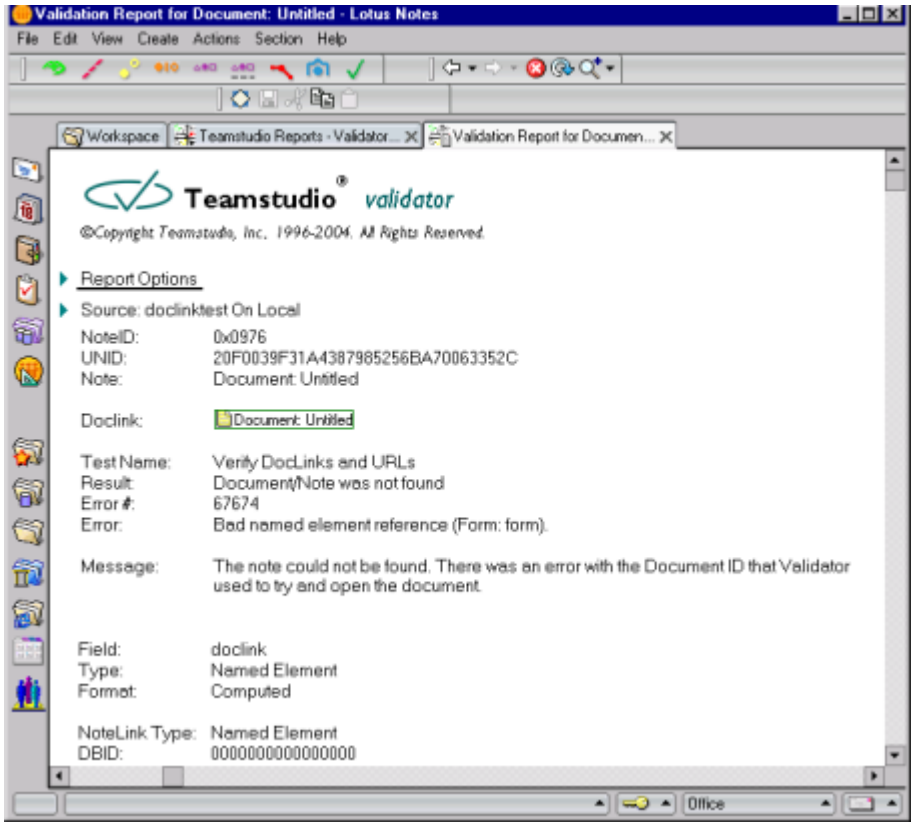
Document/Note was not Found

This error means that the element could not be found. There was an error with the Document ID that Validator used to try to open the document.

Reported errors can include the following:

- Bad named element reference (Type: Name)
- Entry not found in index

The following is an example:



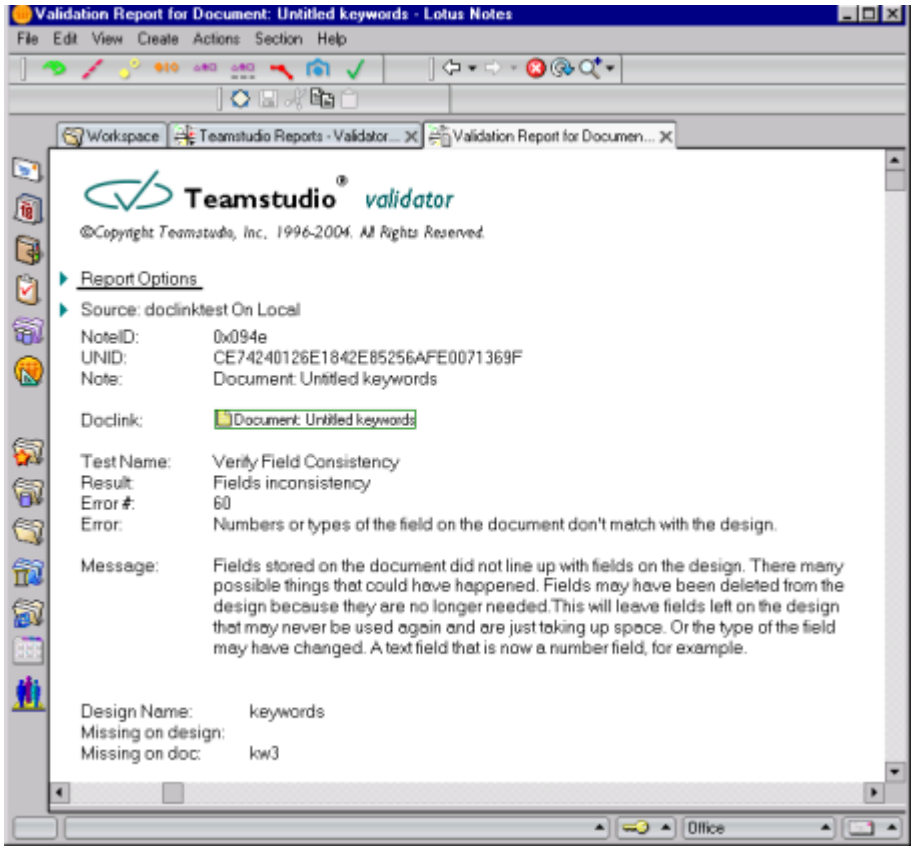
In addition to the information common to all reports, the **Document/Note Was Not Found** report shows the following:

Field	Description
Field	The field on the document where the link was found.
Type	The type of link (for example, DocLink or URL).
Format	How the link was stored (for example, standard, computed or special).
NoteLink Type	Type of NoteLink (For example, Named Element, DocLink or Anchor Link).
DBID	Database RepID.
View	View UNID.
Note	Note UNID.
Nearby Text	Text near the error, provided as a hint.

Fields Inconsistency

Fields stored on the document did not line up with fields on the design. Some potential causes for this include fields not needed that are deleted from the design leaving fields on the design that may not be used again and are just taking up space. Or the type of the field may have changed, for example, a text field that is now a number field.

The following is an example:

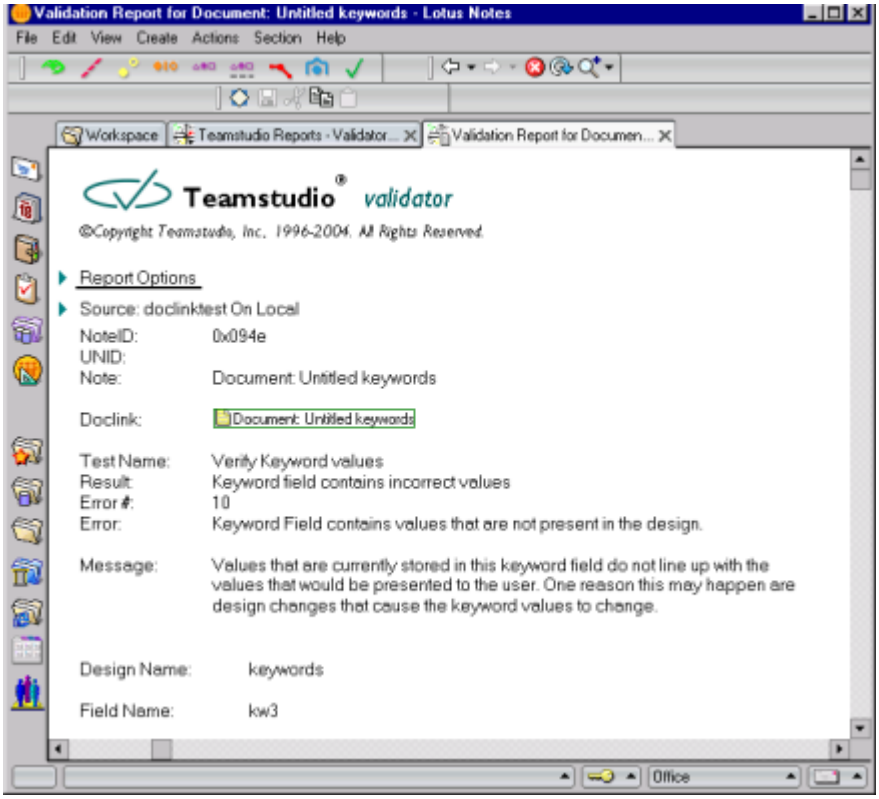


In addition to the information common to all reports, the **Fields Inconsistency** report shows the following:

Field	Description
Design Name	The name of the form that was used with this document.
Missing on design	Lists the fields that are in the documents but missing in the design, along with the field size of the documents in parentheses [field-name(size)].
Missing on doc	Lists the fields that are in the design but not the documents.
Has different type	States differences between the field type in the design and the field type in the document.
Computed for Display (CFD) fields stored on document	This shows the number of CFD fields that Validator found stored on the document, along with the field size in parentheses [field-name(size)].

Keyword Field Contains Incorrect Values

Values that are currently stored in this keyword field do not agree with the values that would be presented to the user. One reason for this is a design change that caused keyword values to change. The following is an example:

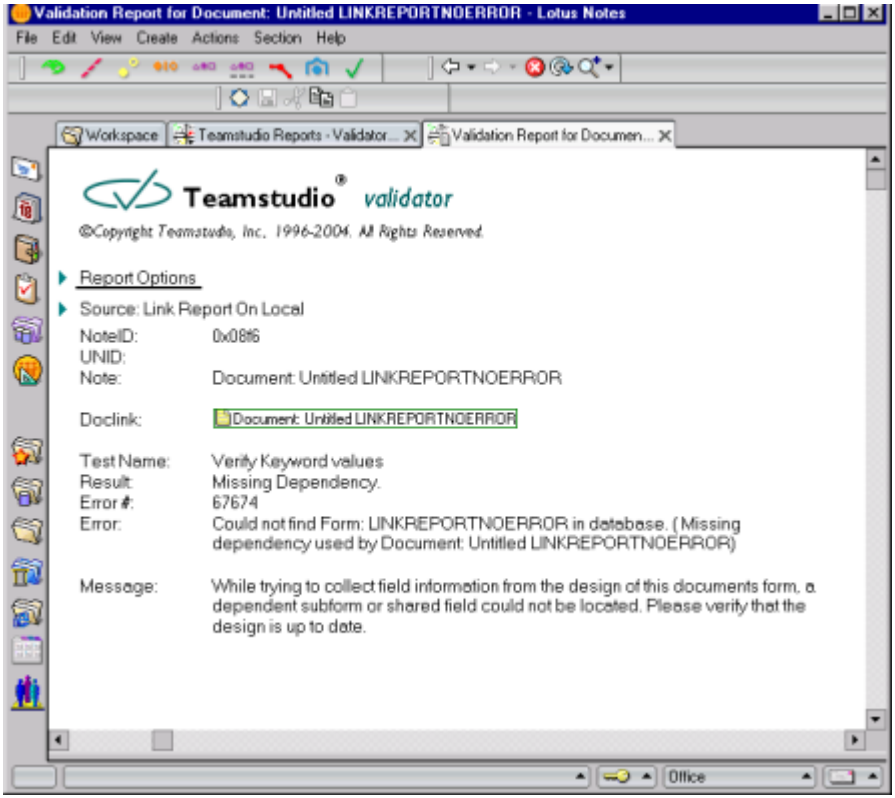


In addition to the information common to all reports, the **Keyword Field Contains Incorrect Values** report shows the following:

Field	Description
Design Name	The name of the form that Validator used with this document.
Field Name	The name of the failing field.
Unknown Value	List of values that were found in the field but were not valid choices according to the design.
Allowed Value	List of values that the user can choose from.

Missing Dependency

While trying to collect field information from the design of a document's form, a dependent subform or shared field could not be located. The following is an example:



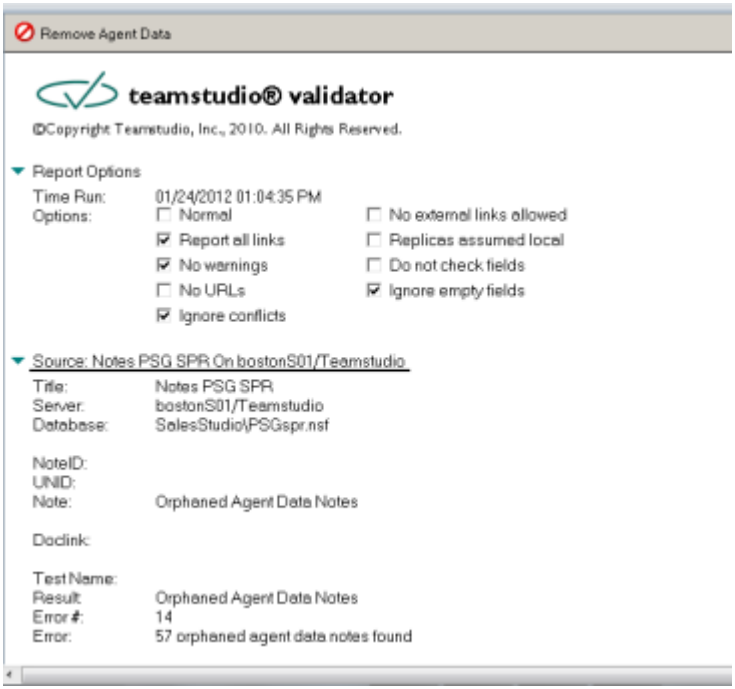
This report provides only the common information described earlier.

Orphaned Agent Data Notes

This test scans a database to identify agent data notes that are no longer being referenced by an agent. Agent data notes are design elements created and used by agents when they run. Over time, some databases accumulate hundreds of these elements, increasing the size of the database. Since most orphaned agent data notes are no longer attached to an agent, they will never be deleted. There is no easy way

to remove them since they do not show up in Designer.

The following is an example of a Validator report showing orphaned agents.



This report provides only the common information described earlier.

To remove orphaned agent data notes in a report

- Click the **Remove Agent Data** button at the top of the window to remove the orphaned agent data notes referenced in this report.

To remove all orphaned agent data notes

1. Go to the view called **Orphan Agent Data Notes**.
2. Click the **Remove Agent Data** button at the top of the window to remove all the orphaned agent data notes.

Save / Replication Conflicts

This test finds save/replication conflicts including the following:

- Conflicts created when a document or a design element is changed simultaneously in a database by multiple users.
- Conflicts created when a document or design element is changed in different replicas between replication sessions.
- Conflicts created when one copy of a document is saved as the main document and the other copies are saved as response documents. The response documents are marked as *Replication or save conflicts*. If you edit and resave the conflict document, it becomes a main document and is no longer considered in conflict, however, you typically should merge these documents with the main copy.

The following is an example of a Validator report showing a save/replication conflict.

teamstudio® validator

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Report Options

Source: TMS Validator On Local

NoteID:	0x099e
UNID:	73C0095E5BEC6B4885256EA00074BF10
Note:	Document: Untitled
Doclink:	Document: Untitled
Test Name:	Verify Replication or Save Conflicts
Result:	Replication or Save Conflict
Error #:	94
Error:	A conflict document has been found.
Message:	When a document or a design element is modified simultaneously in a database by multiple saved as the main document and the rest are saved as response documents. These respo conflict document, it becomes a main document and no longer considered as a conflict. Ho

Conflict note:

Last Modified:	04/08/2005 04:14:17 PM
Last Updated By:	CN=Michael Wetherbee/O=Teamstudio

Main note:

UNID:	B89A0D77AF60B18785256EA00074BF0F
Last Modified:	09/14/2005 05:25:01 PM
Last Updated By:	CN=Gabe Law/O=Teamstudio

In addition to the information common to all reports, the **Save/Replication Conflicts** report shows the following:

Field	Description
Conflict note:	
Last Modified	The date the note in conflict was last modified.
Last Updated By	The last user to update this note.
Main note:	
UNID	The 16-byte value that is assigned to a note when the note is first created. This value uniquely identifies a note.
Last Modified	The date the main note was last modified.
Last Updated By	The last user to update this note.

URL is Invalid

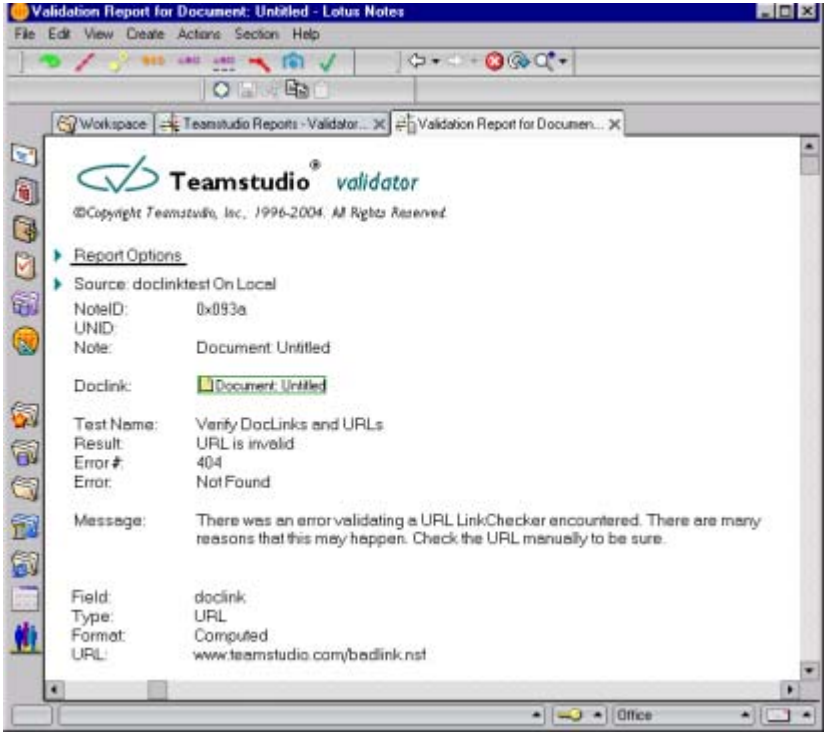
This error means that there was an error validating a URL that Validator encountered. Check the URL manually.

Note	Validator will wait twenty seconds for a server to respond to an HTTP request. You can customize this value by adding the following to the Validator section in teamstudio.ini: `LINKURLTimeOut = TIME IN MILISECONDS`

Reported errors can include the following:

- Not found
- The operation is timed out
- The server name or address could not be resolved

The following is an example of a URL is Invalid error report:



In addition to the information common to all reports, the **URL is Invalid** report shows the following:

Field	Description
Field	Field the URL was found in.
Type	Type of link, in this case *URL*.
Format	How the URL is stored, in this case in a formula.
URL	The failing URL.
Nearby Text	Text near the failing doclink, provided as a hint.

Contacting Teamstudio

Contacting Teamstudio

If you have a question, don't hesitate to contact Teamstudio technical support.

All Teamstudio products include unlimited technical support for the life of the then-current Maintenance Agreement. To receive support, please have your product serial number ready.

Technical Support

+1 (978) 712 0930

techsupport@teamstudio.com

Click here to submit a ticket.

Beverly, USA - Headquarters

+1 (800) 632 9787 or +1 (978) 712 0924

contactus@teamstudio.com

Bedford, UK

+44 (0) 20 7193 0495

contactus@teamstudio.com

Tokyo, Japan

English +81 (0) 3 5777 8550

Japanese +81 (0) 3 5777 8555

contactusjapan@teamstudio.com

Before you call

- Double check the relevant sections in this manual and try to answer the question or solve the problem.
- Ensure that you have your product serial number available: we can't provide technical support without it.
- Ensure that you are sitting at your PC with the software available when you make the call.
- Try to define the problem or the steps to re-create it before you call.

Maintenance Upgrades

Major product upgrades are free of charge if you have a valid Maintenance Agreement. For more information on purchasing a Maintenance Agreement, please call Teamstudio.

Feedback

We are always eager to hear your comments and suggestions on our products. Please direct all feedback via e-mail to techsupport@teamstudio.com.