

Version Tracking Guide

Operations Center 5.5

April 26, 2013

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About This Guide

The *Version Tracking Guide* provides information to help you to monitor business-critical applications, and to create change logs, audit trails, and compliance reports using version tracking records changes made to elements and their relationships in Operations Center.

- Chapter 1, "About Version Tracking," on page 7
- Chapter 2, "Configuring Version Tracking," on page 9
- Chapter 3, "Changing Event Alarms," on page 15
- Chapter 4, "Creating Time Comparisons," on page 23
- Chapter 5, "Creating Element Comparisons," on page 27
- Chapter 6, "Examples," on page 31

Audience

This guide is intended for Operations Center system administrators who are responsible for version tracking and auditing events for Operations Center.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the *User Comments* feature at the bottom of each page of the online documentation.

Additional Documentation & Documentation Updates

This guide is part of the Operations Center documentation set. For the most recent version of the *Version Tracking Guide* and a complete list of publications supporting Operations Center, visit our Online Documentation Web Site at Operations Center 5.5 online documentation.

The Operations Center documentation set is also available as PDF files on the installation CD or ISO; and is delivered as part of the online help accessible from multiple locations in Operations Center depending on the product component.

Additional Resources

We encourage you to use the following additional resources on the Web:

- NetIQ User Community (https://www.netiq.com/communities/): A Web-based community with a variety of discussion topics.
- NetIQ Support Knowledgebase (https://www.netiq.com/support/kb/product.php?id=SG_XOPERATIONSCENTER_1_2): A collection of in-depth technical articles.
- NetIQ Support Forums (https://forums.netiq.com/forumdisplay.php?26-Operations-Center): A Web location where product users can discuss NetIQ product functionality and advice with other product users.

Technical Support

You can learn more about the policies and procedures of NetIQ Technical Support by accessing its Technical Support Guide (https://www.netiq.com/Support/process.asp#_Maintenance_Programs_and).

Use these resources for support specific to Operations Center:

- Telephone in Canada and the United States: 1-800-858-4000
- Telephone outside the United States: 1-801-861-4000
- E-mail: support@netiq.com (support@netiq.com)
- Submit a Service Request: http://support.novell.com/contact/ (http://support.novell.com/contact/)

Documentation Conventions

In NetIQ documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path. The > symbol is also used to connect consecutive links in an element tree structure where you can either click a plus symbol (+) or double-click the elements to expand them.

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a forward slash to preserve case considerations in the UNIX* or Linux* operating systems.

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1 About Version Tracking

Version tracking records changes made to elements and their relationships in Operations Center. These changes include addition and deletion of elements, changes to element properties, and changes in element relationships. The types of actions that are recorded are add or create, change, and delete or remove. The information recorded for each action is:

- Who made the change (the user)
- When was the change made (date and time)
- Description applicable to the type of change made (for example, the old value if a property is changed)

Version tracking data is stored in the same database as other configuration information for Operations Center. Only specific types and versions of databases can be used for version tracking. By default, version tracking is off and must be turned on for data to be recorded. For more information on configuring version tracking, see Chapter 2, “Configuring Version Tracking,” on page 9.

There are three ways to look at version tracking data:

- Change-by-change for a specific element
- Comparison of an element from one point in time to another point in time
- Comparison of one element to other elements

Each change generates a change event that is categorized as a historical alarm in Operations Center, so you can view each change as alarm data. Similar to other historical alarms, you can monitor the changes in the Alarms view in the console or in the alarms portlet in the dashaboard, and you can create reports by using alarms tables in Operations Center SQL Views. For more information, see Chapter 3, “Changing Event Alarms,” on page 15.

Many changes can occur to an element over time. A comparison takes the starting time and shows the last changes made to the element and its children before a specific end time. In other words, it compares elements from an end point in time to an initial baseline. For more information on this type of comparison, see Chapter 4, “Creating Time Comparisons,” on page 23.

Single or multiple elements, including children, can be compared to each other. This comparison shows the property and relationship differences between the elements. For more information, see Chapter 5, “Creating Element Comparisons,” on page 27.

Version tracking can be used to monitor business-critical applications, and to create change logs, audit trails, and compliance reports. For more information, see Chapter 6, “Examples,” on page 31.

2 Configuring Version Tracking

By default, version tracking data is not recorded in Operations Center. To enable version tracking, you must create a new configuration for Operations Center, using a database that supports version tracking. If you are already using Operations Center and you want to enable version tracking, you must create a new configuration and copy your existing configuration into this new one.

IMPORTANT: To use the version tracking functionality, you must store your configuration data in a new database that supports version tracking. You should not use a database or schema that was previously used to store Operations Center configuration data. If you use an existing database, table names collide and unexpected results occur.

- Section 2.1, "Requirements," on page 9
- Section 2.2, "Configuring a New Implementation of Version Tracking," on page 9
- Section 2.3, "Converting an Existing Configuration," on page 12
- Section 2.4, "Purging Version Tracking Data," on page 14

2.1 Requirements

When Operations Center is first installed, a database must be configured to store Operations Center configuration data. Not all of the databases that Operations Center supports can be used to record version tracking data. To use version tracking, you must use one of the following databases:

- Microsoft SQL Server 2005 or later
- Oracle 10g or later
- PostgreSQL 8.4.3 or later

If you use the a different type of database or a different version of Microsoft SQL Server, Oracle, or PostgresSQL; you do not have the option to use version tracking.

2.2 Configuring a New Implementation of Version Tracking

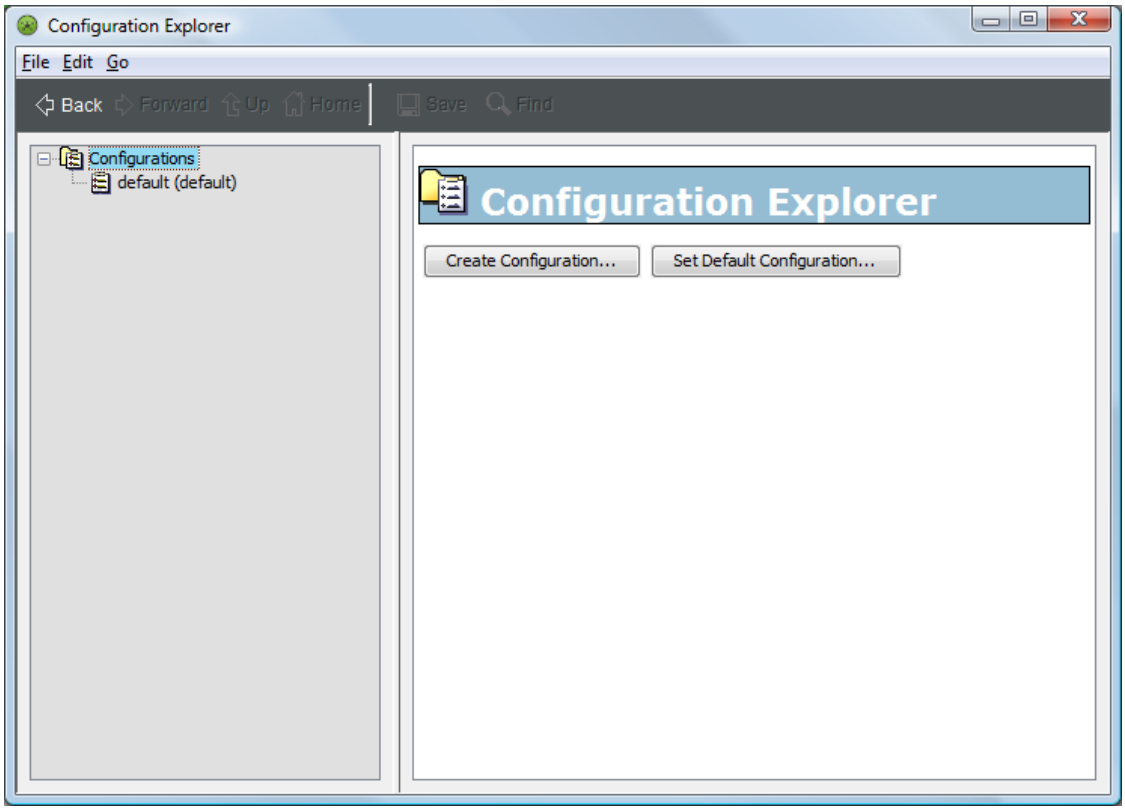
Version tracking data is recorded in the same database as other configuration data for Operations Center. This database must be one that supports version tracking. It must also be a new database, not one previously used for Operations Center configuration.

To configure version tracking:

1. Create a new database in SQL Server, Oracle or PostgresSQL; using an account with administrative privileges.

   Note the name of the database, server name, the port where it is listening, and the user name and password of the account used to create the database.

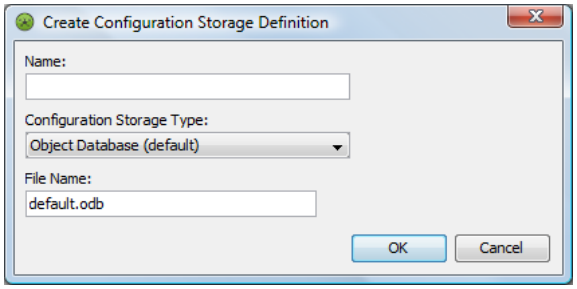
2 Enter `moscfg` at a command prompt on the server to open the Configuration Explorer:



IMPORTANT: To see the version tracking options, you must access the Configuration Explorer by entering `moscfg` at a command prompt. If you access the Configuration Explorer through the Configuration Manager, you do not see the options for version tracking.

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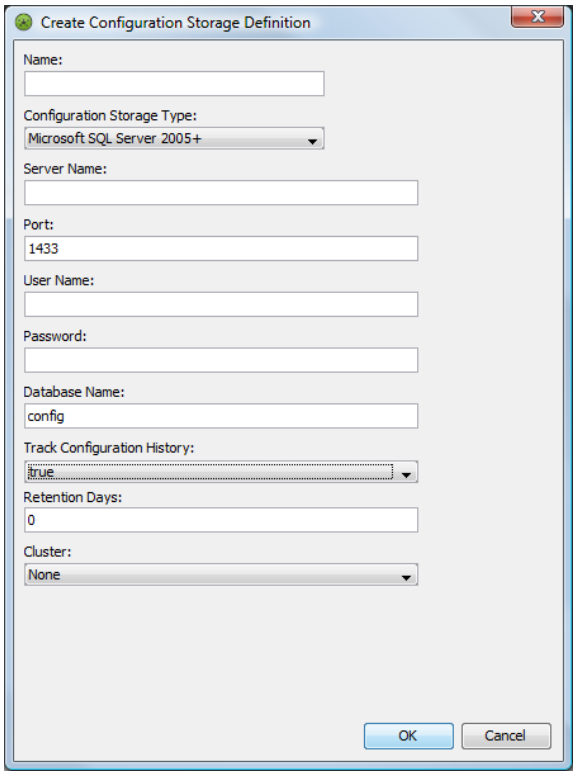
3 Select *Configurations* in the hierarchy, then select *Create Configuration* to open the *Create a Configuration Storage Definition* dialog box:



4 Select either *Microsoft SQL Server 2005+*, *PostgreSQL Database Server*, or *Oracle Database Server* for the configuration storage type.

The dialog box updates to show options for the selected database.

5 Locate the *Track Configuration History* option, and select `True`.



You only see this option if you have selected a supported database for Operations Center Version Tracking. See Section 2.1, "Requirements," on page 9 for a list of databases that support version tracking.

6 If desired, specify the number of days to retain version tracking data in the *Retention Days* field.

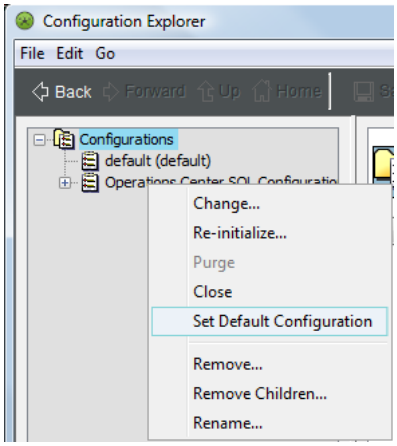
A value of 0 disables the purge job from running. If set, the purge job is run automatically on a monthly basis.

7 Fill in the other fields, as appropriate.

For more information, see the *Operations Center 5.5 Server Configuration Guide*

8 Click *OK*.

9 Right-click the new configuration in the Configuration Explorer, then select *Set Default Configuration*.



10 A confirmation message displays, click *OK*.

2.3 Converting an Existing Configuration

To use version tracking, your configuration data in Operations Center must be stored in either a Microsoft SQL database or an Oracle database that has not previously been used for Operations Center configuration. If you have an existing configuration in Operations Center and want to continue to use that configuration, you must create a new configuration and set version tracking, then copy the existing configuration into this new configuration and set the new configuration as the default.

- Section 2.3.1, "Creating a New Configuration," on page 12
- Section 2.3.2, "Copying the Existing Configuration to the New Configuration," on page 13

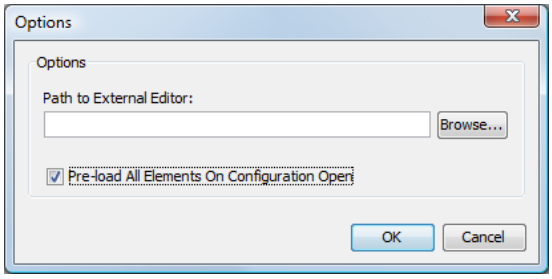
2.3.1 Creating a New Configuration

Create a new database and configure it by following the instructions in Section 2.2, "Configuring a New Implementation of Version Tracking," on page 9.

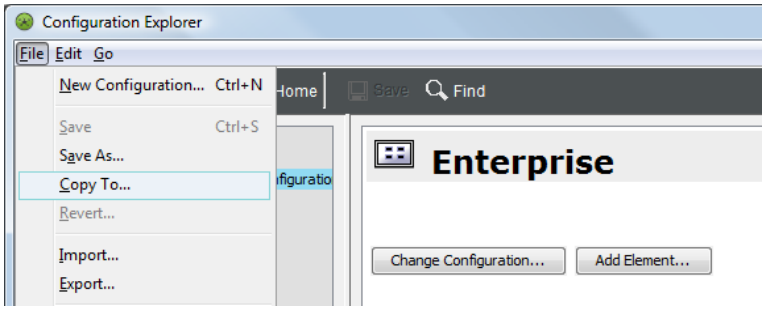
2.3.2 Copying the Existing Configuration to the New Configuration

1. To stop the Operations Center server, on the server's desktop, click *Start* > *NetIQ Operations Center* > *Stop NetIQ Operations Center*.
2. Enter `moscfg` at a command prompt on the server to open the Configuration Explorer.

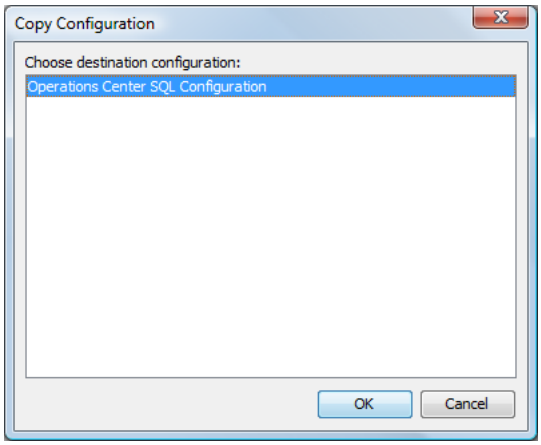
   IMPORTANT: To see the version tracking options, you must access the Configuration Explorer by entering `moscfg` at a command prompt. If you access the Configuration Explorer through the Configuration Manager, you do not see the options for version tracking.
3. Select *Edit* > *Options* to open the Options dialog box:
4. Select the *Pre-load All Elements on Configuration Open* check box:



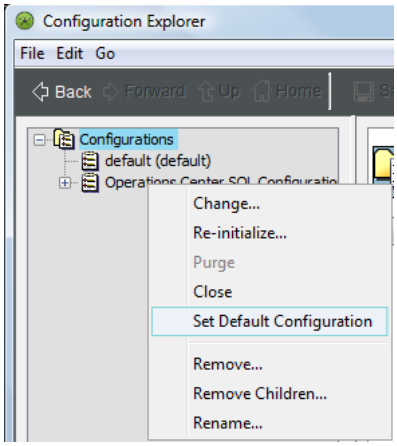
5. Select your existing configuration in the Configuration Editor.
6. Select *File* > *Copy To* to open the Copy Configuration dialog box:



7. Select the configuration that has been enabled for version tracking:



8 Right-click the new configuration where you copied your existing configuration, then select *Set Default Configuration*:



9 To restart the Operations Center server, on the server's desktop click *Start* > *NetIQ Operations Center* > *Start NetIQ Operations Center*.

2.4 Purging Version Tracking Data

Version Tracking data can be purged on a regular basis or on demand. For information about using the *Retention Days* setting to automatically purge data on a regular basis, see Section 2.3.1, "Creating a New Configuration," on page 12.

To purge Version Tracking data on demand, do one of the following:

- Open the Configuration Explorer by entering `moscfg` at a command prompt on the `/OperationsCenter_install_path/bin` directory.

  Right-click the Version Tracking configuration and select *Purge*.

  Data is purged based on the *Retention Days* setting.
- Setup a job to run the `configStorePurge.fs` script.

  For more information about creating jobs, see the *Operations Center 5.5 Server Configuration Guide*, Section 9.

3 Changing Event Alarms

Version tracking records changes, then generates a change event for each change. Change events are treated as historical alarms. Similar to other historical alarms, you can monitor the changes in the Alarms view in the console or in the alarms portlet in the dashboard, and you can create reports using alarms tables in SQL Views.

- Section 3.1, "Change Event Data," on page 15
- Section 3.2, "Alarms View," on page 16
- Section 3.3, "Alarms Portlet in the Dashboard," on page 18
- Section 3.4, "SQL Views," on page 20

3.1 Change Event Data

Version tracking records the following data for change events:

- **Element:** The name of the element as shown in the Operations Center hierarchy.
- **Severity:** The status of the element:
  - `OK` indicates creation (it is green by default)
  - `Informational` indicates changes (it is blue by default)
  - `Unmanaged` indicates removals (it is brown by default)

  The default colors for severity can be changed. For more information, see "Managing Condition/Severity Colors" in the *Operations Center 5.5 User Guide*.
- **Change:** The type of action that occurred (create, change, remove).
- **Description:** Information about what change occurred. For example, if a new element is added to a service model, the action type is `create` and the description is `Element Added`.
- **Value:** The new value for the change described in the *Description* field. Only the alarms portlet shows the value field; it is not available in the Alarms view in the console. For example, if a property page for contact information was added to an element and Jane Doe was added in the contact field on that page, the *Description* field shows `Attribute "Contact" set to Jane Doe` and the *Value* field shows `Jane Doe`.
- **Date/time:** The date (in the format mm/dd/yyyy) and the time (in the format hh:mm:ss AM/PM) that version tracking recorded the action.
- **User Name:** The user name of the account that was used to take the action.

This data can be viewed and monitored in the Alarms view in the Operations Center console or in an alarms portlet in the dashboard. It can also be used in reports using the alarms views and alarms tables in SQL Views.

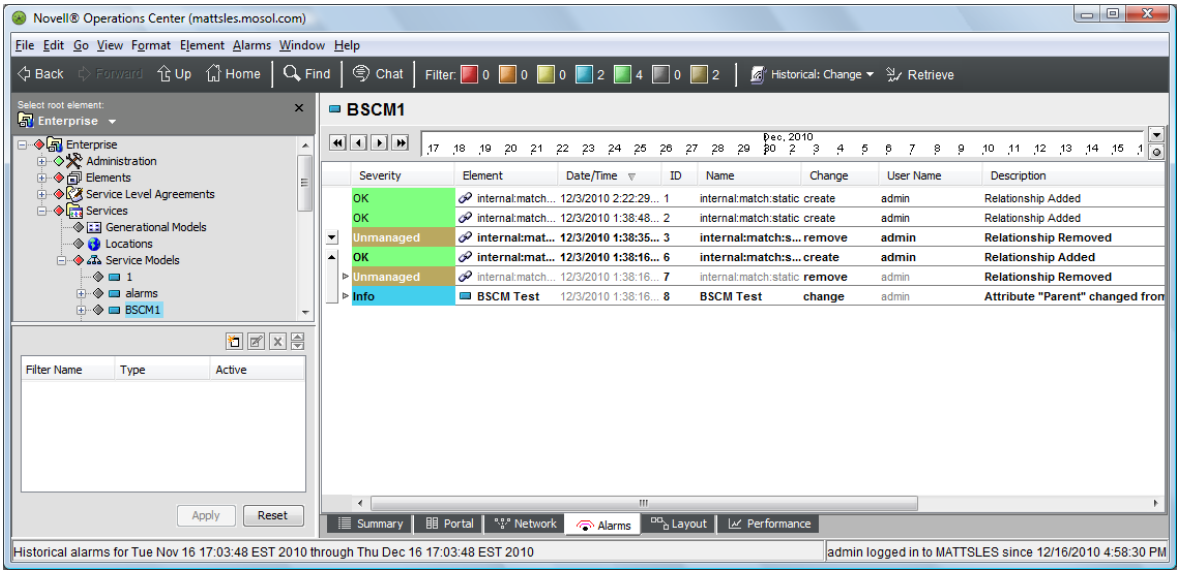
If no version tracking data is available, either version tracking has not been properly configured or no changes were made that are recorded by version tracking.

For more information about alarms in general, see "Filtering and Managing Alarms" in the *Operations Center 5.5 User Guide*.

3.2 Alarms View

When version tracking records a change, it appears as a change event in the Alarms view in the Operations Center console:

Figure 3-1 *Change Events in the Alarms View*

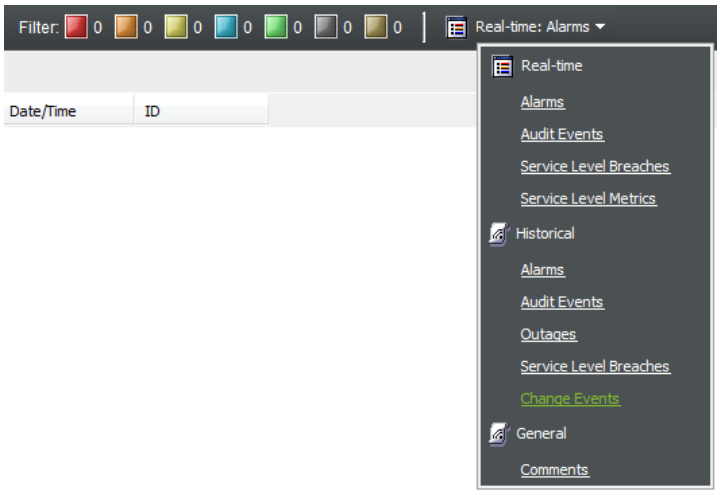


Change events are categorized as historical and appear much the same as other historical alarms.

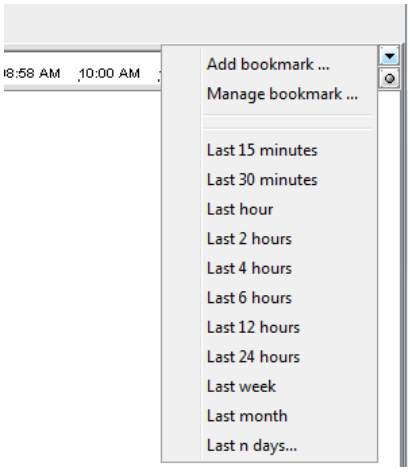
If you do not see the *Change Events* as an option for historical alarms, version tracking has not been configured.

To view change events:

1. In the Operations Center console, select an element, then click the *Alarms* tab.
2. Select *Change Events* from the toolbar:



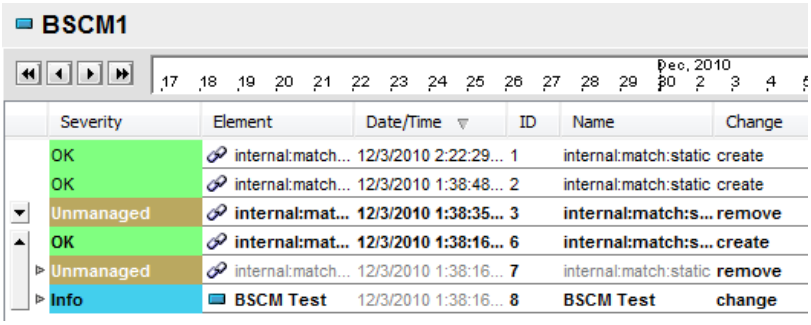
3. Select a time from the drop-down menu on the right side of the timeline:



4. Click *Retrieve*.

   If the message `No alarm history found for selected element` displays, either no changes were made that are recorded by version tracking or version tracking has not been properly configured.

5 Click the arrow button next to a group to expand it to view additional alarms:



The Alarms view shows certain columns by default. To show the *Severity*, *Element*, *Data/Time*, *Change*, *User Name*, and *Description*, right-click the field names, then select the fields to display.

3.3 Alarms Portlet in the Dashboard

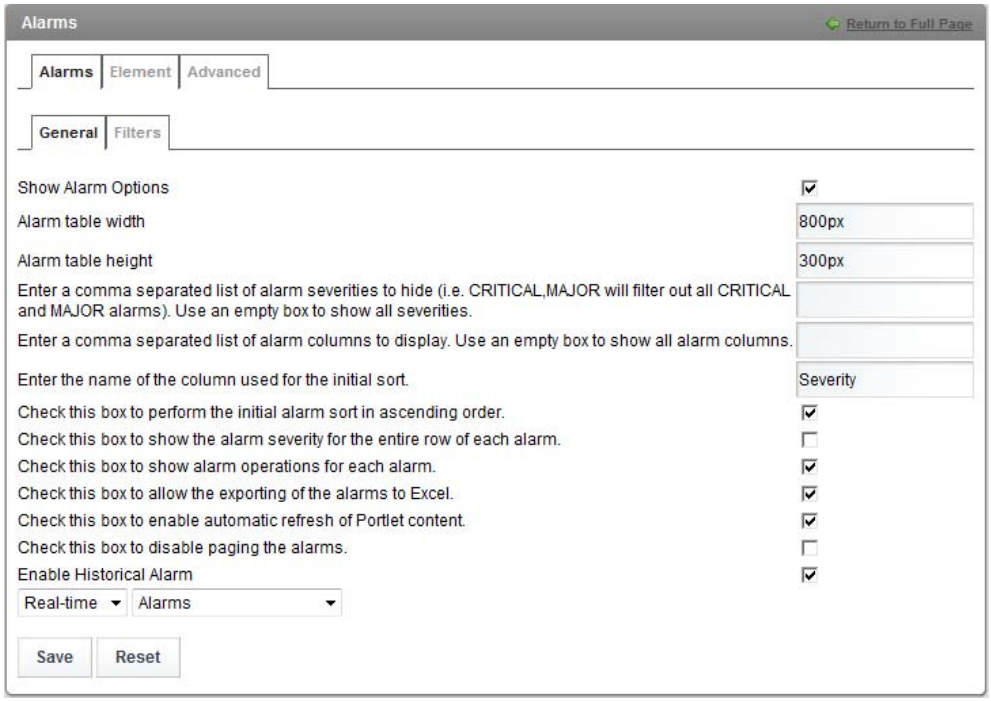
Change events can also be monitored and used in reports by using the Alarms portlet in the Operations Center dashboard.

To set up the Alarms portlet for change events:

1 In the dashboard, add the Alarms portlet to a page.

For more information about the Operations Center dashboard and the Alarms porlet, see the *Operations Center 5.5 Dashboard Guide*.

2 Click *Options* and select *Preferences* and configure the portlet on the *General* tab:



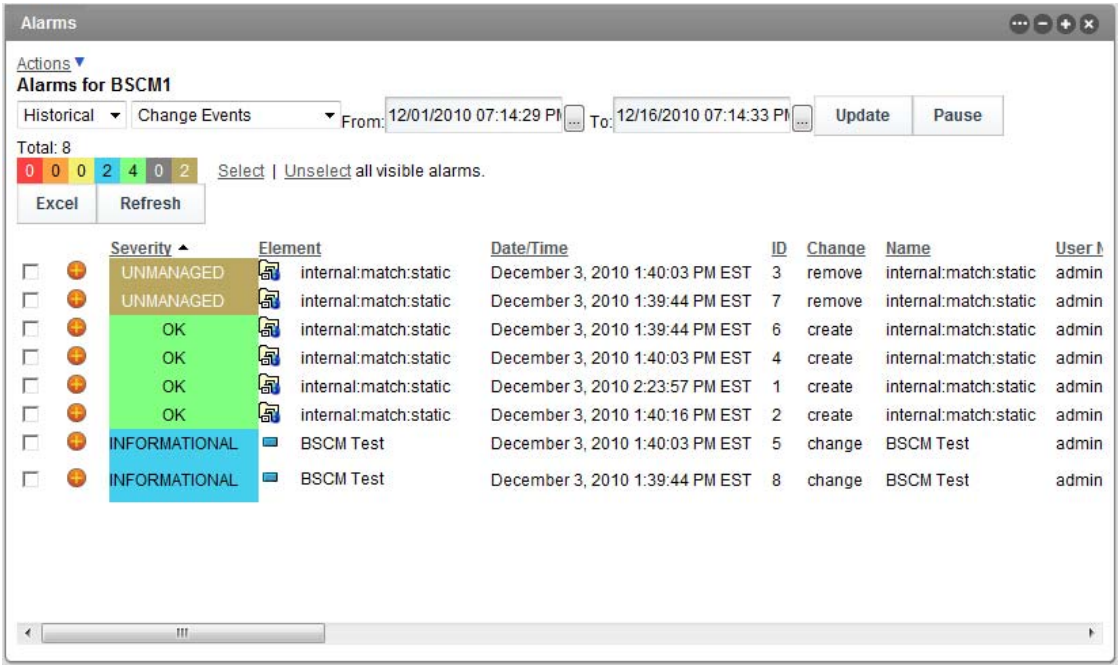
3 Select the *Enable Historical Alarms* check box to allow Change Events to be viewed in the Alarms portlet.

4 Click *Save* to save the settings, then *Return to Full Page*.

5 From the Alarms portlet, select *Historical*, then select *Change Events* for the alarm type:



6 Use the calendar selectors to select a date range, then click *Update*.



For more information about the Operations Center dashboard, see the *Operations Center 5.5 Dashboard Guide*.

7 Click *View Mode* to view the change events:

3.4 SQL Views

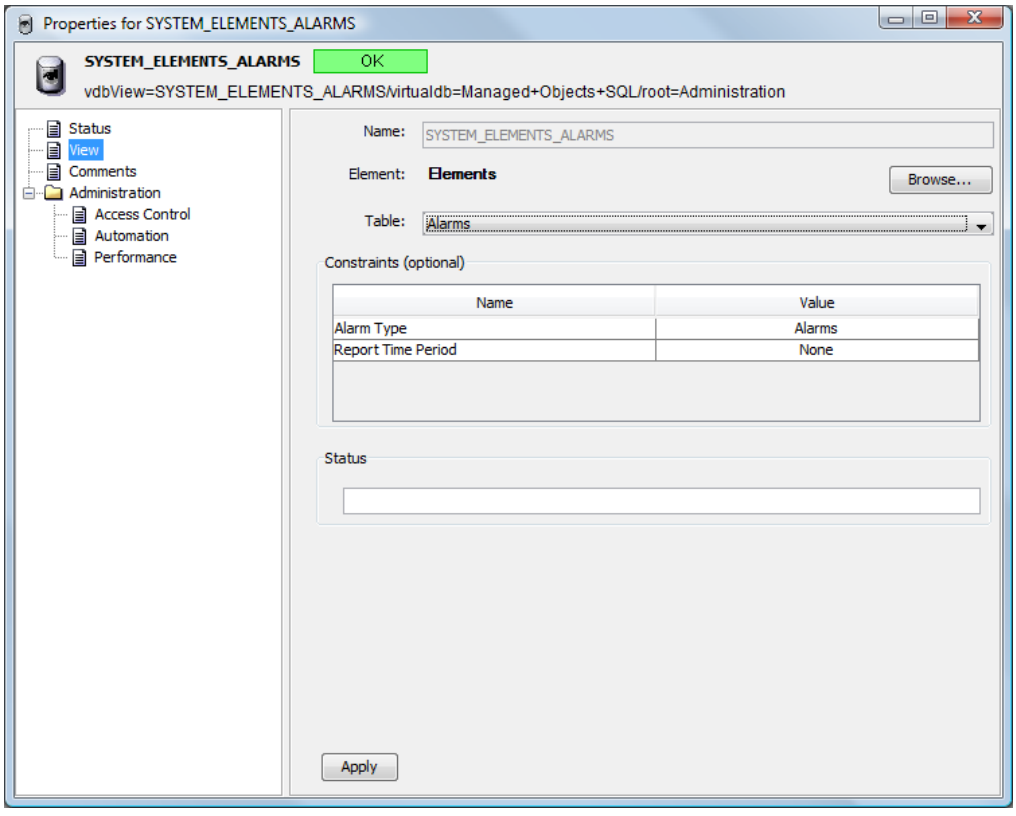
Change events recorded by version tracking are stored in tables that are accessible through views in SQL Views. Change events are accessible from the same tables and views as alarms, specifically the `system_elements_alarms` view, the `system_servicemodels_alarms` view, the `Alarms` table, the `AlarmsConstructed` table, and the `AlarmsNamed` table.

To use change events in SQL Views:

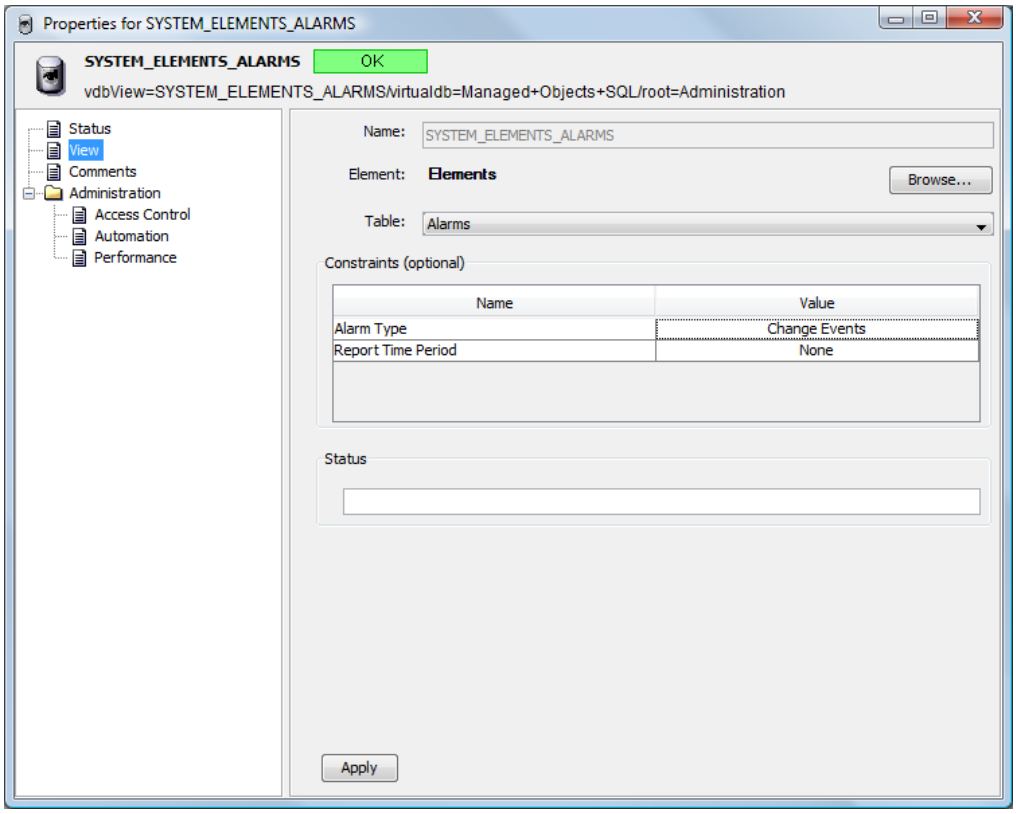
1 In the Operations Center console's Explorer pane, expand *Administration* > *SQL Views*.

2 Right-click either *SYSTEM_ELEMENTS_ALARMS* or *SYSTEM_SERVICEMODELS_ALARMS*, then select *Properties*.

3 Select *View*:



4 Select *Change Events* as the value for *Alarm Type*.



5 Click *Apply*.

6 Configure SQL Views if you have not done so already.

For more information about configuring SQL Views, see the *Operations Center 5.5 SQL Views Guide*.

7 Extract the performance data into Microsoft Excel* or Business Objects Crystal Reports* and create a report.

For more information about extracting performance data using SQL Views, see the *Operations Center 5.5 SQL Views Guide*.

4 Creating Time Comparisons

Many changes can occur to an element over time. A comparison takes the starting time and shows the last changes made to the element and its children before a specific end time. In other words, it compares elements from an end point in time to an initial baseline.

This data can be viewed in the Operations Center console and saved to a text file, XML file, or HTML file. It is not available in SQL Views.

- Section 4.1, “Data for Comparison Over Time,” on page 23
- Section 4.2, “Creating a Baseline Comparison,” on page 24

4.1 Data for Comparison Over Time

When comparing an element from one point in time to another, the following data is available:

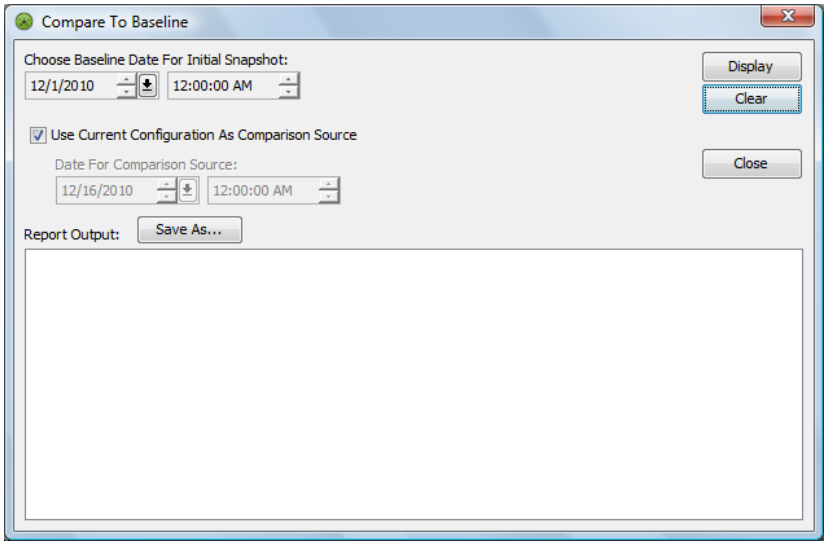
- **Name:** The name of the element as shown in the hierarchy. The comparison shows the element that was selected, as well as its relationships, including parents and children.
- **Type:** The type of change that was made, such as a change to an attribute.
- **Last changed by:** The user name of the account used to make the last change in the comparison.
- **Last changed on:** The date (in the format mm/dd/yyyy) and time (in the format hh:mm:ss AM/PM) that the last changed was recorded.
- **Description:** What the last change was. For example, if an attribute is added, the description is “Value set to” followed by the new value.

4.2 Creating a Baseline Comparison

Comparison data can be viewed and saved through the *Compare* option in the Operations Center console.

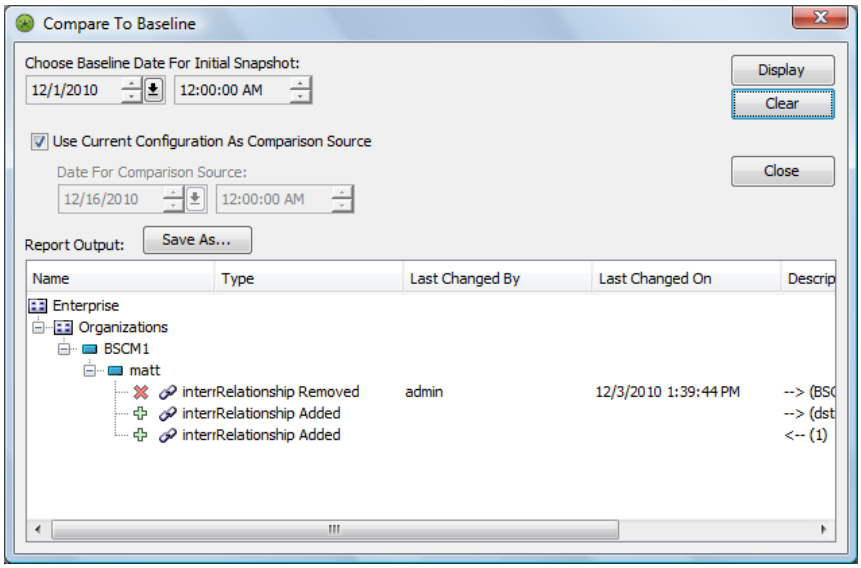
If you do not see a *Compare* > *To Baseline* option in the right-click menu for an element, either there were no changes were made to the data that version tracking records, or version tracking has not been properly configured.

1 In the Operations Center console, right-click the element for which you want comparison data, then select *Compare* > *To Baseline* to open the Compare to Baseline dialog box:



2 Select the baseline date, then either select to compare it to the current configuration, or select a date for comparison.

3 Click *Display* to show the relevant comparison data:



4. Click the + next to an element to open additional lines of data.
5. (Optional) Click *Save As* to save the data into a file, then do the following:
   - **5a** Select the location for saving the file.
   - **5b** Specify a file name with the appropriate extension.
     The file can be saved as text (`.txt`), XML (`.xml`), or HTML (`.html`).
   - **5c** Click *Save*.

5 Creating Element Comparisons

Elements can be compared to each other to show property and relationship differences. The elements can be any elements in the Operations Center hierarchy, including those under Services or Service Level Agreements.

This data can be viewed in the Operations Center console and saved to an XML or HTML file. It is not available in SQL Views.

- Section 5.1, “Data for Element Comparison,” on page 27
- Section 5.2, “Creating an Element Comparison,” on page 28

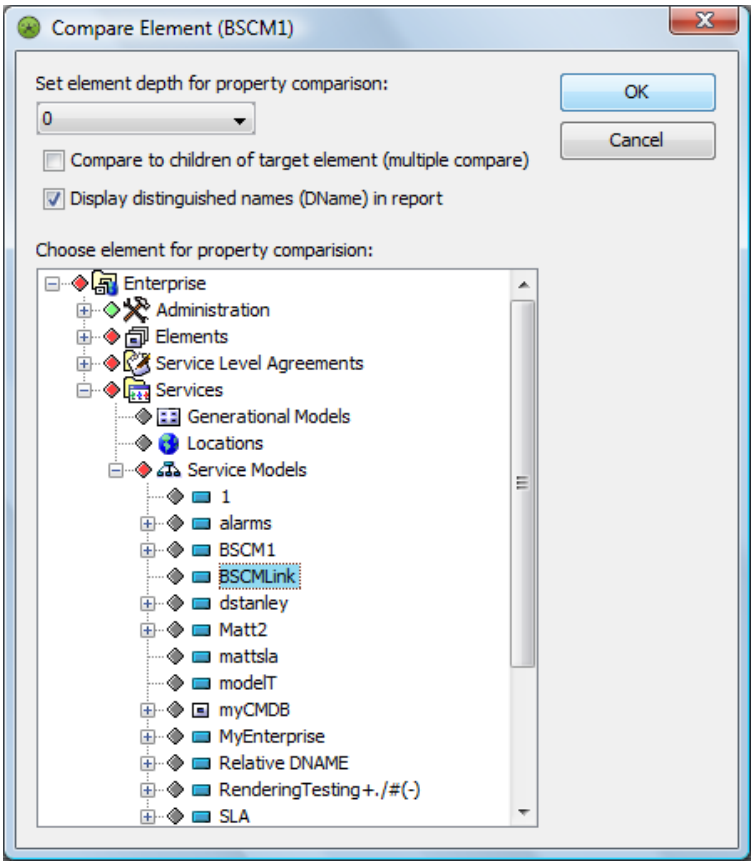
5.1 Data for Element Comparison

When comparing elements, the data displayed depends on the type of elements, as well as the properties and relationships associated with those elements. Typically the data indicates the properties that are in one element and not the other, or what the difference is in properties.

5.2 Creating an Element Comparison

Comparison data can be viewed and saved through the *Compare* option in the Operations Center console:

Figure 5-1 *Compare Element Dialog Box*



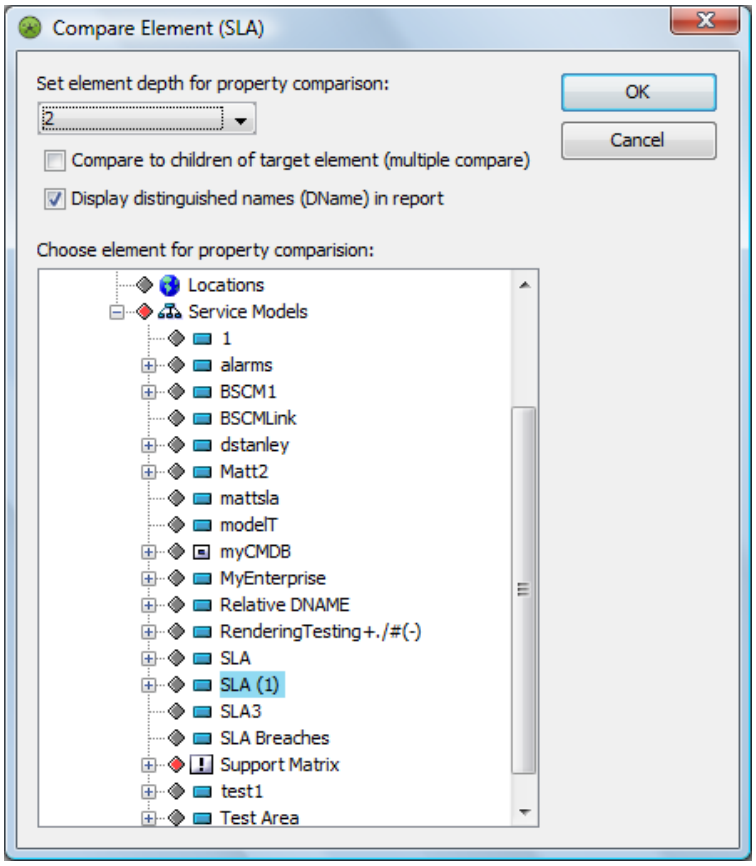
The options for comparing elements are:

- Comparing one element to another element
- Comparing one element to the children of another element
- Comparing the children of one element to the children of another element

If you do not see a *Compare* > *To Element* option in the right-click menu for an element, either no changes were made for which version tracking records data, or version tracking has not been properly configured.

To use the *Compare* option:

1 Right-click the element for which you want comparison data, then select *Compare* > *To Element*:



2 Select a number for the *Set element depth for property comparison* option.

This determines the number of levels of children in the hierarchy to include in the report. For example, you can compare two SQL servers and set the element depth to 2 or greater to see the differences between the children.

3 To compare children, select the *Compare to children of target element (multiple compare)* option.

For example, you can compare an SQL server to all the children in its sibling SQL server.

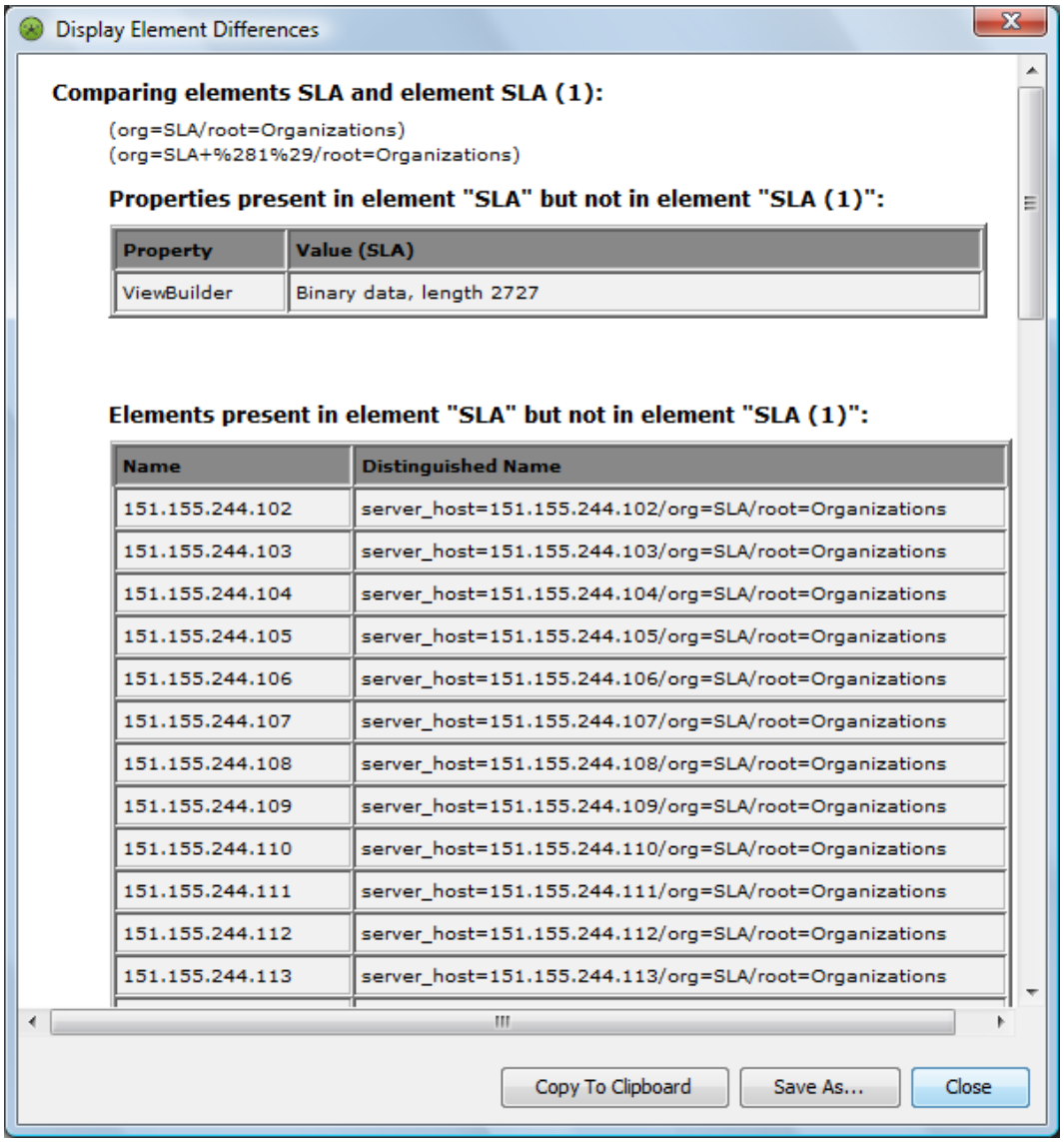
4 To display DNames in the report for all elements, click the *Display distinguished names (DName) in report* option.

This option is selected by default.

5 In the *Choose element for property comparison* box, select the element where you want to compare.

You can click the + to open the hierarchy to reveal more elements.

6 Click *OK*.



7 (Optional) Click *Copy to Clipboard* to save the data to the clipboard on your computer.

After the data is on the clipboard, you can paste the data into other software, such as Microsoft Word.

8 (Optional) Click *Save As* to save the data into a file, then do the following:

8a Select the location for saving the file.

8b Specify a file name with the appropriate extension, then click *Save*.

The file can be saved as XML (`.xml`) or HTML (`.html`).

6 Examples

Version tracking has many uses, including monitoring business-critical applications and creating change logs, audit trails, and compliance reports. Version tracking reports can be used to track IT changes in your infrastructure to ensure that those changes were properly approved. Version tracking can also be used to monitor changes in your Operations Center server; for example, you can run a service configuration model, then run it again and view any changes.

The following examples are included in this section:

- Section 6.1, “Service Monitoring,” on page 31
- Section 6.2, “IT Compliance Reporting,” on page 33
- Section 6.3, “Configuration Standardization,” on page 34

6.1 Service Monitoring

Assume that you have a service that is dependent on different aspects of your infrastructure, including data from asset management, change management, and incident management. There are certain critical properties of each of these aspects that a senior manager wants to monitor. You can use version history to do this.

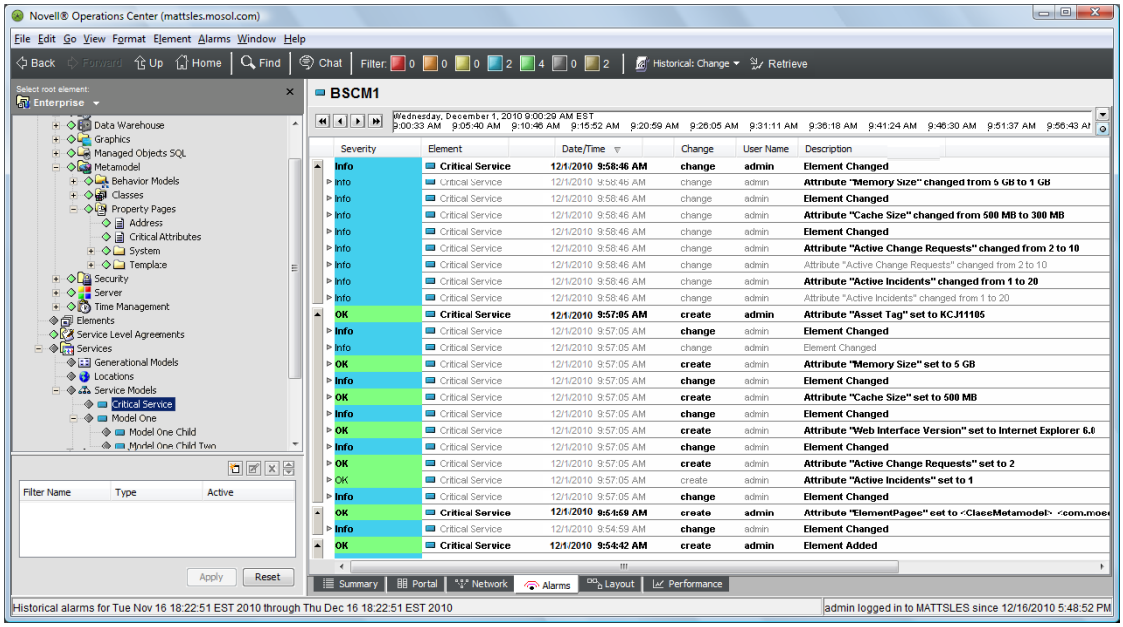
1 Set up service configuration for an element and its children so that the elements have properties that match the aspects of the infrastructure to be monitored.

   The property page has the following fields:

   - Asset tag # from asset management
   - Active change requests from change management
   - Active incidents from incident management

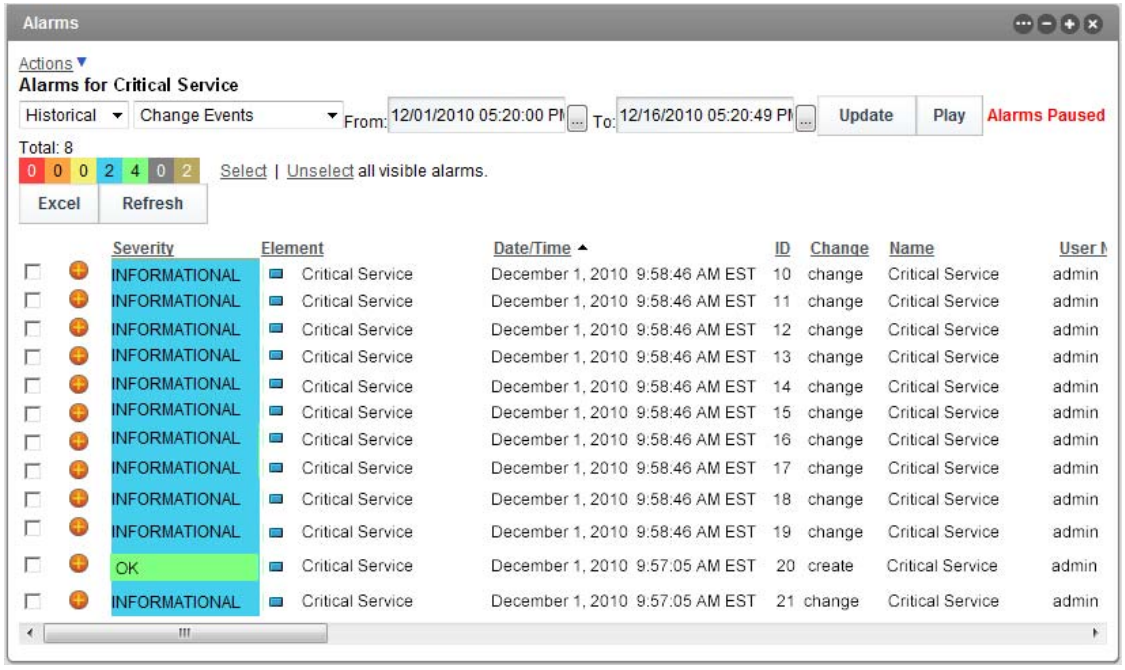
2 Create a new element called Critical Service, and apply the property sheet with these properties to it, so the properties are changed.

The Alarm view in the Operations Center console displays these change events. For information on how to view change events in the Alarms view, see Section 3.2, "Alarms View," on page 16.



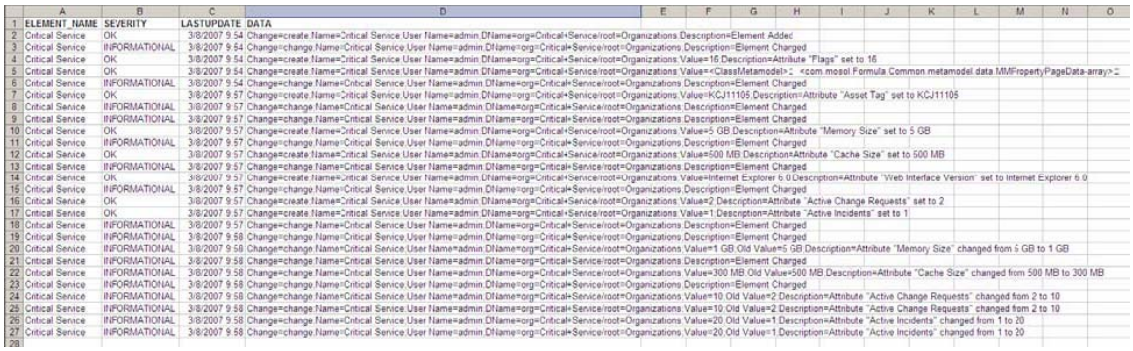
These change events are also displayed in an Alarms portlet in the dashboard. For more information on how to configure the dashboard portlet for change events, see Section 3.3, "Alarms Portlet in the Dashboard," on page 18.

Figure 6-1 *Change Events in the Alarms Portlet*



3 In addition to monitoring these events, report on them:

Figure 6-2 *Excel Report Created Using SQL Views*



	A	B	C	D
1	ELEMENT_NAME	SEVERITY	LASTUPDATE	DATA
2	Critical Service	OK	3/8/2007 9:54	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Added
3	Critical Service	INFORMATIONAL	3/8/2007 9:54	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
4	Critical Service	OK	3/8/2007 9:54	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=16,Description=Attribute "Flags" set to 16
5	Critical Service	OK	3/8/2007 9:54	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=<ClassMetamodel>[...<com.mosol.Formula.Common.metamodel.data.MMPropertyPageData-array>[...
6	Critical Service	INFORMATIONAL	3/8/2007 9:54	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
7	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=KCJ11105,Description=Attribute "Asset Tag" set to KCJ11105
8	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
9	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
10	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=5 GB,Description=Attribute "Memory Size" set to 5 GB
11	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
12	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=500 MB,Description=Attribute "Cache Size" set to 500 MB
13	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
14	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=Internet Explorer 6.0,Description=Attribute "Web Interface Version" set to Internet Explorer 6.0
15	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
16	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=2,Description=Attribute "Active Change Requests" set to 2
17	Critical Service	OK	3/8/2007 9:57	Change=create,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=1,Description=Attribute "Active Incidents" set to 1
18	Critical Service	INFORMATIONAL	3/8/2007 9:57	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
19	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
20	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=1 GB,Old Value=5 GB,Description=Attribute "Memory Size" changed from 5 GB to 1 GB
21	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
22	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=300 MB,Old Value=500 MB,Description=Attribute "Cache Size" changed from 500 MB to 300 MB
23	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Description=Element Changed
24	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=10,Old Value=2,Description=Attribute "Active Change Requests" changed from 2 to 10
25	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=10,Old Value=2,Description=Attribute "Active Change Requests" changed from 2 to 10
26	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=20,Old Value=1,Description=Attribute "Active Incidents" changed from 1 to 20
27	Critical Service	INFORMATIONAL	3/8/2007 9:58	Change=change,Name=Critical Service,User Name=admin,DName=org=Critical+Service/root=Organizations,Value=20,Old Value=1,Description=Attribute "Active Incidents" changed from 1 to 20
28				

- For this, you can use SQL Views by setting the SYSTEM_ELEMENTS_ALARMS view to capture alarms of the type Change Events.
- Then use this view to create a report in your reporting tool (such as Microsoft Excel or Business Objects Crystal Reports).

For more information on version history and SQL Views, see Section 3.4, "SQL Views," on page 20.

For more information about SQL Views, see the *Operations Center 5.5 SQL Views Guide*.

6.2 IT Compliance Reporting

Assume that you have a defined configuration for your IT resources, including servers. Each month, you must report on any changes to those servers, particularly whether any servers were removed or added to the infrastructure.

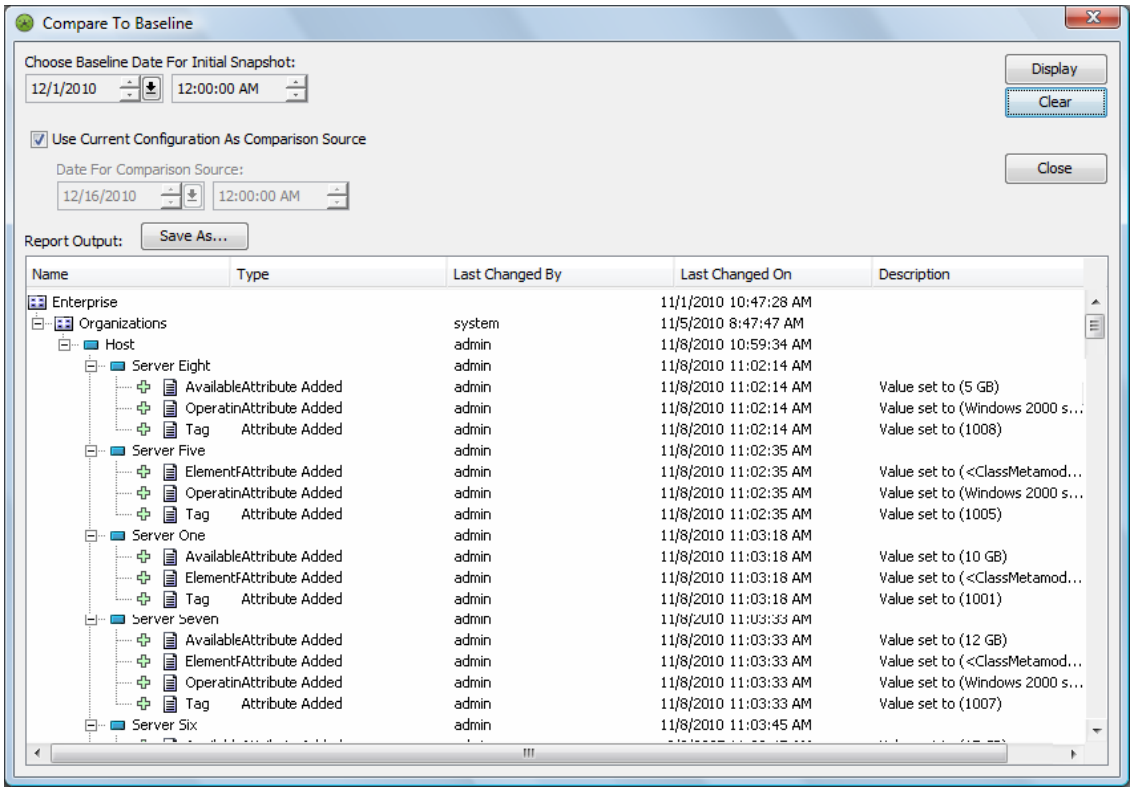
To set up IT compliance reporting:

1 Set up Operations Center so that you have a service model named Hosts to which new servers that meet specific matching rules are automatically added and removed.

Specific attributes of each server are also tracked, using a property sheet that has the following fields:

- Server Tag Number
- Disk Space Available
- Operation System Version

2 Use the Compare function to see what has changed by right-clicking *Hosts*, then selecting *Compare > To Baseline*.



3 Save the report as an HTML file for use in a report that is placed on your company's intranet.

For more information, see Section 4.2, "Creating a Baseline Comparison," on page 24.

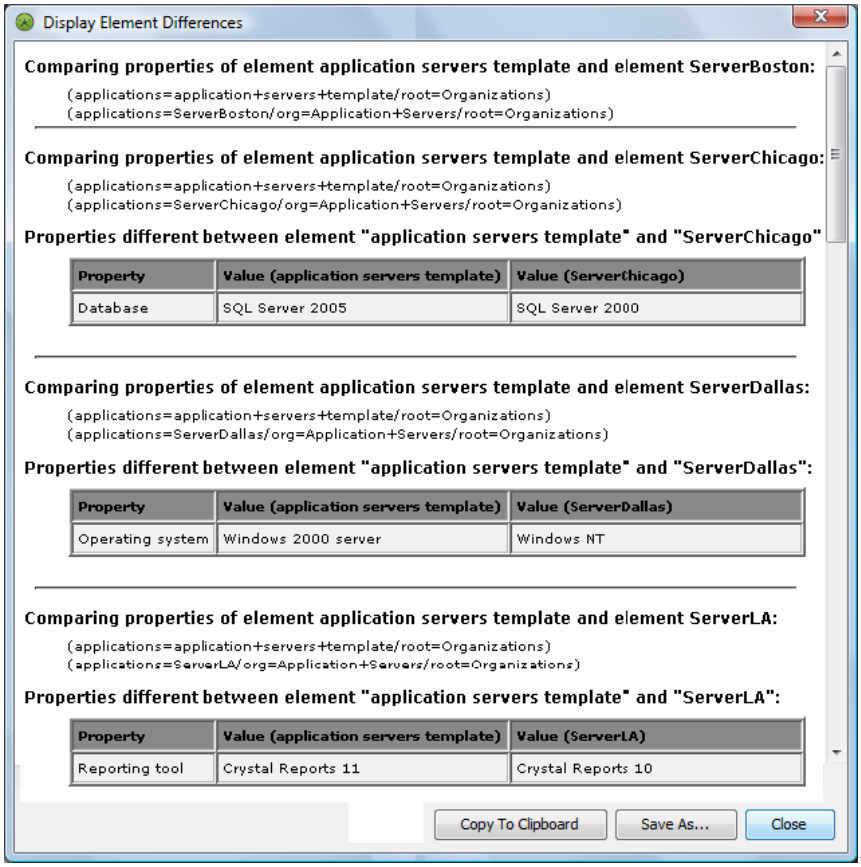
6.3 Configuration Standardization

Assume that a specific set of servers in your IT infrastructure support an application that is critical to your business. That application requires the server to have specific software installed on it. If any of the servers do not have that software, you should know so that you can investigate why and address any potential problems before your critical application is negatively impacted. The servers are located in offices around the country.

- Using Operations Center and other discovery tools, you locate your application servers in your infrastructure and gather information about the servers in Operations Center. You place all the discovered application servers into a service model called Application Servers.
- You create a behavior model that assigns a specific property page to each of the application servers. That property page has the *Database*, *Operating system*, and *Reporting tool* fields.
- You create another element called Application Servers Template under Service Models, assign the same property page to it, then add the correct values to each of the properties as follows:
  - Database: SQL Server 2005
  - Operating system: Windows 2000 server
  - Reporting tool: Crystal Reports 11

- To determine if any of the application servers have different properties, you compare them to the application servers template. Right-click *Application Servers Template*, select *Application Servers*, and compare it to its children. For specific instructions, see Section 5.2, "Creating an Element Comparison," on page 28.
- You compare the application servers template to ServerBoston, ServerChicago, ServerDallas, and Server LA and get the following results:

Figure 6-3 *Differences Between Elements*



No results are shown for ServerBoston, which means that it matches the application servers template and has the correct configuration. Three of the servers have values that are not correct. ServerChicago has SQL Server 2000 instead of SQL Server 2005; ServerDallas has Windows NT for the operating system and not Windows 2000 server; and ServerLA has the old version of Crystal Reports.

You copy this information to the clipboard and save it to a Microsoft Word file that you e-mail to the IT managers in Chicago, Dallas, and LA. You can also paste the data into other applications or save the data as either an XML or HTML file.