SIEMENS

XHQ

ANS User's Guide

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER
Indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ **WARNING**
Indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ **CAUTION**
Indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
Indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage. See the topic, Visual Cues for Online Viewing, for additional XHQ-specific notices.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ **WARNING**
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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siemens.com/xhq

Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit https://www.siemens.com/industrialsecurity.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

For the Siemens Security Advisory, visit https://www.siemens.com/industrialsecurity.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under https://www.siemens.com/industrialsecurity.

While every effort is made to ensure the accuracy of content, the XHQ product documentation set (which includes online help) could contain inaccuracies or out-dated material (which includes product screenshots and images) due to the large number of product enhancements being added. As such, the documentation set is subject to change at any time without notice. Refer to the README for documentation corrections and addendum. Please note, updates to the documentation set are reflected in the next general availability major release of XHQ.

Table of Contents

About This Guide

Conventions Used in This Guide

The following formatting cues are designed to allow you to quickly locate and understand the information provided in this guide.

Formatting Conventions

Convention	Example
Acronyms are spelled out the first time they appear.	Alert Notification System (ANS)
Bold is used for menu names, command options, and dialog box names in primary task procedures.	From the **XHQ Workbench**, go to the **Add** menu and click **New Component**.
Italic is used for glossary terms.	The first step in building this model is to develop reusable software building blocks, called *components*.
A **`monospaced font`** is used for program and code examples.	The subdirectory `\log` is automatically created below the location you choose. All log files are written to this subdirectory. **`C:\XHQ`**
Key combinations appear in uppercase, bold. If joined with a plus sign (+), press and hold the first key while you press the remaining keys.	**CTRL+B**
The *.x* (in italics) is used to indicate release numbers of a product.	Enable (by checking) the **Use Java *x.x.x_xx* for <applet>** option.
In See Also notices, sub-chapter headings are in italics, chapter headings are in quotes, and guide titles are in bold.	For more information, go to the *About install.properties* topic located in the "Working with PROPERTIES Files" chapter of the **XHQ Administrator's Guide**.

Visual Cues for Online Viewing

This document uses the following styled paragraphs.

Notes are used to offer information that supplement important points of the main text. Tips suggest certain techniques and procedures that may help you achieve your task quickly.

Depending on your network configuration, include domain information only if the domains are different.

See Also notices provide you with additional references to similar topics and/or concepts within the documentation set. Sub-chapter headings are in italics, chapter headings are in quotes, and guide titles are in bold.

For more information, go to the About the Options Menu topic located in the "Working with PROPERTIES Files" chapter of the **XHQ Administrator's Guide**.

Web References point you to external web sites that give additional information on the given topic.

Refer to Microsoft support information with regards to the various server settings for application performance and network utilization.

`http://support.microsoft.com`

Tips provide additional hints to help you use the product more efficiently.

Use the `NavbarWestVerticalOffset` property to make fine adjustments in pixels. The upper, left-hand corner is the origin. The positive horizontal direction moves to the right and the positive vertical direction moves down.

Important notices provide information that are required to completing a given task.

XHQ must run as a domain user.

Warnings tell you that failure to take or avoid a certain action could result in loss of data or application malfunction.

WARNING

Do not modify the `shutdown.dat` template file.

Related XHQ Product Documentation

The XHQ documentation set includes the following titles.

XHQ Documentation Set

Title	Target Audience
XHQ Administrator's Guide Provides the steps required to begin administering XHQ. It also covers security and access, property settings, redundancy, and localization.	Administrators
XHQ ANS User's Guide Learn how to use and administer the XHQ Alert Notification System (XHQ ANS).	ANS Users, Administrators
XHQ Backup and Recovery Guide Learn how to properly backup XHQ.	Administrators
XHQ Connection Guide Provides information on injecting an XHQ-supported connector type and configuring the connection.	Connector Developers
XHQ Developer's Guide Introduces the XHQ Development Client (Workbench and Solution Builder) user interface and provides information on how to set-up XHQ, develop reusable components, create views, and build a solution hierarchy.	Content and Solution Developers
XHQ Getting Started Gives you step-by-step instruction on how to set up your model and solution.	Content, Connector, and Solution Developers
XHQ Installation Guide Provides the system requirements, installation instructions, and upgrade information for the current release of the XHQ System.	Administrators
XHQ Integrated Data Gateway Guide Includes information on the ADO.NET and the XHQ OPC UA Server.	Application Engineers, Integrators
XHQ Performance Analytics Guide Learn how to use the Engineering Environment to enable the generation of the processes necessary to extract and transform data for source systems, and populate the XHQ Data Store and Data Mart.	Solution Developers/Users, Analysts
XHQ Performance Management Guide Learn how to use Target Management to monitor performance indicators and eLogs to create shift reports.	Administrators, End Users
XHQ Reference Guide Lists the functions and methods used in XHQ, and provides examples,	Content and Solution Developers

Title	Target Audience
usage notes, and parameter descriptions.	
XHQ Reporting Services Guide Introduces the XHQ Reporting Services and provides instruction on how to connect to an XHQ data source.	Application Engineers, End Users
XHQ SDK Reference Guide Provides a set of development tools that allows you to create applications that extend XHQ. Includes information on the Client API and Web Services.	Application Engineers, Integrators
XHQ Solution Design and Architecture Provides best-practice examples for XHQ solution design. Includes information on tag synchronization.	Solution Architects
XHQ Solution Viewer User's Guide Gives you step-by-step instruction on how to access your solution through a browser client and set browser preferences.	All End Users
XHQ System Guide Contains information regarding secure handling of an XHQ implementation.	Administrators, Application Engineers, Integrators
XHQ Trend Viewer User's Guide Learn how to use the XHQ Trend Viewer to view both real-time and historical data.	All End Users
XHQ Visual Composer Guide Provides end-user information for the XHQ Visual Composer and associated programs, which are used in the development of presentation content.	Content Developers

Contacting Customer Support

For general XHQ product support or related questions, pre-registered customer or partner support staff with a valid XHQ customer support agreement may contact the XHQ Customer Support Team using any of the following means:

- **Web Portal**

  The support portal leverages a system called GTAC (Global Technical Access Center). GTAC provides one common support entry point for many Siemens products. It is available via this URL:

  https://www.siemens.com/gtac

  Customers must be pre-registered to be able to use the web portal. A log-in can be requested at any time by self-registering in the GTAC portal. Note, the end user "sold to" identifier is needed in order to register.

  Use of the support portal is the preferred means to report incidents to the XHQ Customer Support Team unless immediate interactive telephone assistance is required. The support portal is available twenty four hours per day/seven days per week ("24/7").

- **E-mail**

  support.xhq@siemens.com

- **Phone Support and Hours of Coverage**

  International: +1 (949) 448-7463

  U.S. only: +1 (877) 700-4639

  The following paid support levels are available:

  ### Bronze Support: 9/5

  9 x 5 hours support. 9 hours per day, 5 days per week. Monday to Friday. Daylight Saving Time is honored.

  Choice of one coverage zone out of the following options (default: Americas):

  - Americas (15-1 GMT)
  - Europe (8-17 GMT)
  - Asia (1-10 GMT)

  Excludes national holidays as defined by the following countries for the related coverage zone:

  - USA (Americas)
  - Germany (Europe)
  - Singapore (Asia)

  Example Americas: *Implies coverage from 7:00 AM to 5:00 PM, Pacific Time, Monday to Friday, excluding US national holidays.*

  ### Silver Support: 24/5

  24 x 5 hours support. 24 hours per day, 5 days per week. Monday to Friday. Daylight Saving Time is honored.

  Choice of one coverage zone out of the following options (default: Americas):

  - Americas
  - Europe
  - Asia

  The weekly start/end times of coverage follow the local times of the following countries in each coverage zone:

- California/USA (Americas)
- Germany (Europe)
- Singapore (Asia)

Example Americas: *Implies coverage from midnight on Sunday until midnight on Friday, Pacific Time, Monday to Friday.*

Gold Support: 24/7

24 x 7 hours support. 24 hours per day, 7 days per week.

- **Postal Mail**

  Siemens Product Lifecycle Management Software, Inc.

  XHQ Operations Intelligence

  Attn: XHQ Customer Support Department

  6 Journey, Suite 200

  Aliso Viejo, CA 92656, USA

General Feedback and Comments

Please send an e-mail to:

info.xhq@siemens.com

Siemens Product Lifecycle Management Software, Inc. and affiliated Siemens Industry Software companies (collectively referred to as "SISW") are committed to working with our customers. Your comments, suggestions, and ideas for improvements are very important to us. Thank you for taking the time to send us your feedback.

Set-up Checklist

All install-related information and procedures for XHQ are thoroughly covered in the *XHQ Installation Guide*. Refer to the README for a list of possible migration and installation issues.

A successful set-up of XHQ ANS requires some considerations prior to, during, and after installation. Use the following checklist to guide you.

Checklist for XHQ ANS Setup

- ☐ Verify that software, hardware, and free disk space requirements have been met.

  See the topic, *Requirements and Pre-requisites*, located in the XHQ Installation Guide.

- ☐ Install the XHQ Platform, which automatically installs the XHQ Alert Notification System (XHQ ANS) feature.

  The installation procedures are located in the *XHQ Installation Guide*.

- ☐ All Oracle client software needed by the XHQ Server should be installed after the XHQ installation.

- ☐ To use XHQ ANS, you must enable the XHQ Application Server.

  See Also: For information on how to start the XHQ Application Server, go to the topic, *About xhqboot.properties*, located in the XHQ Administrator's Guide.

- ☐ Backup (and test recovery of) the XHQ High-Performance Database Engine for the XHQ.

  For the procedures to backup this database, see the topic, *High-Performance Database*, located in the XHQ Backup and Recovery Guide.

XHQ ANS Limits and Set-up Scenarios

The following scenarios provide a best-case (Scenario 1) and a worst-case (Scenario 2) set-up.

Scenario 1

These assumptions are not to be construed as maximum limits of any sort on any specific item and the design is not intentionally restricted to these rates or counts. Rather, they are intended as a reasonable, if large, usage scenario to provide concrete numbers for selecting among design alternatives. The final design should be able to accommodate these numbers and rates with reasonable performance.

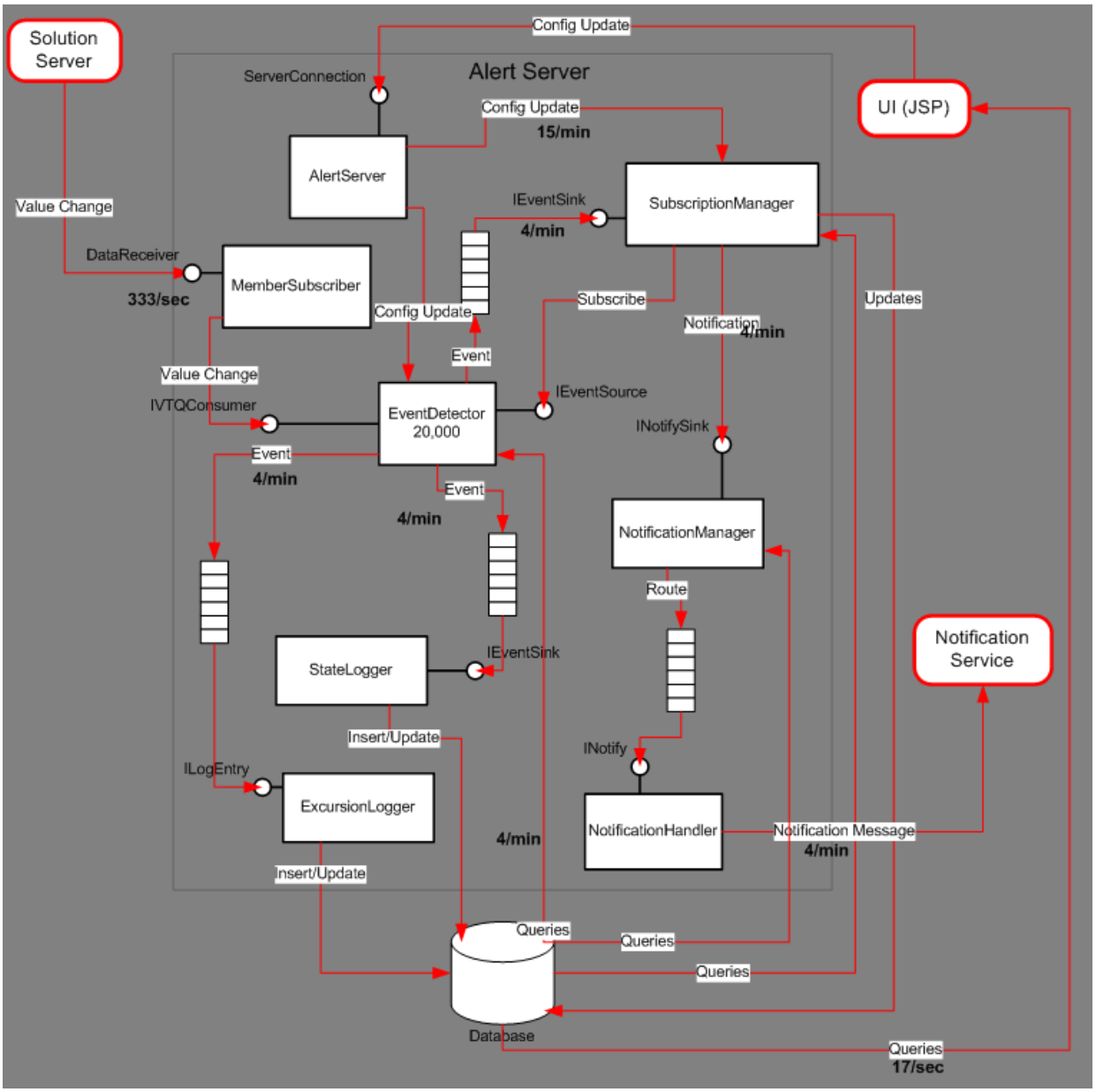
With that said, to ensure adequate performance, we recommend you do not exceed the total implied performance of the example provided in Scenario 1.

In this first scenario, there are three (3) subscriptions per definition that the related backend (for example, OSISoft PI) has the capacity to handle the throughput. In addition, the XHQ Server is sized adequately and manages the following set-up:

- 20,000 alertable conditions are defined and continuously monitored;
- One (1) XHQ primitive member subscription is required per condition;
- Each subscribed XHQ member value is updated once per minute (which equals a total of 333 value updates per second);
- One excursion (condition becomes active, then inactive) per week for each monitored condition (which equals 3,000 excursions per day/2 excursions per minute/4 condition state changes per minute/2 Active and 2 Inactive per minute);
- 1,000 concurrent ANS users;
- 50% of the users are subscribed to any given condition;
- 25% of the users have requested remote notification on condition change to Active (75% subscribe only for viewing the Alert Summary List and Log online);
- 20 notifications are sent to each requesting user per day (which equals 3.5 notifications per minute);
- Alert Summary List display is viewed/refreshed once per minute by each user (which equals 17 refreshes per second);
- 20 ANS configuration changes per user per day (which equals 15 changes per minute).

The design and support limit for one XHQ server is 30,000 alertable conditions. Multiple XHQ servers can be used if a larger solution is required.

A following diagram the internal workings of ANS showing the related flows is included below for better comprehension of the associated system load.



Scenario 2

This worst-case set-up is provided for comparison.

5000 [Deviation] definitions * 4 member subscription * (1 tag value member + 1 units member + 1 description member) = 5000 * 4 * 3. This equates to 60,000 members subscribed in XHQ, which implies 20,000 explicitly subscribed members from definitions and 40,000 implicitly subscribed due to VUD infrastructure.

In reality, you can assume there will actually be less than 5000*4 since a significant portion will likely be Hi-Lo alerts that have a maximum of 3 members (monitored value, high and low).

When subscribing this many tags, one item that will significantly impact the XHQ system is how the units and descriptions are updated when the tag collection is updated or refreshed. When that signal is found, the entire set of tags (for example, 20,000) are updated to get the latest copies of the units and descriptions. This is done by querying the tag collection for up to 1000 tags at a time. It is important to make sure that the tag collection is not "busy" all the time. For example, if it has many source collections that update frequently or at unpredictable times, the collection gets refreshed frequently and these queries get made for the units and description members. This may have a negative impact on the overall collection performance as it keeps the cache server busy.

In any case, chatter of the actual alerts is to be avoided. The target system should be designed to be well behaved and should not use ANS in a situation where there is a constant "alarm storm".

1 | Overview

The XHQ Alert Notification System (XHQ ANS) is a subsystem of XHQ Platform. It is designed to provide event detection, annunciation, logging and remote notification based on real time information accessible to the XHQ Server system, of which XHQ ANS is an integral part. Users access XHQ ANS configuration and other display tools from the XHQ NavBar, XHQ Views or from other Web pages, by direct URL references.

Why XHQ ANS?

XHQ ANS, in acting as a module, leverages the existing XHQ Platform from both a technological and an architectural perspective. This ensures the best performance with the least impact on valuable resources. Some of the core features of XHQ cross-over into the XHQ ANS domain and enable some of the following key benefits:

- Fully personalized alerts notify individuals or groups of deviations from their defined criteria, possibly on the same data.
- Personnel can now watch all critical data, even if they are not physically looking at it.
- XHQ ANS runs on top of XHQ, therefore the infrastructure is already in place. No additional hardware is needed.
- XHQ itself is a large-scale enterprise-level platform. XHQ ANS adds full functionality while consuming negligible resources, thereby maintaining performance.
- XHQ ANS monitors any data XHQ presents (business or operations data, simple or aggregate variables) and sends immediate notifications to support real-time decision making.

How XHQ ANS Works

All conditions to be monitored have a *definition*. Each definition is "owned" by a specific user. Each definition employs a "detection" technique, for example high/low limits. Each condition can be enabled or disabled. The XHQ ANS server software actively tracks enabled conditions. As data is received from back end systems, for example a process historian, the condition "state" is reevaluated. Conditions that are met are considered to be in an "active" state. Active conditions can be optionally – per its definition - logged to the XHQ ANS "excursion" log.

Conditions may be defined as *shared*. Shared definitions are visible to the group of users that are in the scope of this sharing as configured by the definition owner. Definitions that are visible to a given user, either his/her own definitions or those that are shared in his/her scope – can have *subscriptions*. Subscriptions are owned by the subscribing user, reference a particular definition, and provide the basis for *remote notifications*. Remote notifications involve the selective processing of some subset of the total definitions available to a particular user, and may be configured to automatically send email to a specified address. A "notification routing" is configured by a user and provides the mechanism by which remote notifications are sent. A user may have multiple notification routings configured and enabled at any given time each of which can reference different destination addresses, time-based scheduling, and miscellaneous other filters that can be set to limit these notifications to those of specific interest.

Many systems involving condition tracking have an "online" aspect and an "offline" aspect. Usually the offline activities include configuration activities that are then used to process and visualize online events. The XHQ ANS UI is a web-accessible set of tools that is always "online". That is to say that configuration of XHQ ANS definition, subscriptions, and so on, are done "on the fly". That said, one may think of the XHQ ANS UI as being divided into two general categories of displays: a) those used for configuration, and b) those used to view the results. For convenience, these may be reference to as "configuration" and "runtime", respectively.

The "runtime" screens include two primary tools: the Alert Status Display and the Alert Log Viewer. These are used to check current and logged condition information, respectively. There are many configuration screens including screens for Notification Routings, general Configuration, Alert Definition details, Subscription details, Notification Routings. Each of these, in turn, launches helper screens as needed.

One such "helper" screen is called the List Manager and comes in two flavors: one for subscription lists and one for definition lists. As noted above, the primary coinage in XHQ ANS are definitions, and, to a lesser extent, subscriptions. Given that there may be a need to organize these into manageable groups, XHQ ANS requires that all definitions and subscriptions be assigned to a specific "list". Lists are user-created and specified constructs and come in the definition list and the subscription list varieties. A definition list contains condition definitions; a subscription list contains subscriptions. A user may choose to have only one list or create as many as is needed.

Lists are helpful for many reasons. For example, subscriptions can be included in a subscription list and be disabled all together (that is, the subscription list itself can be disabled temporarily). Further, subscription lists are used as a filter when setting up notification routings for email delivery. Definition lists have an additional feature called "sections". Sections are created to further organize large numbers of condition definitions even further.

For example, a definition list may be used to represent a plant at some facility. The definition list sections may represent plant sections or equipment groups. XHQ ANS does not dictate the meaning of lists or sections; it simply provides them as a means for partitioning a (potentially large) monitoring strategy.

Condition definitions include the details for how the condition is to be tracked. There are several built-in "detection" techniques that borrow heavily from conventional alarm system detection methods. The list of built-in detector types includes: high/low limit detection, rate-of-change, deviation and staleness.

2 | How to Use XHQ ANS

This configuration was created from the **XHQ ANS TEST Repos**. If this repos is not available to you, then the names will not be applicable but the basic functionality remains the same.
For the most part, it is vital that each step be successfully completed before proceeding to the next step.

To access the XHQ Alert Notification System main UI

Starting XHQ ANS

To start XHQ ANS, the `ans.properties` file must be included in the repos. Verify that this file is in the location specified by the environment variable **`%XHQ_SERVER_REPOS%`** (which is typically `%SystemDrive%\XHQ\data\repos`).

Do one of the following:

- Open the **XHQ Solution Viewer with XHQ NavBar**. Then, on the XHQ NavBar toolbar, click the **Alerts** icon from the Button Bar.
  This launches the main XHQ ANS UI to the "Alert Status Display" tool.

or

- Open the **XHQ Solution Viewer with XHQ NavBar**. Then, click on the active (visible) **alert count indicator**.
  This launches the main XHQ ANS UI to the "Alert Status Display" tool.

or

- From **XHQ Performance Management**, under **Configuration** > **Alert Notification System**, click **browse**.
  This launches the main XHQ ANS UI to the "Alert Status Display" tool.

or

- Use a URL link to access from a browser (computer or mobile device).

To access XHQ ANS using a URL

Use this method to access ANS on a mobile device.

From a supported browser, you can launch XHQ ANS using the URL, `http://<server_name>/indx/ans/index.html`.

Where:

- **<server_name>** is the name of the machine on which XHQ (specifically, the web server) is running.

Example URLs:

- `http://globex1/indx/ans/index.html`
- `http://localhost/indx/ans/index.html`

For Alert Definitions with an ID, you can access the given Alert Definition using the URL, `http://<server_name>/indx/ans/#alertDefinition?defId=<id>`.

Where:

- **<server_name>** is the name of the machine on which XHQ (specifically, the web server) is running.
- **<id>** is the definition ID.

Example URL:

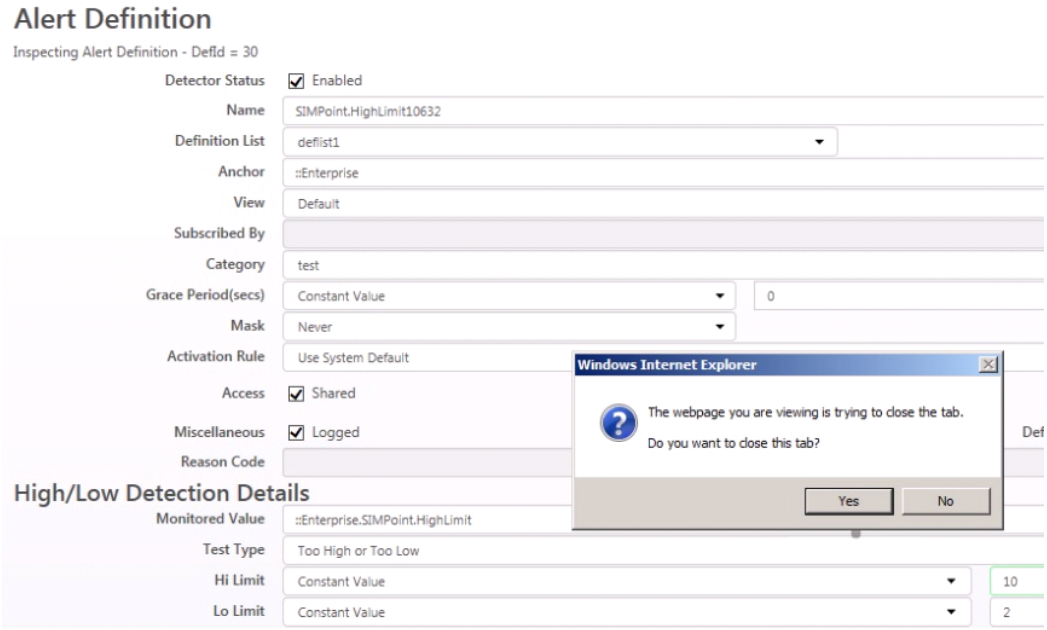
- `http://localhost/indx/ans/#alertDefinition?defId=5`

Editing Alert Definitions

You access the Alert Definition page using a URL. You make changes and click Save. The following message appears:

"The webpage you are viewing is trying to close the tab. Do you want to close this tab?"

Click **Yes** to ensure that your edits are saved. If you click No but you want to save your edits, then you must refresh the page, make your edits again, and click Yes at the prompt.



To show/hide the NavBar ANS icon

1. Using a text editor, create the `appletsettings.properties` file.
2. Type:

```
var xansInstalled = true;
```

   - To **show** the ANS icon (which is the default), set the value to **true**.
   - To **hide** the ANS icon, set the value to **false**.

3. Save this file in the location defined by the environment variable, `%XHQ_SERVER_REPOS%`.

To create a condition category

1. You must have:

- The XHQ ANS UI loaded.
- XHQ ANS Administrator permissions.

2. On the XHQ ANS toolbar, click the **Administration** button.
3. On the left-hand navigation panel, click **Code Keys**.
   The "Code Name Administration" screen appears.
4. For **Code Type**, select **ANS_CONDITION_CATEGORY** from the drop-down list.
5. On the upper right-hand area of the dialog, click the **Create Code Name icon** to add a category.

The "Create Code Name" dialog box appears.

6. For **Code Name**, enter **`OPERATING`**.
7. Click **OK**.
   This returns you to the Code Name Administration screen. There should now be two Categories: "General", which is the system default, and "Operating", which is the one you just added.

To assign Common Name to User

1. Open the Administration screen.
2. From the navigation panel, click **Users**.
   The "Users" panel appears.
3. Find your account name and double-click on the row.
   The "User Details" dialog box appears.
4. For **Full Name**, enter an appropriate identifying text and click **OK**.
   The updated entry in the Users list indicates the new full name.

To create a Definition List

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears, which consists of a "Definitions" and a "Subscriptions" area.
2. In the **Definitions** area, click the icon to the left of the **Definition Lists combo box**.
   This launches the "Definition List Manager" dialog.
3. Click on the icon at the top right of the dialog to create a new definition list.
   The "Create Definition List" dialog appears.
4. In the **Name** text box, enter **`Definition List 1`**.

   The definition name can contain blanks and special characters, but is limited to 128 characters in length.

5. Click **OK** to save your changes and return to the "Definition List Manager" dialog.
   The new definition list appears in the "Definition Lists" drop-down box.

To create Definition List sections

1. Open the **Definition List Manager**.
   The dialog box is divided into two parts: "Definition Lists" and "Sections".
2. In the **Definition Lists** table, click on **Definition List 1** (select the row).
   This action highlights the row. The "Sections" area is blank.

3. In the **Sections** area (the bottom half of the dialog box), click on the icon to create a new section.
   The "Create List Section" dialog appears.
4. In the **Name** text box, enter **`Section 1`**.

   The section name can contain blanks and special characters, but is limited to 80 characters in length.

5. Click **OK** to save your changes and return to the "Definition List Manager" dialog.
   The new section list appears in the "Sections" table.
6. **Repeat** steps 3 to 5 to create a second section named **`Section 2`**.
7. **Close** the Definition List Manager.

To create an Alert Definition

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears, which consists of "Definitions" and "Subscriptions".
2. In the **Definitions** area, click the down-arrow of the **Definition Lists combo box** and, from the drop-down list, select **Definition List 1**.
3. Click on the icon at the top right of the dialog to create a new alert definition.
   The "Alert Definition" dialog for "Definition List 1" appears.
4. In the **Name** text box, enter **`First Definition`**.
5. From the **Section** drop-down list, select **Section 1**.
6. From the **Category** drop-down list, select **General**.
7. Under **Misc**, check (enable) **Logged**.
8. Verify that the **Detector type** is **High/Low**.
9. Under HiLo Detection Details, in the Monitored Value text box, enter the following:

```
::ANSTest.Facility01.Plant01.Unit01.RPoint01.Val
```

10. For **Hi Limit**, enter a constant value of **`80`**.
11. For **Lo Limit**, enter a constant value of **`20`**.
12. Click **OK** to save and close the "Alert Definition" dialog.
    The new alert definition is listed in the "Definitions" table of the "Configuration" screen.

To create a Subscription List

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears, which consists of "Definitions" and "Subscriptions".
2. In the **Subscriptions** area, click the icon to the left of the **Subscriptions Lists combo box**.
   This launches the "Subscription List Manager" dialog.
3. Click on the icon at the top right of the dialog to create a new subscription list.
   The "Create Subscription List" dialog appears.
4. In the **Name** text box, enter **`Subscription List 1`**.

   The name can contain blanks and special characters, but is limited to 128 characters in length.

5. Click **OK** to save your changes and return to the "Subscription List Manager" dialog.
   "Subscription List 1" appears on the "Subscription List Manager".
6. Click **Close** to return to the Configuration tool.
   The new subscription list appears in the "Subscription List" drop-down box.
7. From the Subscription List drop-down box, select Subscription List 1.
   An empty list appears.

To create a Subscription

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears, which consists of "Definitions" and "Subscriptions".
2. In the **Definitions** area, find and select **Definition List 1** from the "Definition Lists" drop-down box.
   "First Definition" appears in the table of available definitions.
3. In the **Subscriptions** area, find and select **Subscription List 1** from the "Subscription Lists" drop-down box.
4. Go back to the **Definitions** area and from the table, click to select **First Definition**.
   This enables the "Subscribe" button in between the "Definitions" and "Subscriptions" areas.
5. Click the **Subscribe** button.
   A new subscription with the name "First Definition" appears in the subscription list.

To check Current Alerts

1. On the XHQ ANS toolbar, click the **Alert Status Display (ASD)** button.
   The "Alert Status Display" tool appears, with all filters set to default states.
2. Click the **Reset** button to ensure that all filters are set to default states.
3. De-select (uncheck) Show Active Only.
4. Click the **Refresh** button.
   This refreshes the screen. The definition created earlier, "First Definition" appears in the resulting table. If the current value at the given time is between 20 and 80, it is in "Normal" state (otherwise, it is "High" or "Low").
5. Click the **Refresh** button again, every few seconds to check the change of the status of "First Definition".
   This condition enters two active alert states (one high, one low) every 30 minutes.
6. Next to the **List** drop-down box, select **Sub**.
7. In the **List** drop-down box, find and select **Subscription List 1**.
8. Click the **Refresh** button.

To check the Excursion Log

1. On the XHQ ANS toolbar, click the **Excursion Log Viewer** button.
   The "Excursion Log" tool appears, with all filters set to default values.
2. Click the **Reset** button to ensure that all filters are set to default states.
3. Click the **Refresh** button.
   This refreshes the screen and fetches the summary excursion information.

If the definition created earlier, "First Definition", has had time to go into either a "Hi" or "Lo" active state, then an entry for this condition should appear. If

this does not occur, you may have to wait at least 8 minutes before troubleshooting or declaring a problem.

4. Next to the **List** drop-down box, select **Sub**.
5. In the **List** drop-down box, find and select **Subscription List 1**.
6. Click the **Refresh** button.
   You should see the different alerts that were raised by "First Definition".

   Again, if the definition created has had time to go into either a "Hi" or "Lo" active state, then an entry for this condition should appear. In this case, there should not be more than two rows listed (one summary line for each of the two possible condition states of "Hi" or "Lo").

7. To open the **Excursion Log - Details Report**, do one of the following:
   - **Double-click** on a condition (row).

   or

   - **Select a condition**, and then click the **Excursion Details** icon at the end of the row.

   The Excursion Log reloads with the "Details Report" for the condition you selected. A "Back to Summary" button appears next to the "Refresh" button.
8. Select (highlight) any excursion on the list, then click on the **Trend** icon at the end of the row.
   The XHQ Trend Viewer appears, displaying a sine wave with a start and end time that corresponds to the start and end time for the excursion you selected. There should also be a red and blue line, indicating the "Hi" (at 80) and "Lo" limits, respectively.
9. **Close** the XHQ Trend Viewer.
10. Next, click the **Definition Details** icon.
11. **Verify** that this action launches the "Alert Definition" dialog box for the definition selected.
12. Click **Cancel** to close the dialog box.
13. Next, click the **Associated View** icon.
    If the XHQ Solution Viewer is currently active in another browser window, then the Viewer assumes focus, comes to the top, and loads the root component's default view (in this case, `::ANSTest~EnterpriseOverview`).
14. Return to the XHQ ANS UI.
15. Click the **Back to Summary** button.
    This returns you to the "Summary Report." All filters are set to default states.
16. **Select** (check) **Printed Format** and then click the **Refresh** button.
    The printable/formatted version of the "Summary Report" appears in the lower frame. In the report, there is a "General" section, which contains "Definition List 1". Under "Definition List 1", there are a maximum of two rows of summary information regarding the "Hi" and "Lo" states.
17. Next to the **List** drop-down box, select **Def**, and then click the **Refresh** button.
    The same report reloads in the lower frame (same as step 16), though some of the statistics and other fields of the summary information may have changed because of on-going excursions.

To create a Notification Routing

For this task, make sure that e-mail services are configured, with at least one e-mail address available. In this example, we will be using "MyEmailAddress".

1. On the XHQ ANS toolbar, click the **Notification Routing** button.
   The "Notification Routings" tool appears with no routings listed.
2. Click on the "Create Routing" icon at the top right of the screen to create a routing detail.
   The "Notification Routing Details" dialog appears.
3. In the **Destination** text box, enter the string "**MyEmailAddress**".
4. For **Severity Filter**, **check** (to enable) **all three severities**: Low, Medium, and High.
5. For **Schedule**, select **24x7** and **WORK**.
6. Click **OK** to save and close the screen.

This new notification routing is now listed and enabled.

To check e-mail delivery

1. Launch the **e-mail client** for the "MyEmailAddress" account.
2. **Verify** that a notification is received from XHQ ANS whenever "First Definition" goes into an active state (both Hi and Lo). This occurs twice every 30 minutes.

To duplicate Definition in Different List Section

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears.
2. In the **Definitions** area, find and select **Definition List 1** from the "Definition Lists" drop-down box.
   "First Definition" appears in the table of available definitions.
3. Double-click on the **First Definition** row.
   This launches the "Alert Definition" dialog box with the detailed configuration of "First Definition".
4. Click the **Duplicate** button located at the bottom of the dialog.
5. In the **Name** box, change the name of the condition to **Duplicate of First Definition**.
6. For **Section**, select **Section 2** from the drop-down list.
7. Click **OK** to save and close this new definition.
   The "Alert Definition" dialog closes, returning you to the "Configuration" screen, which shows the new definition in the list.

To recheck the Excursion Log

1. On the XHQ ANS toolbar, click the **Excursion Log Viewer** button.
   The "Excursion Log" tool appears, with all filters set to default values.
2. On the XHQ Alert Notification System toolbar, click the **Reset Tool Parameters** button.
3. For **Report Type**, select **All Defined** from the drop-down list.
4. Check (enable) **Printed Format**.

5. For **List**, select **Definition List 1** from the drop-down list.
6. Click **Refresh**.

A formatted report appears in the bottom frame of the Excursion Log screen. This report shows both list sections: "First Definition" in "Section 1" and "Duplicate of First Definition" should be in "Section 2".

To delete a Definition and/or Definition List

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears.
2. Click the "Definition List Manager" icon to the left of the Definitions drop-down list box.
   The "Definition List Manager" dialog box appears.
3. Click to select **Definition List 1**.
4. To delete, click the "Delete Definition List" icon located at the upper, right-had area of the dialog box.
   A confirmation message appears.
5. Click **OK**.
   The "Definition List" as well as its contents, the definitions "First Definition" and "Duplicate of First Definition", and the subscription for "First Definition" are all deleted. The Definition List Manager is refreshed to reflect the list deletion.
6. Click **Close** to close the Definition List Manager dialog box.

To export definitions

1. On the XHQ ANS toolbar, click the **Administrator** button.
   The "Administrator" screen appears, showing the list of current users.
2. From the navigation panel, click **Export**.
   The "Export" panel appears.
3. For **Definition List**, select **Definition List 1** from the drop-down list.
4. Click the **On Screen** option.
5. Click the **Export** button.
   An XML file appears. This file includes two <list section> and 2 <definition> elements for each of the definitions you created earlier.
6. Next, click the **To File** option and click the **Export** button again.
   This time, a standard "File" dialog box appears.
7. Click **Save this file to disk** and then click **OK**.
   A "Save As" dialog box appears.
8. For the filename, enter **ans_smoke_test.xml**, save it to **C:\temp**, and click **Save**.
   The file is created in the directory you specified.

To import definitions

1. You must have the following:
   - XHQ ANS Administrator permissions.
   - The export file **ans_smoke_test.xml**.
2. On the XHQ ANS toolbar, click the **Administrator** button.
   The "Administrator" screen appears.

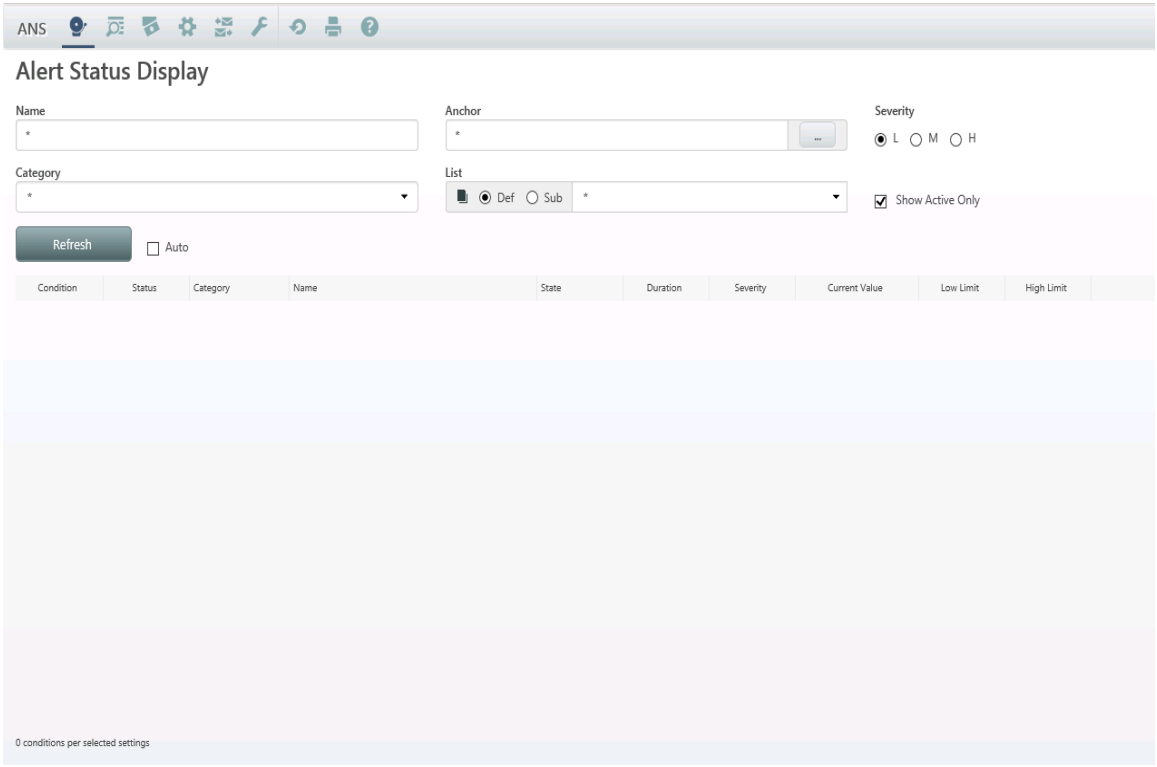
3. From the navigation panel, click **Import**.
   The "Import" panel appears.
4. Under **Import file from**, select **Client**.
   The XML file is located on the local client machine.
5. Under **File**, click **Browse**.
   The "Choose File" dialog box appears.
6. Locate the XML file **ans_smoke_test.xml** and click **Open**.
   The "Choose File" dialog box closes. The full file path appears in the "File" filed on the "Import" screen.
7. Check (enable) **Automatically create definition lists and sections**.
8. Uncheck (disable) **Update definitions using definition-id**.
9. Click the **Import** button.
   The import completes with no errors (as indicated in the summary that is generated). From the "Configuration" screen, you can see that "Definitions Lists" and its definitions are created.

To add condition information to a condition definition

1. On the XHQ ANS toolbar, click the **Configuration** button.
   The "Configuration" tool appears.
2. Find and select the definition **First Definition** from definition list **Definition List 1**.
3. Click the "Edit Definition" icon above and to the right of the definition list.
   The "Alert Definition" dialog box for "First Definition" appears.
4. Click **Condition Info**.
   The "Condition Information" dialog box appears.
5. In the text area, enter `This is condition information for First Definition`.
6. Click **OK** to save your modifications and close the window.
   This returns you to the "Alert Definition" dialog box.
7. Click **OK**, to close the Alert Definition dialog.
   The definition is updated.
8. On the XHQ ANS toolbar, click the **Excursion Log Viewer** button.
   The "Excursion Log" tool appears, with all filters set to default values.
9. On the XHQ ANS toolbar, click the **Reset Tool Parameters** button.
10. Uncheck (disable) **Show Active Only**.
11. Find and select the definition list **Definition List 1** in the definition list combo box.
12. Click **Refresh**.
    The ASD fetches the list of two items, including a row for the "First Definition" condition. Note that at the end of this row, there is an additional "Information" icon.
13. Clicking on the **Information** icon.
    The "Condition Information" dialog box appears with the text entered in step 5.

3 | Alert Status Display Tool

The Alert Status Display (ASD) is used to view current alert conditions. There are two sections to this screen: the upper, "Filter", section and the lower, "Current Alerts Table" section. The Filter section contains miscellaneous controls that allow the user to focus on all or subsets of his/her subscriptions OR on his/her condition definitions and any global definitions that are viewable by the user. The Current Alerts Table section shows current alert information as a list. By default, the ASD comes up with all enabled definitions that are currently "active".



Alert Status Display Tool

Alert Status Display Filter

The Filter section contains a number of controls that allow the user to hone a query to the specific information desired. The following describes each of these controls.

Alert Status Display Controls

Control	Description
Name	This simple wildcard expression is used to filter on the name of the alert condition that is assigned during its definition. For example, a single asterisk (*) - the default - means that all condition names are to be included. Alternatively, one may narrow the scope of using a string such as "*FCC*". In this case, only alert conditions whose names contain the substring "FCC" will be shown. **Important:** Alert condition names are case sensitive.
Anchor	Anchor "paths", an attribute of each alert definition, can be used as a filter criterion. This field also employs the simple wildcarding pattern described above, in the case of manual entry, i.e. if the user chooses to type in an anchor, s/he may use wildcards. Clicking the browse button will launch the "Anchor Select" dialog which can be used to browse, search, and select the anchor path. **Important:** This is case sensitive.
Severity (minimum)	These radio buttons allow the user to select which alerts to show, based on their assigned severity. The selected "threshold" will allow for all alerts of that severity level and higher to be displayed. For example, if "L" is selected, then all low, medium and high severities will be shown. If "M" is selected, then all Medium and High alerts are displayed. And, finally, if "H" is selected, then only high severity alerts are shown. Please note that when filtering on definitions, then the definitions' base severities are used; for subscriptions, the subscription (override) severity is used.
Category	This combo box allows the user to filter by definition category. Categories are site-specific and are configured by system administrators. All so-configured Categories are offered in this combo box. The user can choose a specific Category or "*" if all categories are to be shown.
List	This controls what type of list - Definition or Subscription - is to be used as a filter as well as the means to express the list name as a wildcard pattern. Choosing the "Def" radio button causes the List name combo box to fill with all definition lists available to the user. Therefore all personal lists as well as all global lists that are shared within the scope of the user are displayed. Any global lists are shown in parentheses. Choosing the "Sub" radio button causes the List combo box to be populated by all subscription Lists that are owned by the user. The user can then choose a particular List from the combo box, or choose the "*" option which means "all" lists of that type (subscription or definition). Click the  icon to launch the Definition List Manager.
Refresh	This button, when clicked, will cause an immediate refresh of the screen with current information.
Auto	This radio button is used if the screen is to automatically refresh on a periodic basis. The default system update period is 1 minute.

Control	Description
Show Active Only	This checkbox is checked (default) if only active conditions, i.e. conditions that are currently in an abnormal state, are to be presented. Deselecting this box will cause all subscriptions to show (as limited by other filters) regardless of condition state.

Current Alerts Table

This frame contains the list of conditions that match the criteria that is set in the Filter section. Each row, or line, is made up of several parts/columns. A click on the column headers will cause the list to refresh and sort on that header. A second click on the same heading will reverse the order. Not all columns can be sorted in this manner. For example, the Cur Value, Lo Lim and Hi Lim columns are not sortable. Any column that is sortable can be identified by hovering the mouse over the column heading. Those that are sortable will dim and underline when the mouse hovers over it.

This table will not show more than 1000 entries. This limit is enforced for system performance reasons. If this limit is reached, and the alerts of interest are not shown, then the user should check the Filters, adjust as necessary, and click on the Refresh button to re-fetch the data.

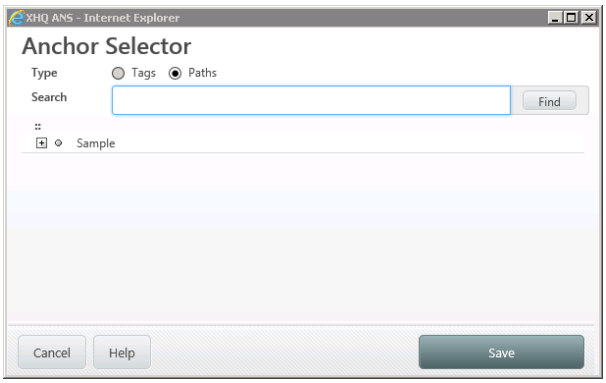
Current Alerts Table Controls

<table>
<tr><th>Control</th><th>Description</th></tr>
<tr><td>(Condition Status Icons)</td><td>The first column contains one of a set of icons that indicate the current state of the condition. Possibilities include:
<table>
<tr><th>Icon</th><th>Condition Status</th><th>Description</th></tr>
<tr><td>  </td><td>Normal</td><td>This indicates the normal state for the condition which is being monitored.</td></tr>
<tr><td>  </td><td>Active</td><td>This indicates that the condition is active, i.e. abnormal.</td></tr>
<tr><td>  </td><td>Disabled</td><td>This indicates that the condition definition is current disabled.</td></tr>
<tr><td>  </td><td>Invalid</td><td>This means the condition has been invalidated by XHQ ANS and has been disabled.</td></tr>
</table>
The second column (under the question mark) indicates whether the (detector) quality is good or not. If nothing is shown, then the quality is OK. If the quality is not OK, then the  (question mark) symbol appears. If the quality is bad, then this typically means that the tracked variable (or other XHQ solution references) are not valid at this time. It may be so because of problems with back end systems (like PI) or a problem with the alert condition configuration.</td></tr>
<tr><td>Category</td><td>This column indicates the Category to which the condition was assigned at configuration time.</td></tr>
<tr><td>Name</td><td>This is the name of the condition (the definition name).</td></tr>
<tr><td>State</td><td>This is the "state" or "type" of alert. For example, if a simple high/low detection was used, then this value would be "High" or "Low".</td></tr>
<tr><td>Duration</td><td>This is the length of time that the condition has been in the current state indicated. For example, one would typically show only active alerts, so this field indicates the time that the condition has been active. This duration is expressed as a number of days (if any), a number of hours and a number of minutes, i.e. anything less than a minute will be shown as zero minutes, in the format "xd yhzm" where x, y and z indicate the number of days, hours and minutes, respectively.</td></tr>
</table>

Control	Description
Sev(erity)	This is the severity of the condition - Hi, Med or Lo - as configured by the user (definition owner or subscription owner).
Cur Val	This is the "current" value of the primary tracked value of the condition. It is updated only when the rest of the list is updated. Also, this field contains the engineering units to the immediate right of the value, if it is accessible.
Lo Lim	This is Low Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
Hi Lim	This is High Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
(Additional Info)	If present, this indicates that the condition has been configured with additional information that is viewable by clicking on the icon.
(Trend)	This will pop up an XHQ Trend Viewer for the associated condition. Please note that a double-click on the row has the same behavior.
(Associated View)	This will cause the XHQ Solution Viewer to get focus and load the View that was assigned during condition definition configuration.
(Definition Details)	This will launch the Alert Definition details screen for the associated condition.

About the Selector Utility

The Selector screen (or utility) is used to browse, find, and select specific names from the XHQ namespace, either as "aliases" or as "paths". Its main job is to provide a graphically interactive means of selecting a named item for use elsewhere in the UI. For example, the Alert Definition display allows the user to assign anchors and monitored values using the Selector.



Anchor Selector Utility

The Selector is launched from various places in the XHQ ANS UI including the Alert Status Display, Excursion Log Viewer and Alert Definition screens. The Selector handles two distinct modes - Anchor or Value - dictated by the context in which it was launched. When in Value Select mode, the utility is used to select a "primitive" member as specified by a complete XHQ path or alias, that is, an XHQ reference that results in an actual value. In Anchor Select Mode it is used for selecting "components", which may be themselves "members" but not primitive ones.

Here is an example of a component path: `::Refinery.DPD.Alky`. This is not a reference to an actual value. Rather, it is a reference to a "node" in the XHQ Solution name hierarchy which is called a "component". This is a suitable selector target when we're assigning an Anchor to an alert definition.

Consider the following example of a primitive path: `::AcmeRefinery.DPD.Alky.P56TI1051.TheValue`.

In this case, the path references an actual floating point number making it a suitable selector target when specifying definition items such as monitored values, by-reference high and low limits, and so on.

Here is an example of an Alias: `01CI22CP`. This is another reference to a primitive value. It is likewise suitable for specifying definition items such as values, limits and so on.

Anchor Selector Controls

The Selector into an upper controls portion and a lower table that shows a list of strings.

Anchor Selector Controls

Control	Description
Type	This field contains radio buttons with the following options: "Aliases" and "Paths". When in value mode, the user can choose the way in which s/he would like to browse/search the namespace, namely by either using aliases or paths, but not both simultaneously. When in anchor select mode, "Aliases" is disabled and selection is forced to the "Paths" option since an anchor cannot be a primitive member, i.e. data type, and Aliases, by definition are primitive references.
Search	The Search field accepts simple wild-carded string input to be used as the basis of a string search. Asterisks ("*") are used to indicate one or more characters. For convenience, if the user is trying to find a string, but doesn't have the time to type leading and trailing asterisks, then those will be provided automatically before the search is made. For example, the search string "ABC" is the same as "*ABC*". It should be noted though that any asterisk in the search string will prevent this assumption from being made. So, for example, a search string of "ABC*" is left as is, i.e. no additional leading asterisk is supplied before the search. **Note:** When searching paths, the search proceeds down the hierarchy starting at the node that is currently "selected" as described in the section below. Aliases are not subject to this limiting concept since they are a flat set of single, non-hierarchical strings.
Find	Click on the Find button to start a search using the search string that was entered.

Anchor Selector Search Results/Browser Window

The lower portion of the Selector screen presents a list of namespace string references. The two name space categories - Paths or Aliases - are handled differently, so are discussed separately below.

Anchor Selector Search Controls

Control	Description
Aliases	For aliases, the table shows a simple, flat list of alias names resulting from a search operation. In effect, one must perform an initial search, then browse (scroll) down the results until the alias of interest is found. The user may select a particular alias by selecting it (single click), then clicking on the OK button. This action will cause the selected alias to be returned to the calling/launching screen, and close the Selector screen itself. A double-click on an alias will cause the selected item to be returned to the launching screen and closure of the selector screen.
Paths	Paths are dot (".") separated, hierarchical references to the XHQ Solution of the form: "A.B.C". The Selector utility provides the means to search for specific character

Control	Description
	sequences within the total set of paths or from any "node" (A or B above) in the tree. Alternately, the Selector allows the user to "browse" the path hierarchy by expanding branches of the tree at various nodes. In either case, the first line of the table will always show the "currently selected path" which, if the OK button is clicked, will be passed back to the launching window, and used in that context. A double click on a line will cause that line to "expand", i.e. show that branch of the tree. The exception is when the selector is in Value mode, and the line double-clicked on is a primitive; in this case, the selector window is closed and the selected primitive is passed to the launching window.

Anchor Selector Dialog Box Buttons

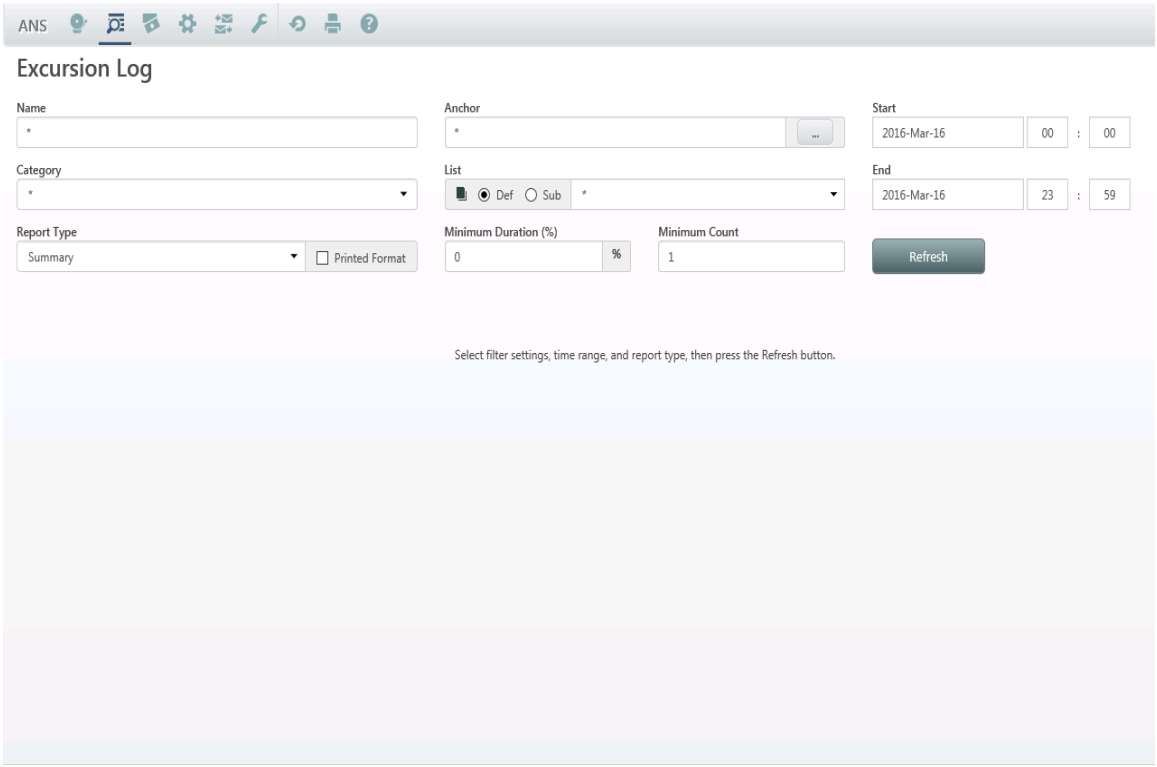
The Selector Utility has the following buttons at the bottom of the screen.

Anchor Selector Buttons

Button	Description
Help	Click this button to show this help information.
Clear	Click this button to get the Selector to go back to its starting point. For example, if the selector is in Paths mode, and the user has dug down several levels in the tree, then clicking the Clear button will clear the search string and reset the current selection to be the XHQ root component. If, on the other hand, the mode is set to Aliases, clicking on the Clear button will clear the search string as well as the table contents.
Cancel	Click this button to close the window without passing the selection back to the launching screen.
OK	Click this button to have the Selector pass the selection back to the launching screen and then close the window.

4 | Excursion Log Viewer Tool

The Log Viewer screen is used to access excursion log (also known as the Alert Log) information. There are two sections to this screen: Filter and Report. Initially, the screen comes up with no log data in the Report section. It is up to the user to set filters, using the various controls in the Filter section, for what he/she wishes to look at, and hit the "Refresh" button, which results in a retrieval of the specified database-resident log information. A retrieval results in an on-screen report.



Excursion Log Tool

Only alert definitions that have the Logged attribute enabled will be recorded in the log and therefore viewable by this tool.

Excursion Log Viewer Filter

The Filter section contains a number of controls that allow the user to hone a query to the specific information and in the specific form desired.

Excursion Log Viewer Controls

Control	Description
Name	This simple wildcard expression is used to filter on the name of the alert condition that is assigned during its definition. For example, a single asterisk ("*") - the default - means that all conditions are to be part of the retrieval. Alternatively, one may narrow down the scope of the query by specifying strings such as "*FCC*". In this case, the query will only result in excursions whose conditions name contains the substring "FCC". **Important:** The alert condition name is case sensitive.
Anchor	Anchor "paths", an attribute of each alert definition, can be used as a filter criterion. This field also employs the simple wildcarding pattern described above, in the case of manual entry, i.e. if the user chooses to type in an anchor, s/he may use wildcards. **Important:** The anchor path is case sensitive. Clicking the browse button will launch the Anchor Select dialog which can be used to browse, search, and select the anchor path.
Start	These combo boxes allow the user to specify a start time and date for the report query.
End	These combo boxes allow the user to specify an end time and date for the report query.
Category	This combo box allows the user to filter by definition category. Categories are site-specific and are configured by system administrators. All so-configured Categories are offered in this combo box. The user can choose a specific Category or "*" if all categories are to be shown.
List	This controls what type of list - Definition or Subscription - is to be used as a filter as well as the means to express the list name as a wildcard pattern. Choosing the "Def" radio button causes the List name combo box to fill with all definition lists available to the user. Therefore all personal lists as well as all global lists that are shared within the scope of the user are displayed. Any global lists are shown in parentheses. Choosing the "Sub" radio button causes the List combo box to be populated by all subscription Lists that are owned by the user. The user can then choose a particular List from the combo box, or choose the "*" option which means "all" lists of that type (subscription or definition). Click the  icon to launch the Definition List Manager.
Report Type	This combo box allows the user to choose the type of report desired: Summary, Details, or All Defined. The *Summary* report type shows a list of all conditions that became active in the time frame (and filter) of interest. The *Details* report breaks out each occurrence of a condition's excursion on different lines. The *All Defined* option will present a summary report for all conditions regardless of whether they were active in the time frame or not.
Printed Format	This check box allows the user to choose a formatted version of the information, that is not a simple, sortable table.

Control	Description
Duration Minimum (%)	By increasing the duration percentage minimum, the Excursion log returns only those excursions with that duration or higher.
Count Minimum	By increasing the count minimum, the Excursion log returns only those excursions with that count or higher.
Refresh	The "Refresh" button causes the report to be generated according to the current filter criteria.
Back to Summary	The "Back to Summary" button, which is only visible after having switched to a Details view from a Summary view, provides a convenient means to return to the Summary report.

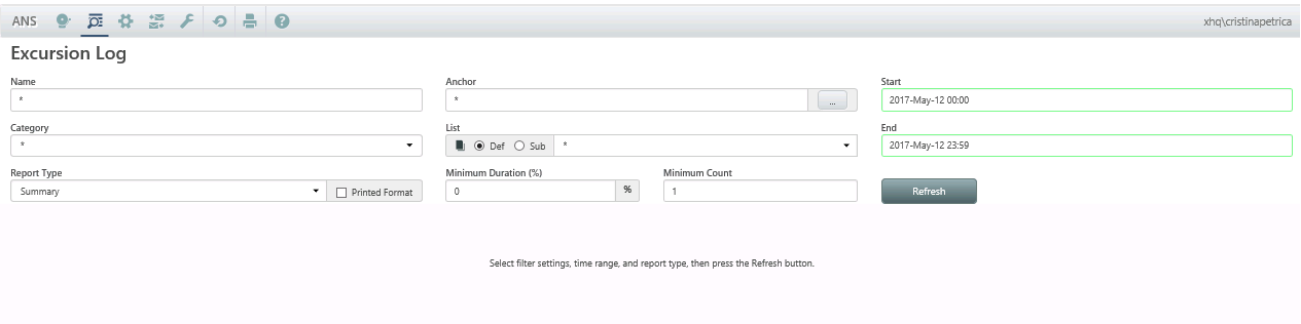
Excursion Log Viewer Report

The Report pane is used to display a list of records that are retrieved from the excursion log database. There are three types of "reports": Details, Summary and All Defined. A Details report shows a row for every occurrence of every condition during the time interval specified whereas the Summary report "rolls up" all occurrences of a particular alert condition and presents a single (summary) line for that condition. Finally the All Defined report is the same format as a Summary report except it contains all defined conditions for the filtered scope, whether or not they were active in the time frame or not. Since the type of information varies from one type of report to the other, the columns or fields of each report are slightly different.

Reports are limited to 1000 "rows" of information, due to performance concerns. At the bottom of the report, a summary line indicates the number of rows retrieved. If this number exceeds the maximum, please use the various filters to further restrict the query.

The following gives a brief description of the information contained in each of these types of reports. Please note that this information is the same whether the Printed Format option is selected or not, but the actual layout is, of course, different. That said, the following focuses on the standard table format for simplicity.

Details Report



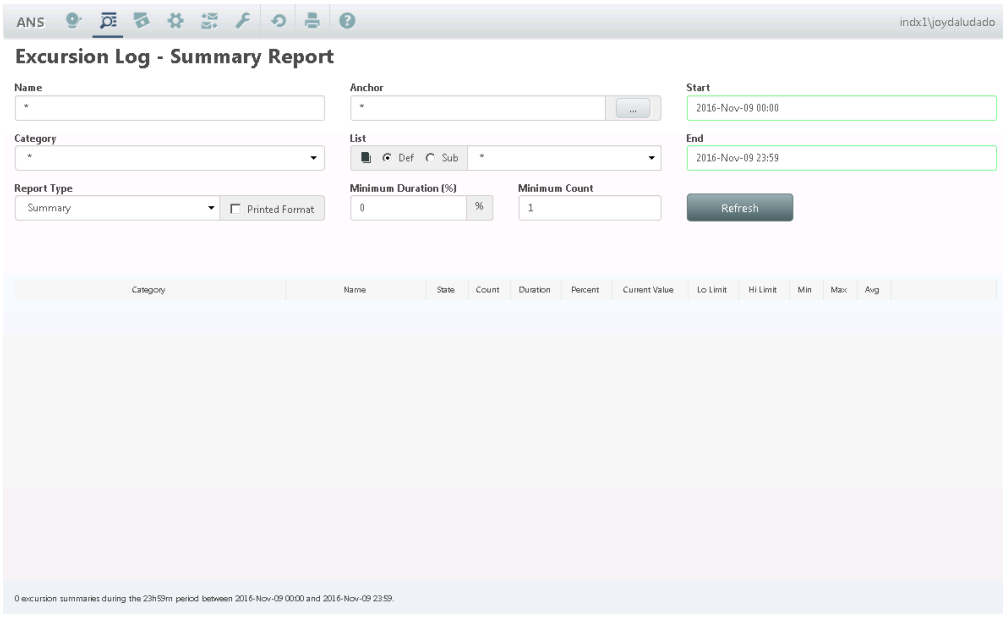
Excursion Log – Details Report

Excursion Log Controls (for Details Report)

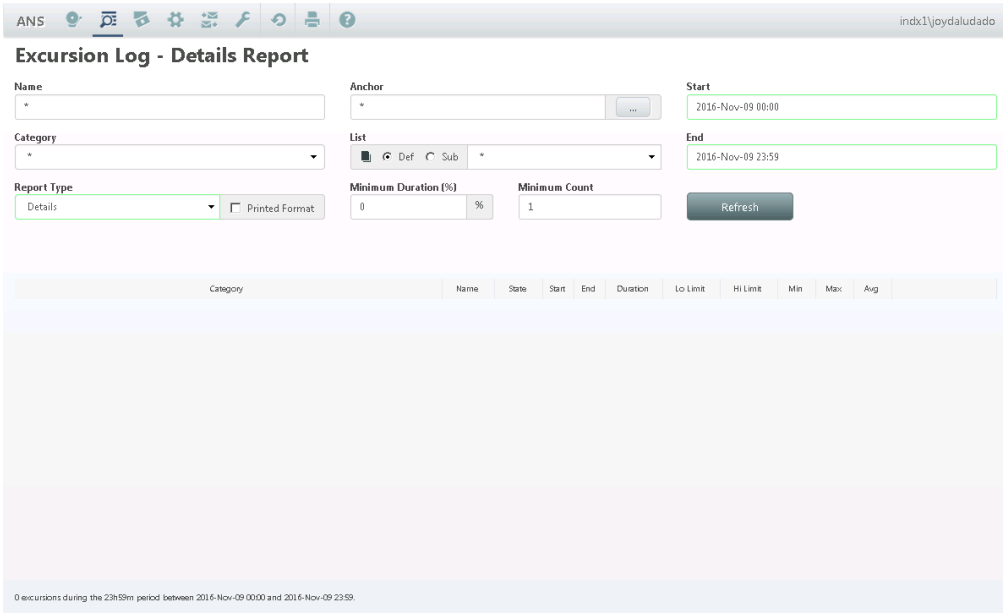
Control	Description
Category	This is the category to which the condition was assigned.
Name	This is the name of the condition (the definition name).
State	This is the "state" based on the "type" of alert. For example, if a simple high/low detection was used, then this value would be "High" or "Low".
Start	This is the time and date that the excursion started. **Note:** Filtering based on Start and End date/time includes all excursions that either started or ended at the specified filter date/time.
End	This is the time and date that the excursion ended, i.e. the condition returned to "normal". **Note:** Filtering based on Start and End date/time includes all excursions that either

Control	Description
	started or ended at the specified filter date/time.
Duration	This is the time that the condition was in an alertable state, i.e. this is the length of the excursion. It is expressed in the general form: "*x*d *y*h*z*m" where x, y and z indicate the number of days, hours and minutes, respectively.
Lo Lim	This is Low Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
Hi Lim	This is High Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
Min	This is the minimum value that the primary monitored variable attained during the excursion. This is only updated for completed excursions, i.e. when the condition has returned to normal.
Max	This is the Maximum value that the primary monitored variable attained during the excursion. This is only updated for completed excursions, i.e. when the condition has returned to normal.
Avg	This is the numerical average of the primary monitored variable during the excursion. This is only updated for completed excursions, i.e. when the condition has returned to normal.
(Engineering Units)	This column contains the engineering units for the primary monitored value, if it is accessible.
 **(Additional Info)**	If present, this indicates that the condition has been configured with additional information that is viewable by clicking on the icon.
 **(Trend)**	This will pop up an XHQ Trend Viewer for the associated condition. Please note that a double-click on the row has the same behavior.
 **(Associated View)**	This will cause the XHQ Solution Viewer to get focus and load the View that was assigned during condition definition configuration.
 **(Definition Details)**	This will launch the Alert Definition details screen for the associated condition.

Summary and All Defined Reports



Excursion Log – Summary Report



Excursion Log – Details Report

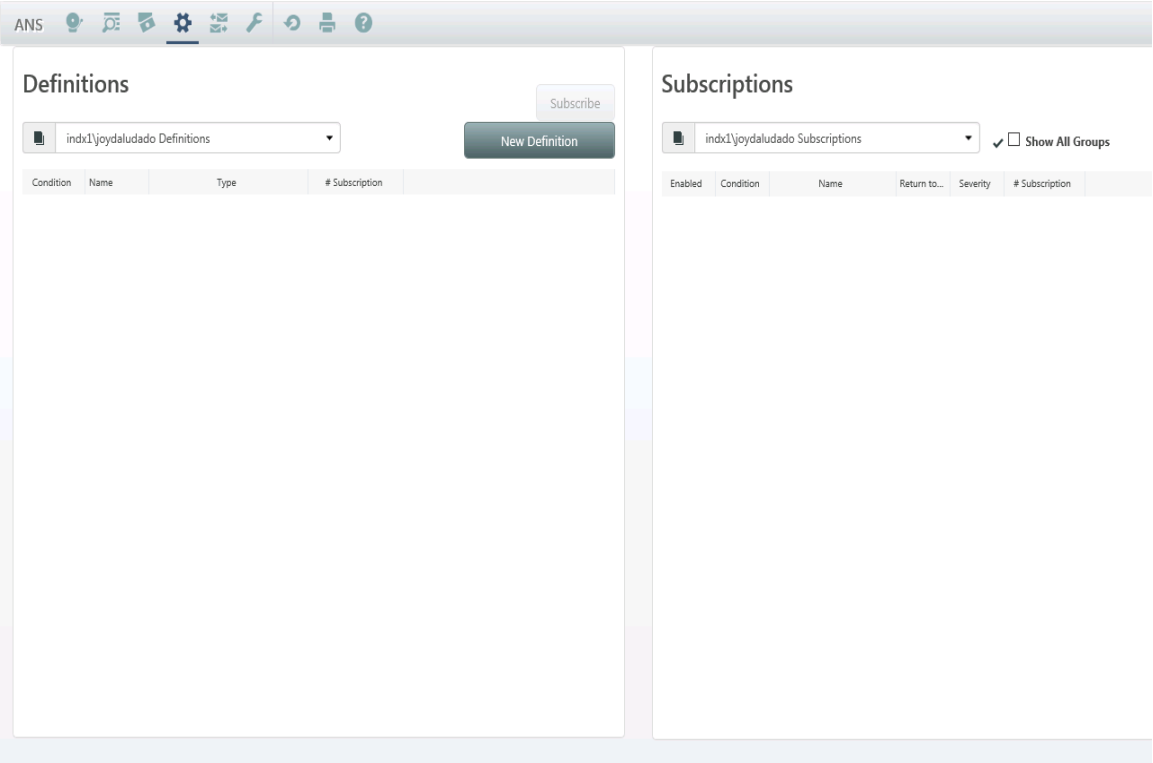
Excursion Log Controls (for Summary and All Defined Reports)

Control	Description
Category	This is the category to which the condition was assigned.
Name	This is the name of the condition (the definition name).

Control	Description
State	This is the "state" based on the "type" of alert. For example, if a simple high/low detection was used, then this value would be "High" or "Low."
Count	This is the number of times that an excursion has happened for this particular condition during the timeframe of the report.
Total Duration	This is the sum of all individual excursion durations during the timeframe of the report. If the latest is on-going, then a plus sign "+" appears at the end of the duration string.
Percent	This is the percentage of time, during the timeframe of the report that the condition was in an active (that is, abnormal) state.
Cur Value	This is the "current" value of the primary tracked value of the condition. It is updated only when the rest of the list is updated.
Lo Lim	This is Low Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
Hi Lim	This is High Limit that is used as a test for the condition, if specified. **Note:** This applies only to High/Low and Deviation detection.
Min	This is the minimum value that the primary monitored variable attained during the excursion. This is only updated for completed excursions (when the condition has returned to normal).
Max	This is the Maximum value that the primary monitored variable attained during the excursion. This is only updated for completed excursions (when the condition has returned to normal).
Avg	This is the numerical average of the primary monitored variable during the excursion. This is only updated for completed excursions (when the condition has returned to normal).
(Additional Info)	If present, this indicates that the condition has been configured with additional information that is viewable by clicking on the icon.
(Trend)	This will pop up an XHQ Trend Viewer for the associated condition. Please note that a double-click on the row has the same behavior.
(Associated View)	This will cause the XHQ Viewer to get focus and load the View that was assigned during condition definition configuration.
(Definition Details)	This will launch the Alert Definition details screen for the associated condition.
(Excursion Details)	This will switch to a Details report for the associated condition. A double-click on the row will perform the same function.

5 | Configuration Tool

The Configuration tool provides the environment that is used for creating, configuring and managing, lists, definitions and subscriptions.



Configuration Tool

The screen is divided into two halves: the left side for **Definitions** and the right for **Subscriptions**. The general model requires that a condition be defined (the definition), for general use, and be subscribed to (the subscription) to exploit selected other functionality such as advanced filtering on the Alert Status and Alert Log Viewer displays, and, more significantly, for use in remote notifications. Between these halves, there is a button used for subscribing.

Definitions Lists

The left half of the screen provides access to summary information about all condition definitions that are available to the user: both his/hers and any other shared definition within the user's security scope. The fundamental mechanism is to choose a particular list from the drop-down combo box provided, the contents of which, the individual definitions, will appear summarized below.

Definitions Lists Controls

Control	Description
 **(Definition List Manager)**	Clicking this icon launches the Definition List Manager display which can be used to create, edit or delete, definition lists owned by the current user.
Definition List Combo Box	The combo box at the top indicates which definition list is currently being shown in the table. This combo box provides access to the current user's definitions (at the top of the list) as well as other users' definitions providing they are visible to (shared) the current user. The list of definitions lists differentiates those owned by other users by placing the list name in parentheses. If another user's list is selected, then that user's name appears at the bottom of the screen below the definition list table.

Table Contents

A list of definitions (or items) appear as a table. Each row represents a definition in the selected list and contains summary information for the definition.

Definitions Lists Table Controls

<table>
<tr><th>Control</th><th>Description</th></tr>
<tr><td>(Condition Status Icons)</td><td>The first column contains one of a set of icons that indicate the current state of the condition. Possibilities include:
<table>
<tr><th>Icon</th><th>Condition Status</th><th>Description</th></tr>
<tr><td>  </td><td>Normal</td><td>This indicates the normal state for the condition which is being monitored.</td></tr>
<tr><td>  </td><td>Active</td><td>This indicates that the condition is active, i.e. abnormal.</td></tr>
<tr><td>  </td><td>Disabled</td><td>This indicates that the condition definition is current disabled.</td></tr>
<tr><td>  </td><td>Invalid</td><td>This means the condition has been invalidated by XHQ ANS and has been disabled.</td></tr>
<tr><td>  </td><td>Normal and Shared</td><td>This means that the condition is normal and the definition has been shared by the owner.</td></tr>
<tr><td>  </td><td>Active and Shared</td><td>This means that the condition is active and its definition has been shared by the owner.</td></tr>
<tr><td>  </td><td>Disabled and Shared</td><td>The definition is currently disabled and it has been shared by the owner.</td></tr>
<tr><td>  </td><td>Invalid and Shared</td><td>The definition has been marked invalid and is shared by the owner.</td></tr>
</table>
Note: This table does not indicate the so-called detector quality. That information can be found on the Alert Status Display.</td></tr>
<tr><td>Name</td><td>This is the name of the condition (the definition name).</td></tr>
<tr><td>Type</td><td>This is the type of detection mechanism that has been used for this condition definition. Possibilities include those for High/Low, Deviation, Rate-of-Change, and Staleness.</td></tr>
<tr><td>Subs</td><td>This number indicates the current number of active subscriptions to this definition.</td></tr>
</table>

Access to Definition Details

By double-clicking on an item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the Alert Definition screen and is used to create, inspect and edit alert definitions. In addition to the double-clicking technique, there are three icons that provide related functionality. These include the following.

Icon	Description
	This button launches the Alert Definitions screen to create a new definition.
	This icon launches the Alert Definition screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a definition (which can also be accomplished from the Definition Details screen.) If no item is selected, this icon is disabled.

Subscriptions Lists

Subscriptions Lists Controls

Control	Description
 **(Subscription List Manager)**	Clicking this icon launches the Subscription List Manager display which can be used to create, edit or delete, subscription lists owned by the current user.
Subscription List Combo Box	The combo box at the top indicates which of the user's subscription lists is currently being shown in the table. Changing the selection causes the table to refresh with the contents of the newly selected subscription list. A check mark may appear next to this combo box. This indicates that the list is enabled.

Table Contents

A list of subscriptions (or items) appear as a table. Each row represents a subscription in the selected list and contains summary information for the subscription.

Subscriptions Lists Table Controls

Control	Description
✓ **(Enabled)**	This column contains a check mark if the subscription is currently enabled, and is blank if it is disabled.
(Condition Status Icons)	The first column contains one of a set of icons that indicate the current state of the condition. Possibilities include:

Icon	Condition Status	Description
	Normal	This indicates the normal state for the condition which is being monitored.
	Active	This indicates that the condition is active, i.e. abnormal.
	Disabled	This indicates that the condition definition is current disabled.
	Invalid	This means the condition has been invalidated by XHQ ANS and has been disabled.

Name	This is the name of the subscription (the definition name).
 **(Return to Normal Notification)**	This indicates whether the subscription is requesting that both "going active" as well as "returns to normal" qualify as notifiable events. If the image is on () then both transitions - normal to abnormal and vice-versa - may cause remote notifications. If the image is off () then only abnormal state changes will cause notifications.
Sev(erity)	This indicates the severity that the subscription has assigned to the condition. This value may be "Hi", "Med" or "Lo."
 **Single Shot**	This indicates whether the subscription is requesting a "single shot" notification. A single shot notification is used when a user wants to get the first occurrence of a condition, then have the system automatically disable the subscription. If the image is on (), then single shot notification is enabled. If it is off (), then single shot is disabled, and the subscription behaves normally, i.e. it does not auto-disable after the first occurrence of the condition.

Access to Subscription Details

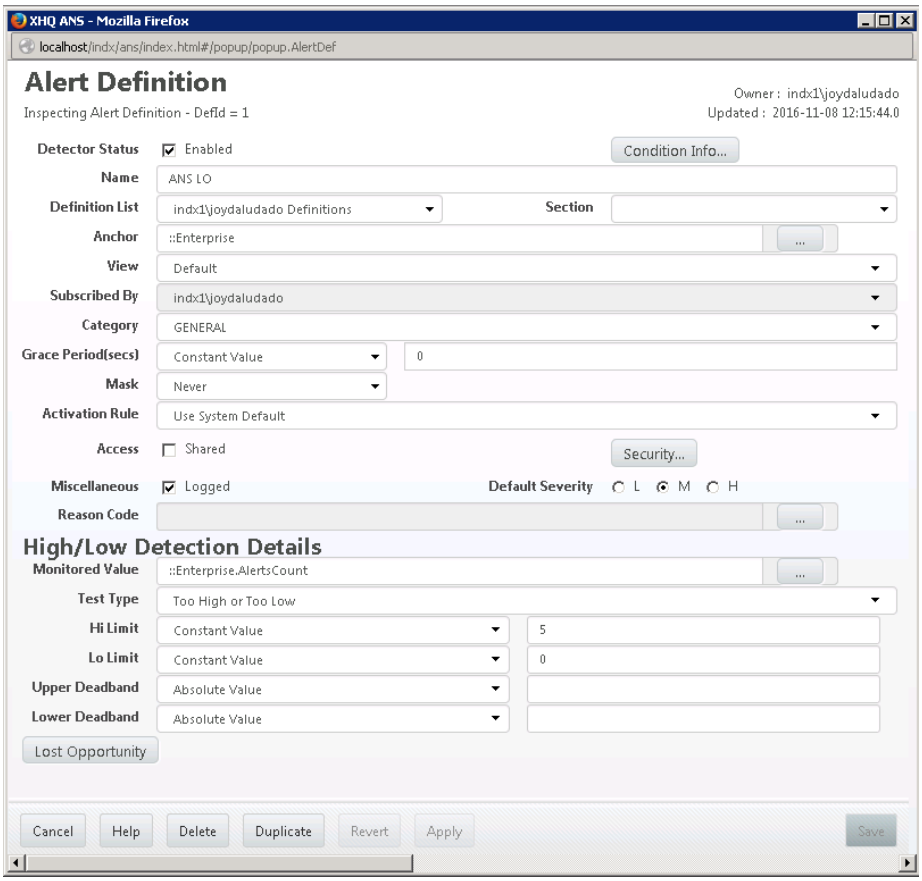
By double-clicking on a list item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the Alert Subscription screen and is used to create, inspect and edit alert subscriptions. In addition to the double-clicking technique, there is an additional icon located above the list that provides access to the Details screen for a selected item.

Icon	Description
	This icon launches the Subscription Details screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a subscription (unsubscribe). If no item is selected, this icon is disabled.

Button	Description
	This button, in the middle of the screen, provides the means to create subscriptions. It operates on a selected definition list item. The button is disabled if there are no selected items.

Configuration - Alert Definition Display

The Alert Definition screen provides access to all the details of a particular alert definition and can be launched by double-clicking on a definition item or by using the icons under the list, as described in the help on the Configuration Tool. The Alert Definition screen can be used to create, modify, duplicate or delete definitions.



Alert Definition Dialog Box

Alert Definition Display Controls

Control	Description
Owner (read only)	This is the name of the user that created the definition. This is set by the system at the time of creation.
Updated (read only)	This is the time and date that the definition was last updated. For a new definition, this is the time that it was created.
Detector Status	This checkbox is used to enable or disable the definition. A disabled definition is not monitored by the system. As such, any subscriptions will be effectively disabled as well.
Name	This is the name of the condition (the definition name). This name will appear as the primary identifier on all screens. This will also be the name of the subscription, i.e. definitions and subscriptions have the same name. The name has to be unique in the

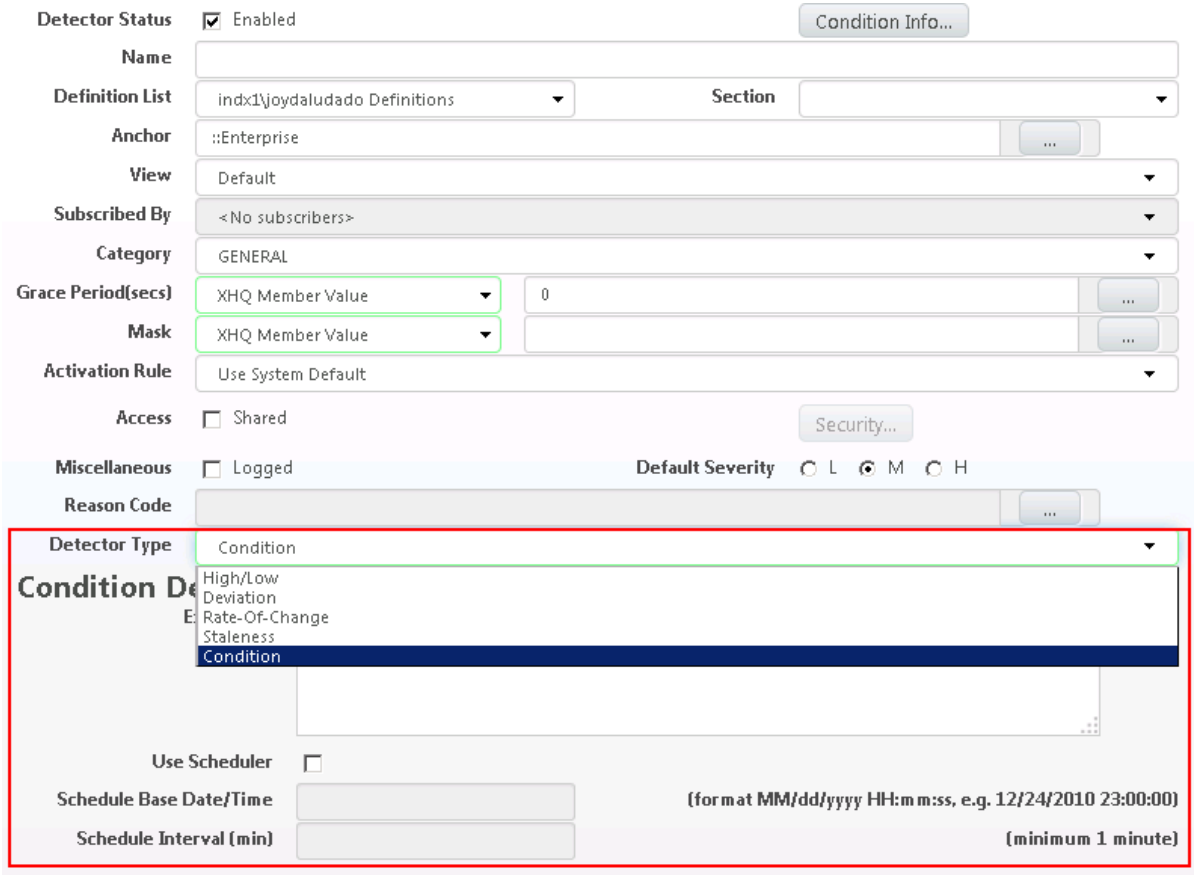
Control	Description
	owner's own collection. This string can be composed of characters (it is case sensitive), numbers, blanks, and most other symbols, but is limited to 128 characters in length.
Condition Info	This button launches a window that allows additional text-based information for this condition. It can be simple free form text, or it can be HTML. If the text is preceded with an "@" symbol, then the following text is assumed to be a reference to a web page which will be called up at runtime.
Definition List	This is the definition list to which the condition definition has been assigned. It can be moved by choosing a new definition list. Definitions may only reside in definition lists owned by the user.
(List) Section	This is the list section to which this definition is assigned. Lists may have zero or more sections, created and maintained by the list's owner. One may choose/reassign which section the definition is in by selecting one from the combo box. The user can create and manage his/her lists via the Definition List Manager screen.
Anchor	This string indicates the XHQ Solution component, expressed as a solution "path", to which the definition is to be identified. This anchor can be used to limit the scope of log reports, alert status, etc, as well as provide the basis for associating a unique XHQ view to this condition. Clicking the browse icon will launch the Anchor Select dialog which can be used to browse, search, and select the anchor path.
View	This specifies the specific XHQ view that is to be associated with this definition (an Associated View). The combo box is populated with the currently specified anchor's list of associated views. At run time, for example, this view will be readily reachable via the Alert Status Display or any other screens with the Associated View icon .
Subscribed to By	This is a list of all users that are currently subscribed to this definition, if any.
Category	Each definition is assigned to a category using this combo box. Categories are systemic and managed by local XHQ ANS Administrators.
Mask	This specifies the masking constraint of the alert. A masked alert does not show in the alert definition screen and notifications are not sent out when the condition is violated. However, if logging is enabled, excursions for the condition are logged and flagged as masked. Default setting is *Never* masked. Other available choices are *Always* and a reference to an XHQ Member Value. For this final case, the browse button launches the Value Select dialog which can be used to browse, search and select, the desired path or alias.
Grace Period (in seconds)	This specifies the number of seconds that the system is to wait before declaring a state change of the condition whether that be from normal to active or vice versa. For example, if a condition monitors a frequently varying signal that is close to a high limit, but is not considered in violation of that limit unless it stays above it for 5 minutes, then a grace period of 300 (seconds) would be specified. The same grace period is reapplied to an active condition; that is, an active condition is not deemed having returned to normal unless the condition has been normal for that same amount of time. The grace period may also be specified as a reference to another XHQ solution

Control	Description
	member depending on the value of the combo box. For this latter case, the browse button launches the Value Select dialog which can be used to browse, search, and select, the desired path or alias. The grace period may also be specified as a reference to another XHQ solution member depending on the value of the combo box. There are two grace periods you can set, On Alert and On RTN. • **On Alert** Configures a single grace period for an alert. Do one of the following: ◦ Select *Constant Value* and enter the number of seconds that the condition must be maintained before an event is declared (. *or* ◦ Select *XHQ Member Value* to refer to another XHQ solution member. Click the browse button and use the Value Select dialog to browse, search, or select the desired path or alias. • **On RTN** Configures the **Return-to-Normal** grace period. Do one of the following: ◦ Select *Constant Value* and enter the number of seconds the system must wait before declaring a state change from active to normal. *or* ◦ Select *XHQ Member Value* to refer to another XHQ solution member. Click the browse button and use the Value Select dialog to browse, search, or select the desired path or alias. *or* ◦ Select *Same as Activation* if the RTN value is the same as the Alert grace period. **Note**: If you upgraded from legacy alerts that defined only a single grace period, the RTN value defaults to *Same as Activation*.
Activation Rule	This option allows you to override or to use the system default rule for alert activation when comparing against limit thresholds. The choices include: • **At or Beyond Threshold** Declare the condition active when the measured value meets or exceeds a defined limit. • **Beyond Threshold** Declare the condition active when the measured value strictly exceeds a defined limit. • **Use System Default** Use the system-wide default setting for values at limit thresholds. The system default can either be *At or Beyond Threshold*, the standard rule, or *Beyond Threshold*. The `ans.detector.activeAtThreshold` property in the ANS properties file is used to override the standard setting. Please consult with your ANS System Administrator to determine the Activation Rule for your ANS installation.
Access	There are two controls that are used to control other users' access to this definition.

Control	Description
	First, the *Shared* checkbox indicates whether or not the definition is shared or not. If it is (check box is checked), then the *Security* button pops up a dialog that allows the user to set the scope by adding or subtracting XHQ Roles from its access control list. Shared definitions can be subscribed to and/or viewed by so-permitted users.
Misc: Logged	This checkbox enables logging of "excursions" of this condition. An excursion in an event summary record characterizing the time between a condition going active/abnormal and its return to normal. Excursions can then be viewed via the Log Viewer tool. The user must have a specific permission to enable this feature.
Misc: Default Severity	The user must assign a severity that is to be associated with the condition definition. This severity is used as a means for sorting and filtering on the Alert Status Display and the Alert Log Viewer as well as the default value for a subscription severity.
Detector Type (creation time only)	This combo box allows for the selection of the basic condition detection mechanism that is to be used for this definition. The list currently includes those for: high/low limit, rate-of-change, deviation, and staleness. This combo box is only visible when creating a new definition and sets the correct information form in the lower portion of the screen.

Detector-Specific Configuration

The bottom of the Alert Definition screen contains the detector-specific details.



Detector Types: Condition Detector

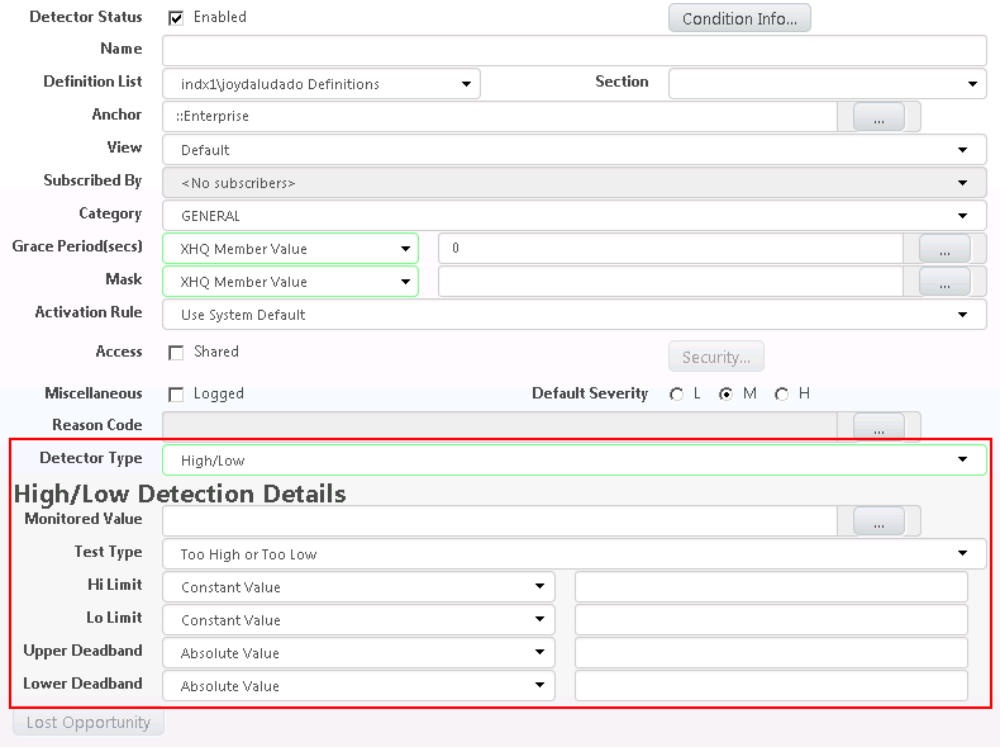
Each detector type has slightly different parameters and is therefore treated separately.

About Quality

For all detector types, only data of GOOD quality is used to determine the condition. Monitored values that have non-GOOD quality are ignored, with respect to declaring an alert or returning to normal state. In other words, UNCERTAIN or BAD quality data values do not trigger an evaluation of the condition rule.

High/Low Limit Detector

This detection technique is used when simple value limit/threshold conditions are required. For example, a definition may detect values that are too high, too low, or both.



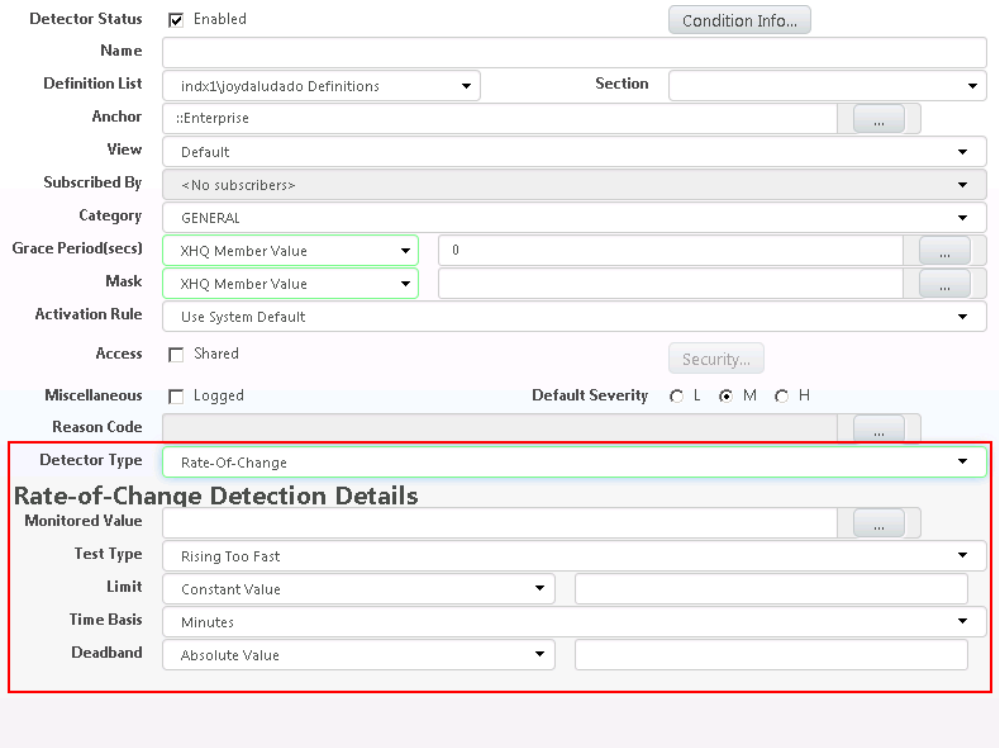
High/Low Limit Detector Controls

Control	Description
Monitored Value	This string references the XHQ namespace entity is the primary value to track for this condition. It may appear as an XHQ path or alias. Clicking the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Test Type	This combo box is used to specify the specific type of test needed: "Too Low", "Too High", or "Too High or Too Low". If "Too High", only the high limit can be entered. If "Too Low", only the low limit can be entered. For "Too High or Too Low", both the high and low limits are required.
Hi Limit Referenced As	This combo allows the user to specify whether the high limit value is specified as a literal value or as a reference to another value within the XHQ solution. The high limit (text box) is a number or a reference to another XHQ solution entity depending on the value of the combo. For this latter case, the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Lo Limit	The combo box allows the user to specify whether the low limit value is given as a literal value or as a reference to another value within the XHQ solution.

Control	Description
	The low limit value (text box) is a number or a reference to another XHQ solution entity depending on the value of the combo. For this latter case, the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Deadband	The deadband is an optionally specified absolute value (for numbers) that reduces the effective high limit and increases the effective low limit, when a condition is already active. In other words, the deadband is used to automatically make it more difficult for an active condition to return to a normal state. For example, if the high limit is 90 and the deadband is 5, then the condition becomes active when the monitored value goes above 90 but will not clear until it goes below 85. Conversely, if the low limit is 20 and the deadband is 5, then the condition becomes active when the monitored value goes below 20, but will not clear until it goes above 25.

Rate of Change Detector

The Rate of Change (ROC) detection technique is used when the condition to be tracked is related to the rate at which a monitored value changes over time. For example, a tank level rising "too fast" would be a good application for this detection technique.

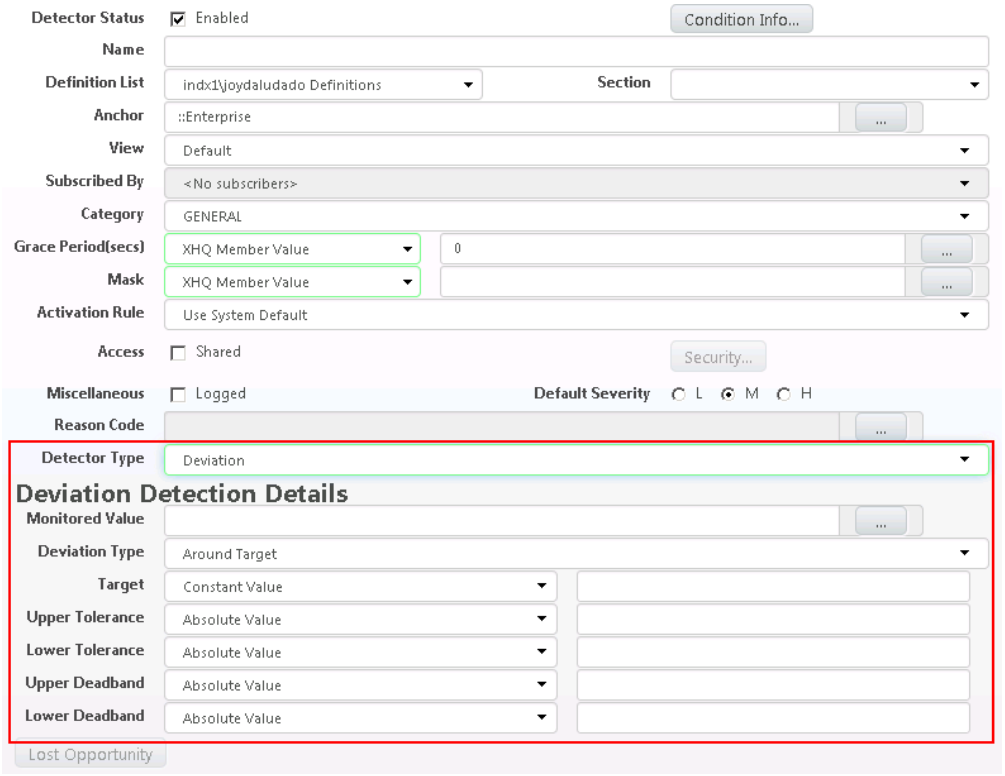


Rate of Change Detector Controls

Control	Description
Monitored Value	This string references the XHQ namespace entity that is the primary value to track for this condition. It may appear as an XHQ path or alias. Clicking the browse button launches the Value Select dialog which can be used to browse, search, and select the

Control	Description
	desired path or alias.
Test Type	This combo box is used to specify the specific type of ROC test needed: "Rising Too Fast" or "Falling Too Fast". Use the first to detect a condition in which the Monitored value is increasing too rapidly; use the latter, if the condition tracks a value that is decreasing too fast. Two separate conditions are needed if both conditions are to be tracked simultaneously.
Limit	This combo allows the user to specify whether the limit value is given as a literal value or as a reference to another value within the XHQ solution. The limit value (text box) is a number or a reference to another XHQ solution entity depending on the value of the combo. (In this latter case, the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.) After the Monitored Value's rate of change is calculated, then it is compared to this limit value. If it exceeds the value, then the condition goes active, i.e. abnormal. Otherwise, the state of the condition is normal.
Time Basis	This allows the selection of the time basis of the Limit specified. (This is not the calculation interval which is dictated by updates of the monitored value from a back end system.)
Deadband	The deadband is an optionally specified absolute value (for numbers) that reduces the effective ROC limit when the condition is already active. In other words, the deadband is used to automatically make it more difficult for an active condition to return to its normal state. For example, if the ROC limit for a "Rising Too Fast" test is 10 and the deadband is 2, then the condition becomes active when the monitored value's rate of increase goes above 10 but will not clear until it goes below 8. The same holds for a "Falling Too Fast" test.

Deviation Detector



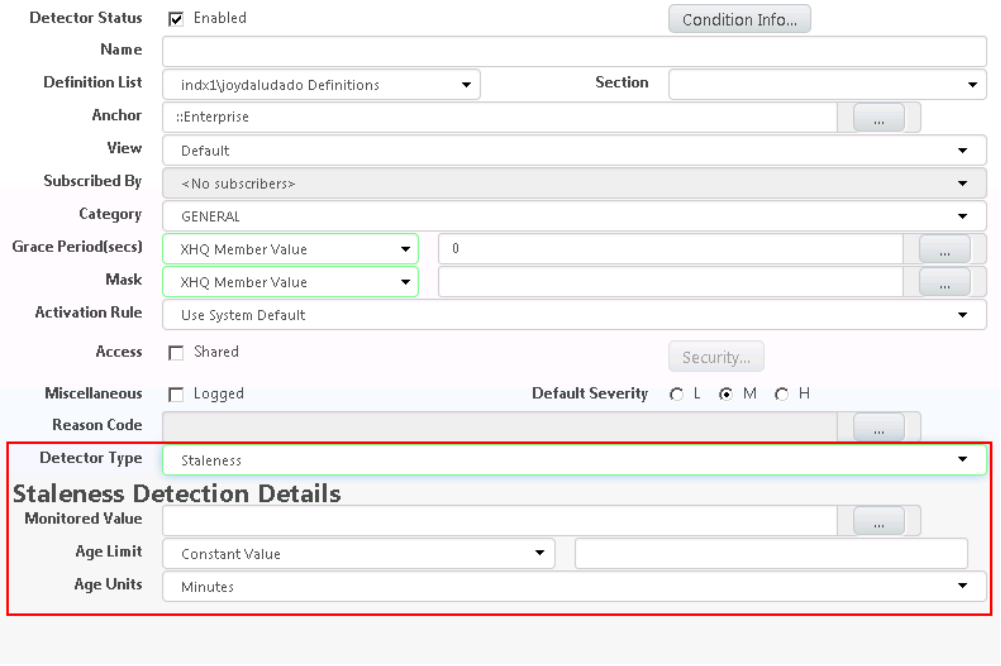
Deviation Detector Controls

Control	Description
Monitored Value	This string references the XHQ namespace entity that is the primary value to track for this condition. It may appear as an XHQ path or alias. Clicking the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Deviation Type	This combo box is used to specify the specific type of Deviation test needed: "Below Target", "Above Target" or "Around Target".
Target	This combo allows the user to specify whether the Target value is given as a literal value or as a reference to another value within the XHQ solution. The target value (text box) is the value that the Monitored Value should "track" within the specified deadband around it. If the target is "by reference" then the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Tolerance	The tolerance value is the limit value, if you will, that defines the acceptable range about the target. For example, if the target is 300 and the tolerance is 20 and the deviation test type is "Around Target", then the condition goes active whenever the monitored value is above 320 or below 280.
Deadband	The deadband is an optionally specified absolute value (for numbers) that reduces

Control	Description
	the effective tolerance when the condition is already active. In other words, the deadband is used to automatically make it more difficult for an active condition to return to its normal state. For example, if the target is 300, the tolerance is 20 and the deadband is 5, then, for an "Above Target" test, the condition becomes active when the monitored value goes above 320 but must go below 315 to clear. Similarly, a "Below Target" test will go active when the monitored value goes below 280, but will not clear until it goes above 285. An "Around Target" test is effectively a combination of these two examples.

Staleness Detector

The Staleness detection technique is used when values are expected to change within a specified length of time and is considered an alertable condition if it does not.



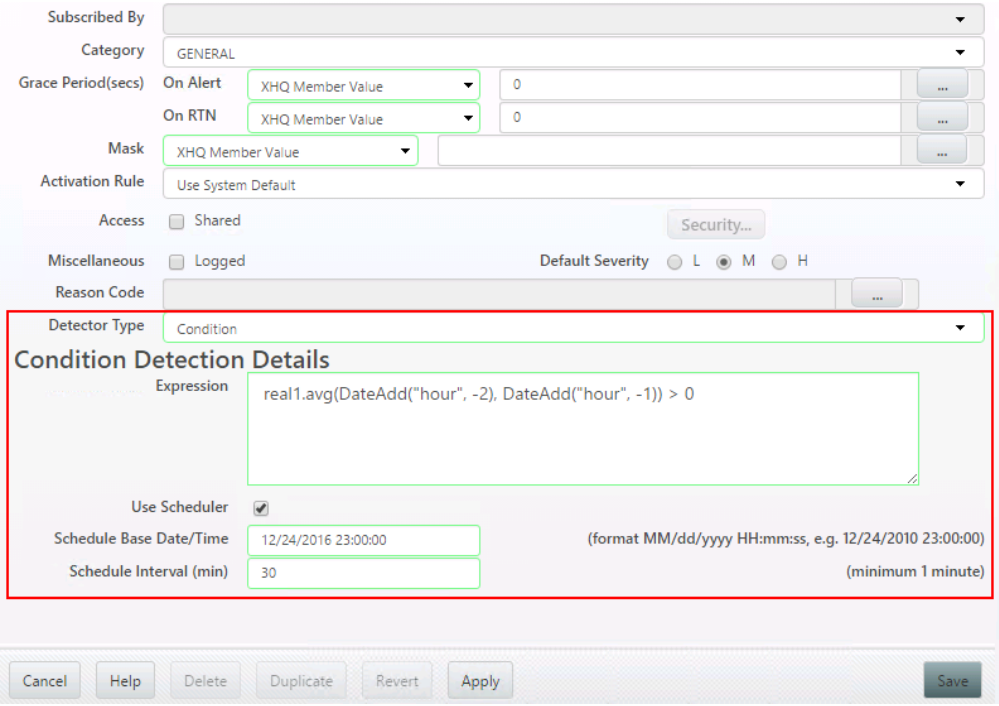
Staleness Detector Controls

Control	Description
Monitored Value	This string references the XHQ namespace entity that is the primary value to track for this condition. It may appear as an XHQ path or alias. Clicking the browse button launches the Value Select dialog which can be used to browse, search, and select the desired path or alias.
Age Limit	The combo allows the user to specify whether the limit value is given as a literal value or as a reference to another value within the XHQ solution. The age limit value (text box) is a number or a reference to another XHQ solution entity depending on the value of the combo. The Limit is used to specify the amount

Control	Description
	of time to wait before declaring an active condition, so is inherently a time value. If the age limit is "by reference" then the icon will launch the Value Select dialog which can be used to browse, search and select the desired path or alias.
Age Units	This is the units of time of the *Age Limit* value.

Condition Detector

A conditional alert is an alert determined by the result of a conditional expression (that is, the expression is expected to be a condition to test resulting in true, an alert has occurred, or false, no alert).



Condition Detector Controls

Control	Description
Expression	Enter an expression to perform a calculation against data returned from the backend system. If the expression contains time-based references, you must provide an execution schedule for the condition to be evaluated. *Expression Examples*: **`iff(Value1>10, true, iff(Value1>5 && Value2<0, true, false))`** For this first example, an alert occurs if Value1 is greater than 10, or if Value1 is greater than 5 AND Value2 is less than 0. This can also be expressed as `(Value1>10) || (Value1>5 && Value2<0)` **`AVG(rProdRate1, rProdRate2) < AVG(rTgt1, rTgt2)`** For this example, an alert occurs if the average production rate for two units is less

Control	Description
	than their average target.
Use Scheduler	Check to enable the Scheduler (which is the Solution Server expression evaluation scheduler).
Schedule Base Data/Time	This field is activated when the Scheduler is enabled. It is optional, and may be left blank. To specify, enter a date/time in the past, using the following format: `MM/dd/yyyy HH:mm:ss`
Schedule Interval	Enter the scheduling period in minutes (min). The minimum period allowed is one minute. **Note:** Once the Scheduler is enabled, this field cannot be empty.

About Expressions and the Scheduler

For conditional alerts, expressions provide a way to test for abnormal conditions (excursions) using Boolean logic. As stated previously, the expression is expected to be a condition resulting in either a "true" (in which case an alert has occurred), or a "false" (no alert).

As with all detector types, monitored values that have non-GOOD quality are ignored, with respect to declaring an alert or returning to normal state.

For conditional alerts, the expression language of the XHQ Solution Server (the server-side expression syntax) is used to express the condition. The Anchor path is used as the context for evaluating the expression. You can use global paths (for example, `::Full.Path.To.Member`), as well as aliases or relative paths.

When the Scheduler is enabled, the expression is (re-)evaluated at every given period, starting from the specified base date and time. This remains true regardless of the possibility that some members of the expression may expire sooner than the scheduled period. This is because the Scheduler suppresses all other re-evaluation mechanism for the given server-side expression.

If the Schedule is not enabled, the XHQ Solution Server evaluates the expression each time any of the members referenced in the expression is updated. This is known as *event-based evaluation*.

Consider the following examples.

An expression is assigned a schedule period of 8 hours and a base date/time schedule of 4/9/2010 8:00:00 (which is Monday, April 9, 2010 at 8 AM). Expression evaluations would occur at 8 AM, 4 PM, and 12 AM each day.

Additional Schedule Scenarios

At a Base Date/Time of . . .	And a Period (in minutes) of . . .	The Expression is evaluated . . .
4/9/2010 8:00:00	2880(which is 48 hours)	At 8 a.m. every other day.
4/9/2010 8:00:00	10080(which is 7 days)	At 8 a.m. each Monday (because 4/9/2010 is a Monday).

Adjusting for Daylight Saving Time

If the expression schedule period is 2 hours or longer, and divides evenly into 24 hours or is a multiple of 24 hours, then scheduling is automatically adjusted for Daylight Saving Time (DST) changes. This means that for scheduled periods that result in easily predictable evaluation times (like the examples above), the expression evaluation occurs at the same local clock times in the summer and winter. Practically speaking, the above rule adjusts for DST with schedule periods of 2, 3, 4, 6, 8, 12, or 24 hours, or some multiple of 24 hours.

To prevent the DST adjustment, set the schedule period to a value that is slightly different than the desired value. For example, set the schedule period to 1441 minutes instead of 1440 for a one-day period.

A couple of important things to note about DST adjustments:

- Avoid scheduling DST-adjusted periods such that they occur during the "ambiguous times" caused by setting the clock back (1 AM to 2 AM in most of the US). For example, an expression evaluation scheduled to run at 1:30 AM may run twice on the "fall-back" date, since 1:30 AM occurs twice on that day.
- DST adjustment forces the specified schedule period to be lengthened or shortened on dates when the DST changes occur.

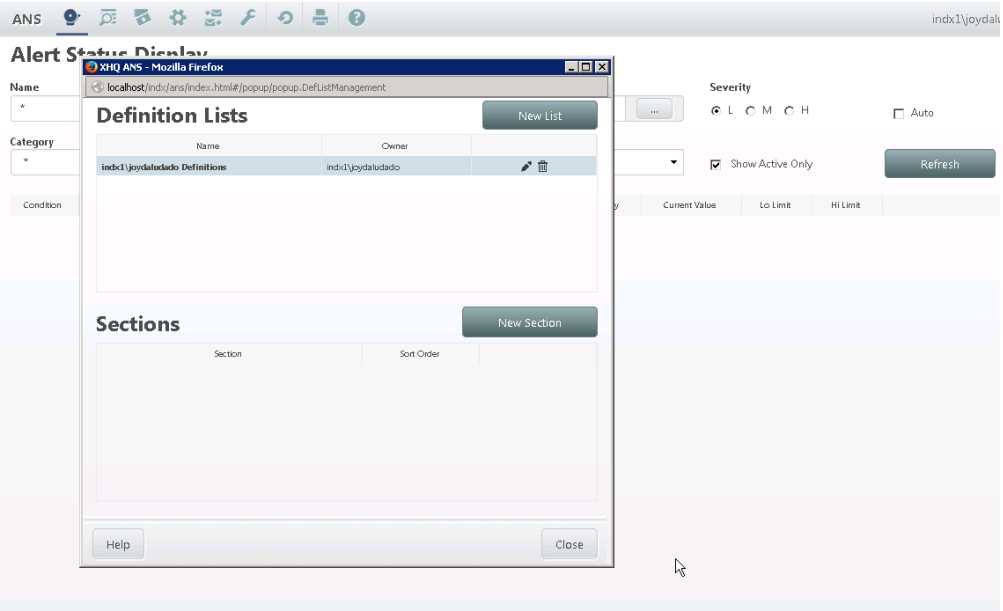
Alert Definition Dialog Box Buttons

Alert Definition Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Delete	Use this button to delete the definition. **Note**: All subscriptions to the definition will be deleted as well.
Duplicate	Use this button to duplicate the definition.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
Apply	Use this button to save changes and keep the window open.
OK	Use this button to save changes and close the window.

Definition List Manager

The Definition List Manager screen is accessible by clicking on the  icon appearing on the Alert Status Display, the Alert Log Viewer, and the Configuration tools' screens. The Definition List Manager allows the user to create, delete and otherwise manage, his/her definition lists.



Definition List Manager

When launched, the Definition List Manager will fetch and display all currently configured definition lists belonging to the user as well as those that belong to other users but have been shared in the user's scope. The user can then create, edit and delete definition lists or simply take a look at what's there.

The Definition List Manager screen contains 2 tables, one above the other. The top table has a list of the definition lists, and the bottom one has a list of the list sections for the list that is currently selected up top.

Definition List Table

The top table contains a list of the current set of lists available to the user: his/hers as well as shared ones. The user may create new definition lists as well as edit and delete existing ones of which s/he is the owner. When a row is selected via a single click, the lower table is populated by all list sections for that list.

Definition List Table Columns

Column	Description
Name	This column shows the name of the definition list. Note: Lists that are not owned by the current user is shown parenthetically.
Owner	This indicates the name of the user that owns the list.

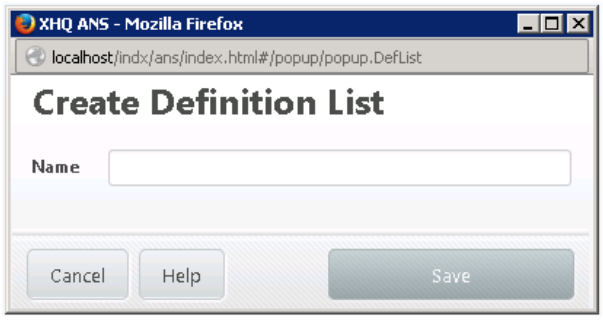
Definition List Icons

Definition List Icons

Icon	Description
 **(Create Definition List)**	Click on this icon to add/create a new definition list via the Create Definition List dialog that pops up. This simple dialog provides the means to give the definition list a name.
 **(Edit Definition List)**	Click on an existing list in the table to select it, then click on this icon to edit the subscription list via the Create Definition List dialog that pops up. **Note**: A double-click on a row has the same results. This dialog allows the user to change the list's name.
 **(Delete Definition List)**	Click on an existing list in the table, then click on this icon to delete the definition list. **WARNING**: This action deletes all condition definitions in the list as well as all subscriptions (shared or not shared) currently linked to those definitions. This operation performs a "deep delete" and may take several minutes as it deletes all logged excursions - essentially all remnants of the definition list and definitions.

Create/Edit Definition List Dialog

The Definition List screen is launched from the Definition List Manager via a double-click on a definition or by clicking on the New List button or by selecting a definition then clicking the edit icon. This simple pop up dialog is used to assign a name to a definition list when it is being created, or, for an existing definition list, this dialog can be used to change the name.



Create Definition List Dialog Box

Create Definition List Dialog Controls

Control	Description
Name	This text field is used to enter a new name of the definition list being created or modified. The name can contain blanks and most other special characters but is limited to 128 characters in length.

Create Definition List Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Sections Table

The lower table contains a list of the list sections for the definition list currently selected in the upper table. For those lists owned by the user, s/he may add, modify or delete sections from the associated list using the control icons at the top right of the table.

Sections Table Columns

Column	Description
Section	This column shows the name of the section. The name can be changed using the edit mechanism described below.
Sort Order	This indicates the order in which the sections should be sorted when shown in a UI. This is simply a number that is relative to all other sort order numbers in a given list. In order to accommodate future changes, it may be a good idea to make these numbers, initially at least, non-consecutive.

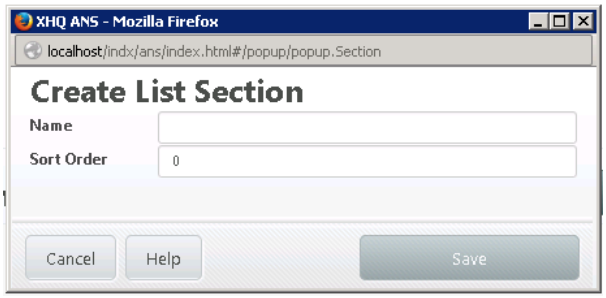
Sections Table Icons

Sections Table Icons

Icon	Description
 **(Create Section)**	Click on this icon to create a new section via the Edit List Section dialog that pops up. This simple dialog provides the means to give the section a name and specify its sort order.
 **(Edit Section)**	Click on an existing list section in the table to select it, then click on this icon to edit the subscription list via the Edit List Section dialog that pops up. (Note: a double click on a section has the same results.) This dialog allows the user to change the section's name and sort order.
 **(Delete Section)**	Click on an existing section in the table, then click on this icon to delete it. **WARNING**: This action has the potential side affect of reassigning (to the "null" section) all definitions that are currently in the section being deleted.

Create/Edit Definition List Section Dialog

The Definition List Section screen is launched from the Definition List Manager via a double-click on a definition list section or by clicking on the create section icon or by selecting an existing section then clicking the edit section icon. This simple pop up dialog is used to assign a name and sort order to a list section.



Create List Section Dialog Controls

Control	Description
Name	This text field is used to enter a new name to the list section being created or modified. The name can contain blanks and most other special characters but is limited to 80 characters in length.
Sort Order	A number (integer) may be assigned to the list section using this text entry field. When sections are displayed elsewhere in the UI, this parameter is used to control the default order in which all sections of a given list are presented. It is a good idea to use non-consecutive numbers to expedite future changes.

The Create List Section dialog has the following buttons at the bottom of the screen.

Create List Section Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Definition List Manager Dialog Box Buttons

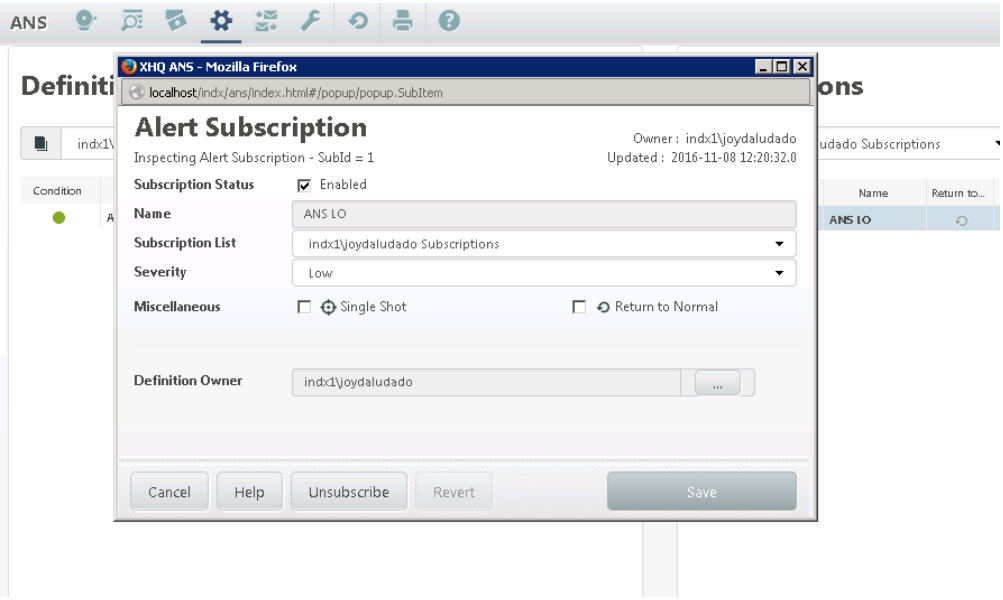
The Definition List Manager has the following buttons at the bottom of the dialog box.

Definition List Manager Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Close	Use this button to close the window.

Configuration - Alert Subscription Display

The Alert Subscription screen provides access to all the details of a particular alert subscription and can be launched by double-clicking on a subscription item or by using the icons under the subscription list on the main Configuration Tool screen. Alert Subscription screen can be used to create, modify or delete subscriptions (also known as "Unsubscribing").



Alert Subscription Dialog Box

Alert Subscription Controls

Control	Description
Owner (read only)	This is the name of the user that created the subscription. This is set by the system at the time of creation.
Updated (read only)	This is the time and date that the subscription was last updated. For a new subscription, this is the time that it was created.
Subscription Status	This checkbox controls whether or not the subscription is active/enabled. This essentially controls whether or not remote notifications are enabled for the associated condition.
Name	This is the name of the subscription (forced to be the same as the associated definition name). This string is composed of characters (it is case sensitive), numbers, blanks, and most other symbols. It is limited to 128 characters in length.
Subscription List	This indicates which list the subscription belongs to. The subscription can be moved to another list by selecting one from the combo box.
Severity	The subscribing user can set his/her own severity for this condition: high, medium or low, effectively overriding that of the associated condition definition.
	This checkbox is used to declare a "single shot" notification. This attribute is set if the user making the subscription wants to get a remote notification of the first

Control	Description
Misc: Single Shot	occurrence of the associated condition. The subscription is automatically disabled after this happens.
 **Misc: Return to Normal**	This checkbox is checked if the user wished to be notified on both "going active" (the usual case) as well as when the condition returns to a normal state.
Definition Owner	This field indicates the owner of the associated condition definition. The browse button next to the "Definition Owner" text box launches the Alert Definition screen for the definition that is associated with this subscription.

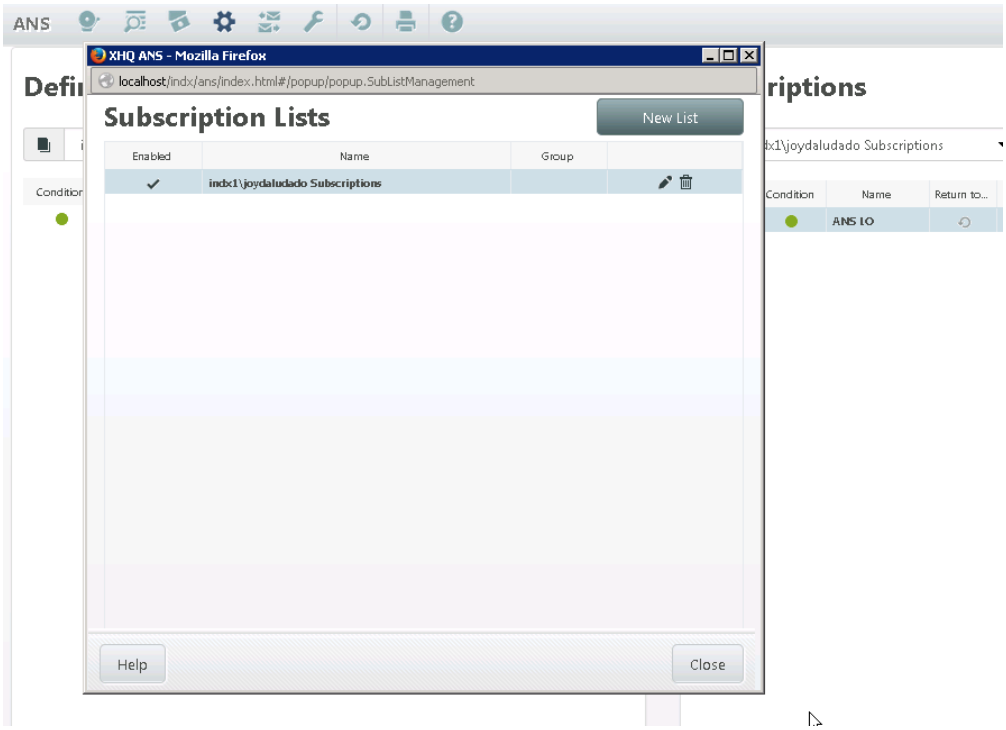
Alert Subscription Dialog Box Buttons

Alert Subscription Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Unsubscribe	Use this button to unsubscribe (delete) the subscription.
Revert	Use this button to restore the currently saved subscription details.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to close the window and save all changes.

Subscription List Manager

The Subscription List Manager screen is accessible by clicking on the  icon appearing on the Alert Status Display, the Alert Log Viewer, and the Configuration tools' screens. The Subscription List Manager allows the user to create, delete and otherwise manage, his/her subscription lists.



Subscription Lists Dialog Box

When launched, the Subscription List Manager will fetch and display all currently configured subscription lists belonging to the user. The user can then use the create, edit and delete controls to alter their subscription list strategy or simply take a look at what they have.

Subscription List Table

The table of subscription lists has the following columns.

Subscription List Table Columns

Column	Description
✓ **(Enabled)**	If there is a check mark in the first column, then the subscription list is enabled and may result in remote notifications if subscription items in the list become active. Otherwise, the list is disabled, and all member subscriptions are disabled along with it although the individual subscription enabled states are unaffected - they are just overridden at the list level.
Name	This column has the name of the subscription list.

Subscription List Icons

The following icons, found in the top right corner of the screen, can be used to create, modify and delete subscription lists.

Subscription List Icons

Icon	Description
 **(Create Subscription List)**	Click on this icon to add/create a new subscription list via the Create Subscription List dialog that pops up. This simple dialog provides the means to give the subscription list a name, and set whether it is enabled or not.
 **(Edit Subscription List)**	Click on an existing list in the table to select it, then click on this icon to edit the subscription list via the Create Subscription List dialog that pops up. **Note**: Double clicking on a row has the same results. This dialog allows the user to change the list's name and/or its enabled/disabled state.
 **(Delete Subscription List)**	Click on an existing list in the table, then click on this icon to delete the subscription list. **WARNING**: This action will delete all subscriptions currently configured as part of the list.

Subscription List Manager Dialog Box Buttons

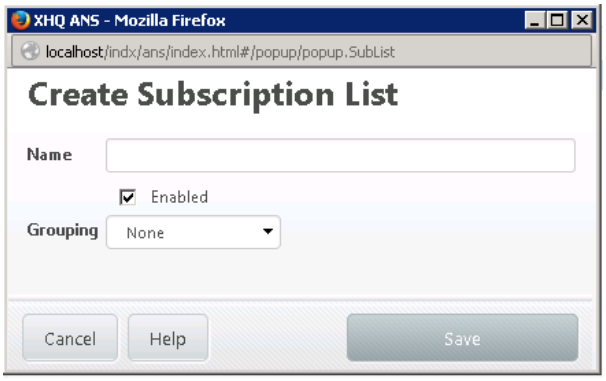
The Subscription List Manager has the following buttons at the bottom of the dialog.

Subscription List Manager Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Close	Use this button to close the window.

Create/Edit Subscription List Dialog

The Subscription List screen is launched from the Subscription List Manager via a double-click on a subscription or by clicking on the create icon or by selecting a subscription then clicking the edit icon. This simple pop up dialog is used to assign a name to a subscription list when it is being created, or, for an existing one, this dialog can be used to change the name. It is also used to enable or disable the subscription list (and override all of the individual subscription enabled states).



Create Subscription List Dialog Box

Create Subscription List Dialog Controls

Control	Description
Name	This text field is used to enter a new name of the definition list being created or modified. The name can contain blanks and most other special characters but is limited to 128 characters in length.
Enabled	This checkbox is used to enable (checked) or disable (unchecked) the subscription list. Enabling a subscription list in turn enables all constituent subscriptions that are themselves set to enabled. Conversely, disabling a subscription list effectively disables all subscriptions in the list (though the individual enabled flags are left unchanged; they are simply overridden).

The Create Subscription List dialog has the following buttons at the bottom of the screen.

Create List Section Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

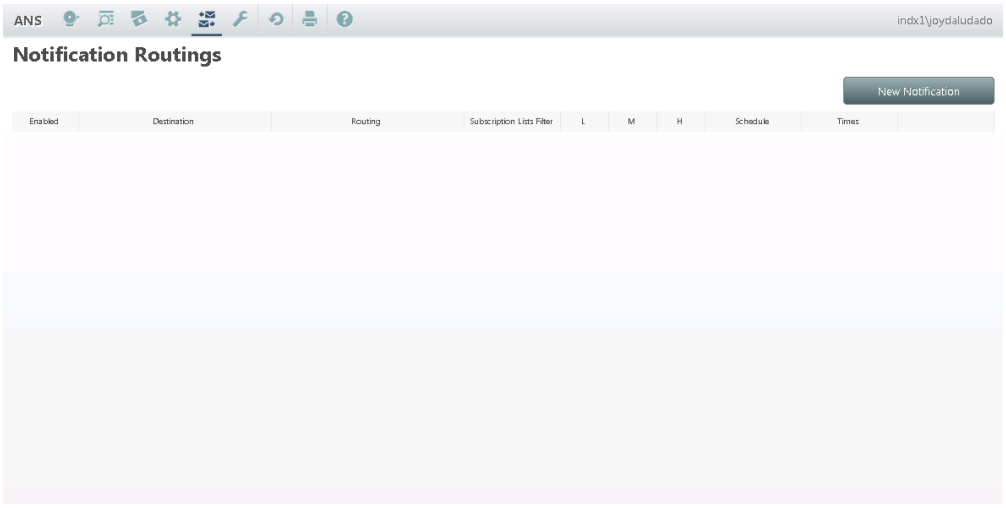
6 | Alert Notification Routings Tool

Notification Routings control what and how remote notifications are delivered. XHQ ANS currently contains support for email routings only. The general idea is that Notification Routings are created and configured to control if, when and what emails are to be sent. Each routing has a collection of filters that are simultaneously applied to determine and control remote notifications. Filters include those for: severity, time/schedule, and subscription list(s).

It is important to note that Subscriptions (and Subscription Lists) are the primary means to affect remote notifications. That is, one only gets notification routings for subscriptions, not for unsubscribed definitions.

Notification Routings

The Notification Routings screen shows the current list of routings that are configured for the user. Each line in the table represents a different routing and contains summary information for each.



Notification Routings

This summary information appears as separate columns as described by the following.

Notification Routings Table Columns

Column	Description
✓ **(Enabled)**	This column contains a check mark if the routing is currently enabled, and is blank if the routing is disabled. To change this state, access the Routing Details by double-clicking on the line (or select the line with a click, and hit the edit icon at the top right of the screen).
Destination	This is the destination address of the remote notification. Currently, XHQ ANS only supports routings to email destinations, so this destination is an email address. This email address is the address to which notifications are sent.
Sub Lists Filter	This field contains a simple wild-carded expression that indicates which subscription list or lists are to be candidate sources for notifications for this routing. If all lists are

Column	Description
	to be considered, then the value for this field should be "*". If a specific list is to be used, then the name of that list should be explicitly entered. If a series of lists are to be considered, and those lists follow a suitable naming convention, then a "*" can be used to wildcard one or more characters in the specified string.
L, M, H (Severities)	An "L" in the "L" column indicates that conditions that have a severity of "low" is subject to notification on this routing. Similarly, an "M" means medium severity and an "H" means high.
Schedule	This field indicates which schedule controls the "time filtering" aspect of this routing. Schedules are made up of "Work" and "Off" times, for example.
Times	For the selected schedule, this field indicates which type of time interval is to be used to decide when a notification should be delivered. For example, a "standard" schedule may indicate a Monday through Friday, 9am to 5pm, working times. By selecting this "standard" schedule as the Schedule, then selecting the "at work" type time intervals, only those alerts that occur between 9 and 5, Monday through Friday will result in a remote notification.

Access to Routing Icons

The following icons, found in the top right corner of the screen, can be used to create, modify and delete routings.

Access to Routing Icons

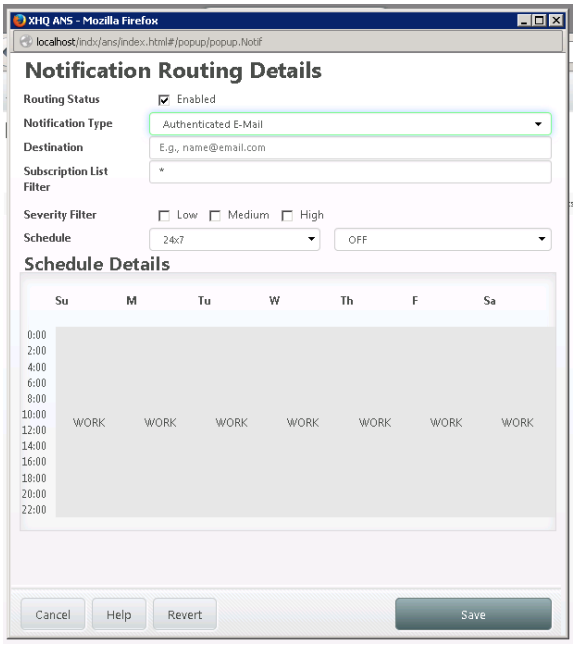
Icon	Description
 **(Create Routing)**	Click on this button to add/create a new routing via the Routing Details screen.
 **(Edit Routing)**	Click on a routing then click on this icon to edit the highlighted routing via the Routing Details screen. **Note**: Double clicking on a row has the same results.
 **(Delete Routing)**	Click on a routing, then click on this icon to delete the highlighted routing.

Alert Notification Routings - Routing Details

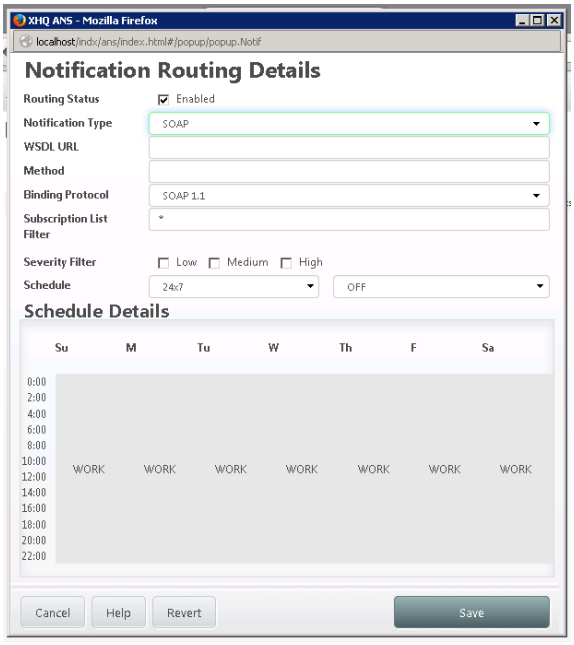
Notification Routings control what, how and when remote notifications are delivered. The Routing Details screen is used to create new routings and edit existing routings. This screen is launched from the Notification Routings tool.

Notification Routing Details

The Routing Details display provides the details of a specific routing. The user may change any/all attributes of the routing then save these changes which will immediately affect the routing of remote notifications.



For Authenticated E-mail



For SOAP

Notification Routings Details Controls

Control	Description
Routing Status	This checkbox is used to enable or disable the routing. If checked, then the routing is enabled and may result in notifications. If unchecked, then the routing is ignored. This can be used to temporarily disable notifications without having to delete them.
Notification Type	Options: • **Authenticated E-mail** Notification is sent using authenticated SMTP. The authenticated account and password is configurable in the `ans.properties` file. See the topic, *ANS E mail Notification Authentication*. • **SOAP** ANS passes the alert data, in XML format, to a SOAP-based web service. See the topic, *About SOAP based Notification*, for details. • **Standard E-mail**

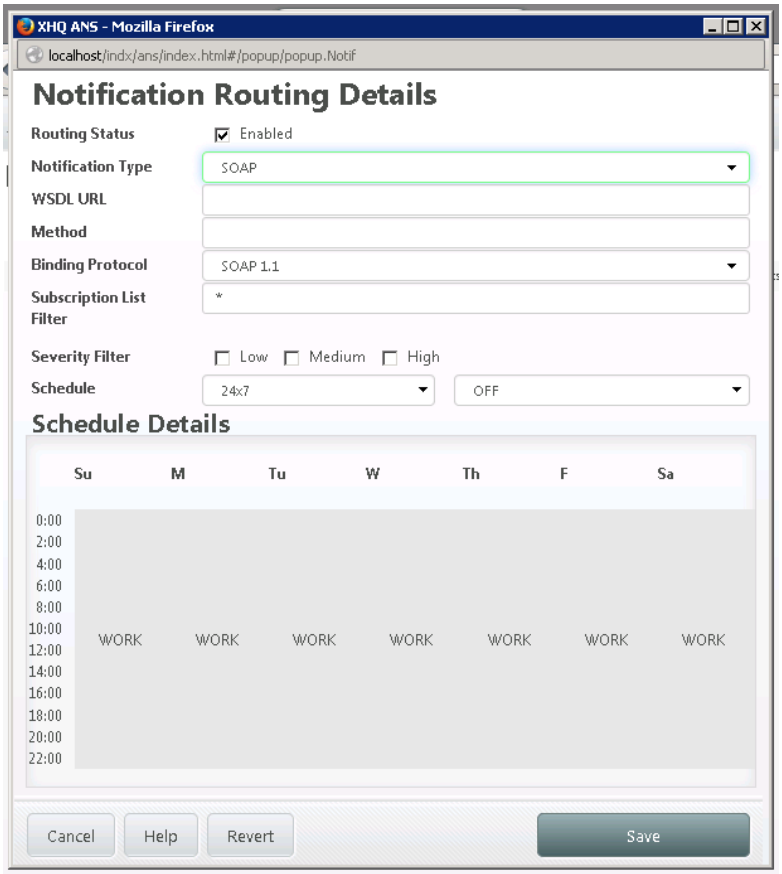
Control	Description
	Note: Virus scanners may provide additional protection features (for example, McAfee® Access Protection prohibits, by default, the sending of e-mail unless the sending application is explicitly added to an allowed list). In this case, the `xhq_aserver.exe` file must be added to the "Processes to Exclude" list of the associated virus scanner before e-mails can be successfully sent from the XHQ ANS Server. If this is not done, ANS may log a message such as the following in the `ans-0.out` log file: `03/04/2011 11:10:47.060 SEVERE: Error processing notification EXCEPTION: com.indx.xhq.ans.server.AnsNotifyException: javax.mail.MessagingException: Could not connect to SMTP host: 192.168.2.11, port: 25; nested exception is: java.net.ConnectException: Connection refused: connect`
Destination	This text field is used to specify a destination address. In the case of email, this address is a valid email address. This field must be non-null to be validated. *Example:* `JoeSmith@TharBeWhales.org`
Subscription List Filter	This text field is used to filter, on a subscription list basis, which alerts are subject to this routing. A simple wildcard expression can be used. For example, if all lists are to be considered, then an asterisk ("*"), which is the default, is specified. If only a specific list is to be considered, then the name of that list can be entered. If multiple subscription lists are to be considered, but subject to a pattern, then the appropriate text should be entered. For example, if the user creates a number of Subscription Lists that follows the convention of including the unit name in the list name, then the user can create a routing that considers all subscription lists containing that unit name as in "*FCC*".
Severity Filter	This filter is used to filter alert notifications based on the subscriptions' severity assignments. Check "Low" if low severity alerts are to be delivered for this routing. Check "Medium" for medium severity alerts, and "High" for high. Any combination of these is allowed. If none are checked, this effectively disables all deliveries for this routing.
Schedule	There are two combo boxes that are used together to decide at what times notifications should be sent. The first one is used to choose from one of the system-wide "schedules"; and the second, is used to specify which "types" of intervals are valid. In a simple case, for example, there may be an "Early Shift" schedule that is made up of "WORK" and "OFF" times (the specific names for schedules and time intervals are system-specific, so may be different on your system.) So, if the user would like to get email notifications on his work email, then he can set up a routing of "Early Shift"/"WORK". He may then set up another routing to get email at his home (a different email address), by specifying this different email address and choosing the schedule "Early Shift" for "OFF" times. By setting up this second routing with only the "High" severity box checked, he will have created a condition where he gets email alerts on his work account during regular working times, and automatically stop receiving them there, and start receiving only high severity alerts on his home account. A summary of the currently selected schedule is shown graphically at the bottom of the Notification Routing Details screen.

Notification Routing Details Dialog Box Buttons

Notification Routing Details Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

About SOAP-based Notification



SOAP Notification Type

The SOAP notification type requires you to configure the following additional options.

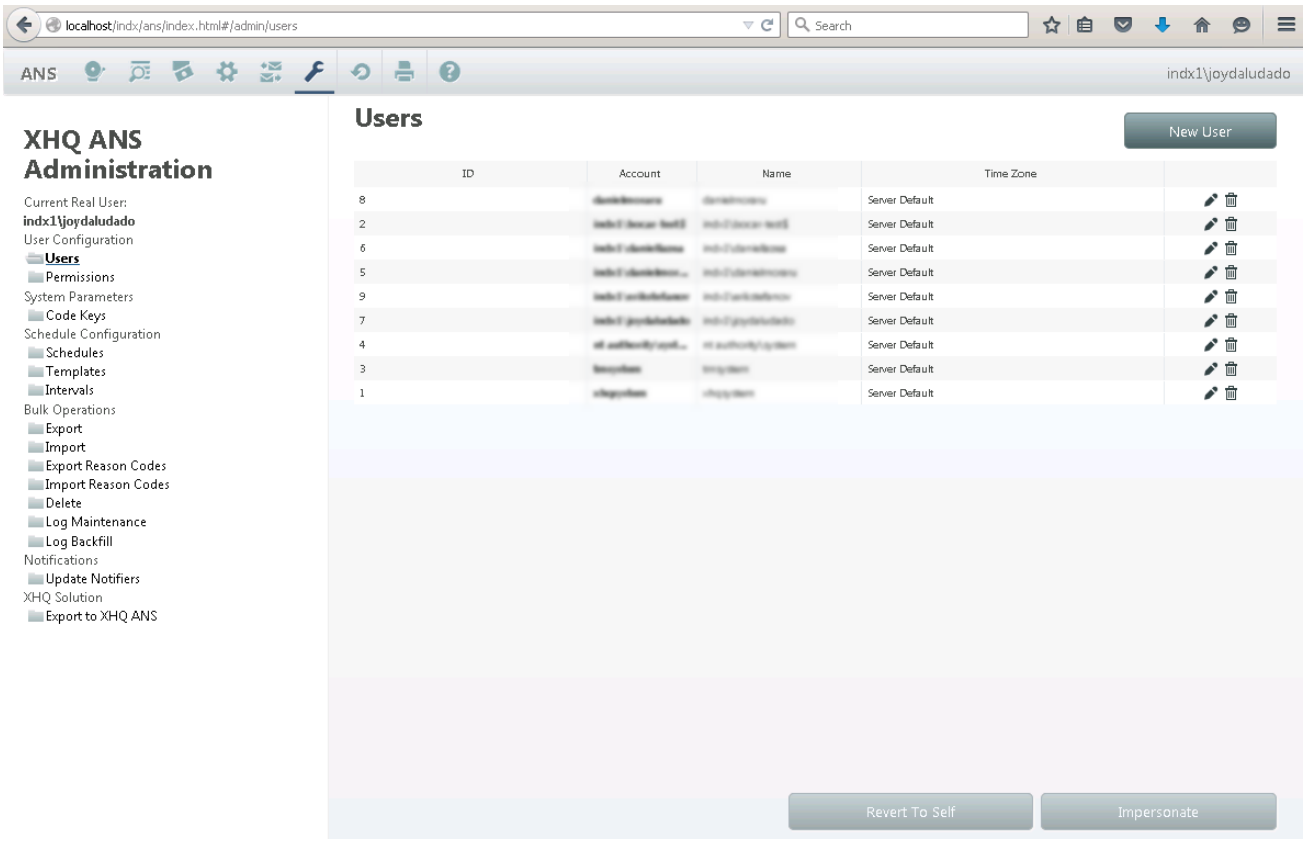
Option	Description
WSDL URL	The URL to the WSDL that identifies the third-party web service.
Method	The name of the web service operation (web method) that is invoked by the SOAP notification handler in order to pass the alert event data as

Option	Description
	XML.
Binding Protocol	The SOAP protocol version used in the web service SOAP request. **Note:** Currently, SOAP version 1.1 and 1.2 are supported.

For more information, see the topic, *The ANS SOAP Notification Handler*.

7 | For the XHQ ANS Administrator

XHQ ANS Administrator permissions is required to access the Admin tools, all of which are accessible by clicking on the given link in the **left-side column** of the main tool.



XHQ ANS Administration

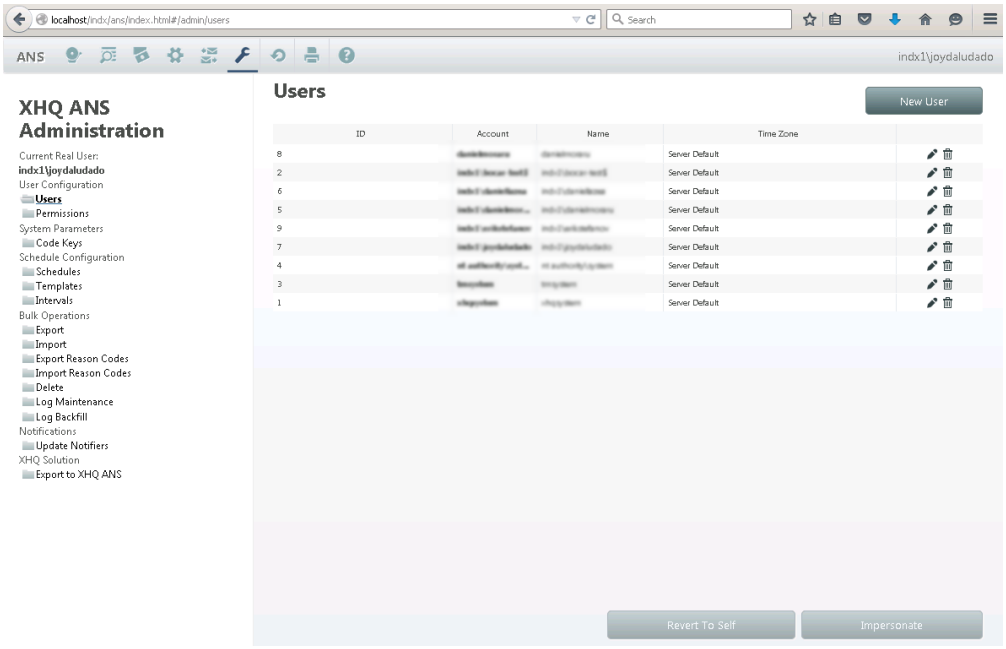
These Administrator-specific tools fall into one of the following categories.

Category	Tools
User Configuration	• *User Maintenance Tool* • *Roles Permissions Maintenance Tool*
System Parameters	• *Code Key Administration Tool*
Schedule Configuration	• *Schedule Maintenance Tool* • *Template Maintenance Tool* • *Interval Maintenance Tool*
Bulk Operations	• *Export Alert Definitions and Subscriptions Tool* • *Import Alert Definitions Tool* • *Export Import Reason Codes Tool* • *Delete Definitions Tool*

Category	Tools
	• *Excursion Log Maintenance* • *Excursion Log Backfill Tool*
Notifications	• *Notification Handler Update Tool*
XHQ Solution	• *Solution Export to XHQ ANS Database Tool*
Additional Tools	• Transferring Ownership

User Maintenance Tool

The User maintenance tool provides the environment for maintaining XHQ ANS user information and testing user configuration via impersonation. Users are automatically added by the XHQ Enterprise Server whenever the user accesses XHQ and XHQ ANS. Other user account IDs can be added to the list as desired. Typically, it is only necessary to change a user's information to supply the user's full name or set his time zone. Please note that this tool cannot be used to create, modify or delete users in your computer's operating system, domain or active directory. This tool is used only to augment the information for these users in the XHQ ANS environment.



User Maintenance Tool

Main Screen

The list of users is listed in the Users table in the middle of the screen. The list is organized alphabetically by account.

User Maintenance Table Columns

Column	Description
ID	This column displays the internal number used to identify the user in the XHQ ANS data base of users.
Account	This column displays the operating system account for the user. Typically, this account name is in the form of domain\username.
Name	This column shows the full name of the user. When first created by the XHQ Enterprise server, the name is not configured. Whenever user information is displayed on XHQ ANS screens, this name is used if configured. If not configured, the account is displayed instead.
Time Zone	This column displays the user's time-zone preference. When created, this is set to "Server Default", indicating that the user's time zone is the same as that of the XHQ ANS server machine. However, if a user is in a remote location, the time zone can be changed to reflect this difference. The time zone setting governs the delivery of notifications with respect to scheduling information.

User Maintenance Buttons

Button	Description
Revert To Self	This button allows an administrator who is currently impersonating another user to revert to his own user identity.
Impersonate	This button allows a user with administrator privileges to impersonate another user. One normally impersonates a user to examine that user's configuration or diagnose problems that the user may be experiencing. When impersonating another user, the name or account shown in the upper right-hand corner of the XHQ ANS tool pad is displayed with parentheses surrounding it.

Access to User Details

By double-clicking on an item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the User Details screen and is used to create, inspect and edit user information.

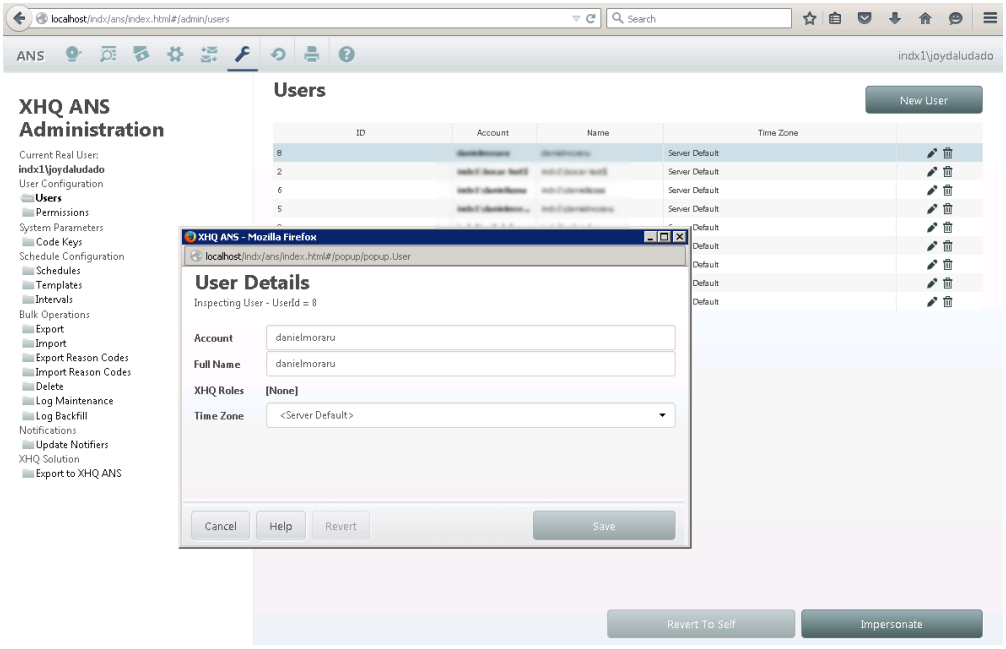
In addition to the double-clicking technique, there are three icons that provide related functionality. These include the following.

User Details Icons

Icon	Description
	This button launches the User Details screen to create a new user.
	This icon launches the User Details screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a user's information. If no item is selected, this icon is disabled. **Note:** Deleting a User deletes all configured information in XHQ ANS and routes.

User Details Dialog

The User Details dialog allows you to edit certain information about the user. The User Details dialog can be used to create or modify users.



User Details Dialog

This tool cannot be used to create users in your computer's operating system, domain, or active directory.

This is a tool to associate a user's account with information that is important for XHQ ANS. The following tables provide a description of each field and button on this screen.

User Details Controls

Control	Description
Account	The account for the user in the computer operating system. This value must match the actual operating system account defined by your operating environment. This field is typically generated by the XHQ Enterprise server when a user logs into XHQ.
Full Name	The value of this field is used in the XHQ ANS screens to display the actual name of the user. If this field is left blank, the account is used instead when displaying user information.
XHQ Roles (read only)	This field displays the roles that the user has been assigned in XHQ. This information is not configurable from XHQ ANS; it is only configurable via the XHQ Workbench editor
Time Zone	This field allows the user's time zone to be configured, if the user is at a remote location. The time zone setting is used in conjunction with schedule information to determine if a notification is to be sent when a user has notification routings and a subscribed alert is activated. Typically, this field is set to <Server Default>, meaning that the user is in the same time zone as the XHQ ANS server that is generating notifications.

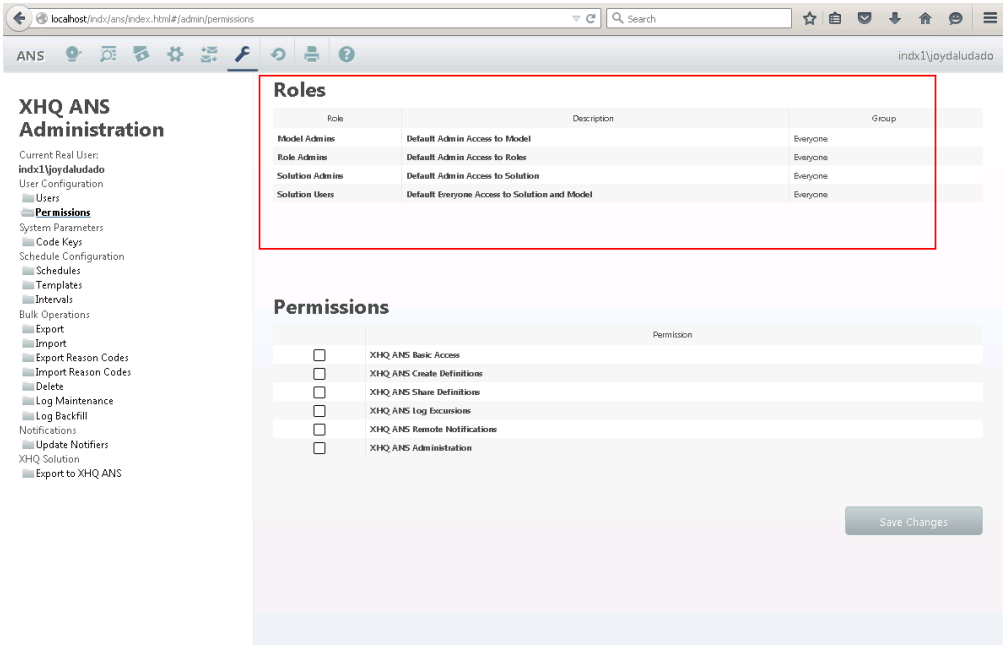
User Details Buttons

Button	Description
Help	Use this button to bring up online help.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Roles & Permissions Maintenance Tool

The Roles & Permissions maintenance tool provides the environment for maintaining XHQ ANS permission for XHQ roles. This tool only allows the enabling and disabling of XHQ ANS-specific permission for roles configured in XHQ. XHQ roles can only be created, modified and/or deleted with the XHQ Workbench editor. XHQ ANS administrative permission is required to access this screen.

The screen is divided into two tables: **Roles** and **Permissions**. The Roles table lists the available XHQ roles. The Permissions table lists the XHQ ANS-specific permission settings for a specific role when selected in the Roles table.



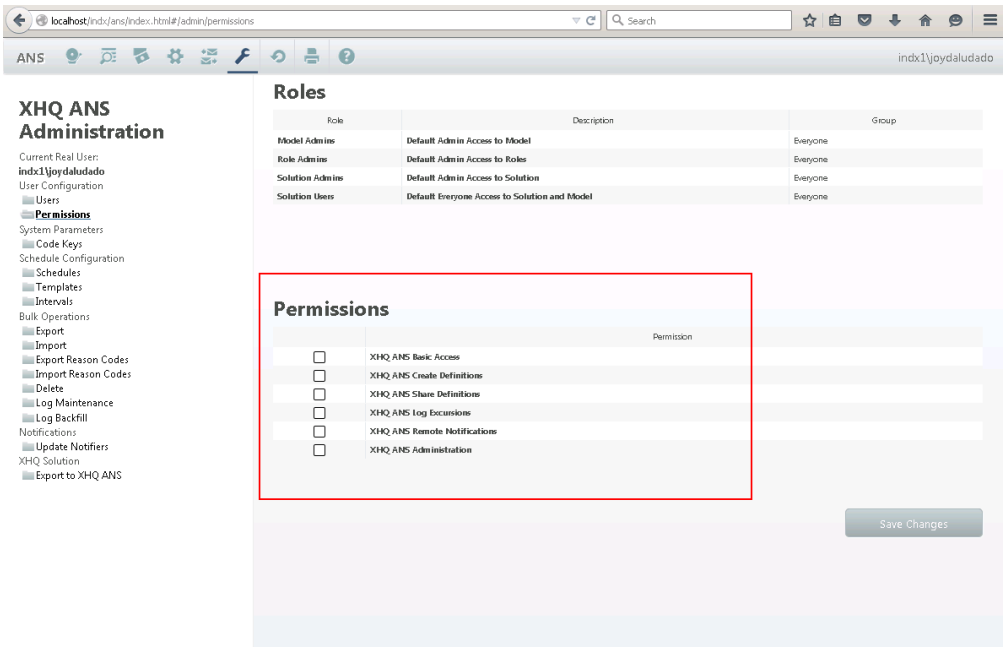
Roles Maintenance Tool

Roles Table Contents

The list of XHQ roles is listed in the Roles table at the top of the screen. The list is organized alphabetically by role name.

Roles Table Columns

Column	Description
Role	This column displays the name of the XHQ role.
Description	This column displays the description of the XHQ role. This field may be blank if the description of the role has not been configured in XHQ.
Group	This column displays the operating system group associated with the XHQ role. If this field says "Everyone", it means that the role is not associated with a specific group and is therefore associated with all groups or "everyone" in the system.



Permissions Maintenance Tool

Permission Table Contents

The list of XHQ ANS-specific permissions and settings for the XHQ role selected in the Roles table.

Permissions Table Columns

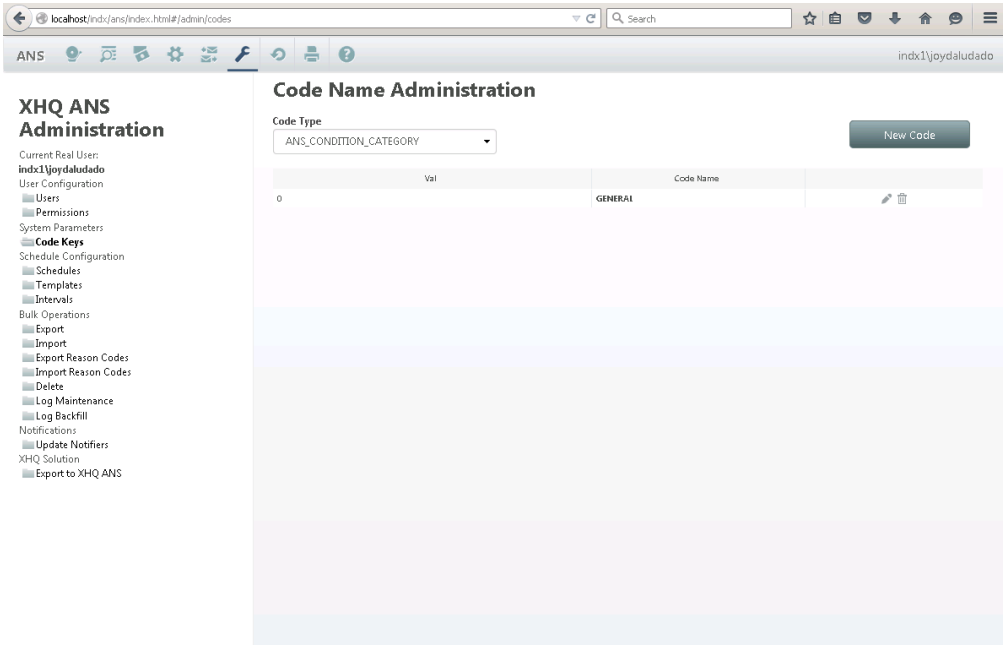
Column	Description
(Setting)	This column displays the setting (enabled/disabled) of the permission for the selected role.
Permission	This column displays the name of the permission. There are six XHQ ANS permissions: • **XHQ ANS Basic Access** Grants the user the ability to access XHQ ANS in a view-only mode (subject to the shared definition's role-based access restrictions).  A user with ANS Basic Access can create and update Subscription Lists. • **XHQ ANS Create Definitions** Grants the user the ability to create personal condition definitions. • **XHQ ANS Share Definitions** This permission allows a user to mark one or more of his definitions as shared, allowing them to be subscribed by other users. • **XHQ ANS Log Excursions** This permission allows a user to configure a historical log of condition changes. • **XHQ ANS Remote Notifications** Grants permission to create remote notification routings and receive notification of events for subscribed items. • **XHQ ANS Administration** Grants XHQ ANS administrative privileges to the user including all other XHQ ANS permissions listed above. Allows impersonation of other XHQ ANS users.

Changing Permission Settings

You can enable or disable XHQ ANS-specific permissions setting or unsetting the checkbox next to the desired permission. Changes made to a role's permission settings are committed when you switch to another role or leave the Role & Permissions Maintenance screen.

Code Key Administration Tool

The Code Name Administration tool provides the environment for extending and maintaining configurable sets of code names. This screen requires XHQ ANS administrative permission to access it. There are a limited number of code types that will accept user-defined code names. Certain code names are pre-defined by the system and cannot be modified or deleted by the user.



Code Key Administration Tool

Main Screen

Code Key Administration Interface Controls

Control	Description
Code Type (combo box)	This selects the code type to be modified. The user configurable code types include: • **ANS_CONDITTION_CATEGORY** This is a list of categories that can be associated with condition definitions. • **INTRVL_TYPE** This is a list of schedule interval types used with advanced schedule features of XHQ ANS.

Table Contents

The list of code names for the selected code type is shown in the middle of the screen. The list is organized alphabetically by code name. Any system defined code name is shown in italics. You cannot modify or delete system-defined code names.

Code Key Administration Table Columns

Column	Description
Val	This column displays a numeric value associated with a code name. This value is not used directly by XHQ ANS but may be used in your site's application for reporting or other application uses.
Code Name	This column displays the code name. Names displayed in italics are defined by the system and cannot be modified deleted.

Access to Code Name Details

By double-clicking on an item, one can gain access to more information on that item in a separate window.

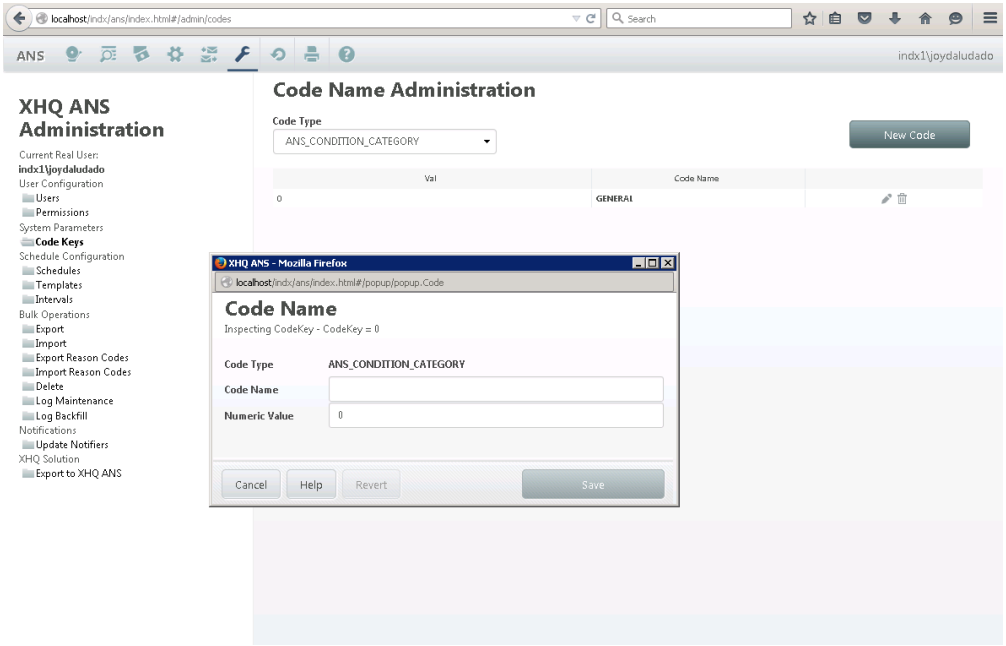
This window, discussed later, is called the **User Details** screen and is used to create, inspect and edit code names. In addition to the double-clicking technique, there are three icons that provide related functionality.

Code Key Administration Interface Icons

Icon	Description
 **(Create Code Name)**	This button launches the Code Name screen to create a new code name.
 **(Edit Code Name)**	This icon launches the Code Name screen to edit the selected table item. If no item is selected, this icon is disabled.
 **(Delete Code Name)**	This icon is used to delete a code name. If no item is selected, this icon is disabled.

Code Name Details Dialog

The Code Name Details dialog allows you to edit a code name. The Code Name Details dialog can be used to create or modify code names.



The following describes each field on this dialog.

Create Code Name Dialog Controls

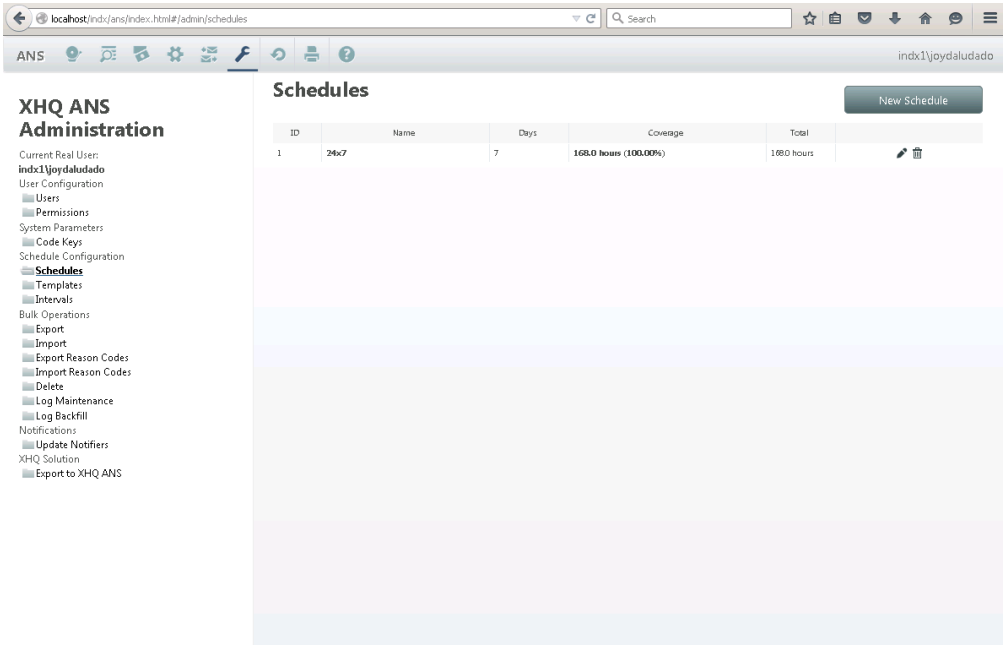
Control	Description
Code Type (read only)	The code type to which this code name belongs.
Code Name	The code name that you are creating or modifying.
Numeric Value	This field allows you to specify a numeric to associate with the code name.

Create Code Name Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Schedule Maintenance Tool

The Schedule maintenance Tool provides the environment for maintaining XHQ ANS schedule information and testing schedule configuration. Schedules can be added to the list as desired. Schedules are used in XHQ ANS primarily to filter notification times. Alert notifications can be restricted to "OFF" hours or "WORK" hours as defined by schedules.



Schedule Maintenance Tool

A schedule is defined by a number of days in a "cycle" beginning a specific cycle start day. A typical schedule might be a seven-day cycle beginning on Sunday. Each day of the schedule has a specific set of schedule times or "intervals" determined by a "template". Templates and intervals may also be created and edited using other tools in the XHQ ANS Administration tool set.

Main Screen

Schedules Table Columns

Column	Description
ID	This column displays the ID of the Schedule.
Name	This column displays the name of the Schedule.
Days	This column displays the number of days covered by the schedule's cycle.
Coverage	This column displays the amount of time (usually in hours) covered by full work time over the total amount of time defined by the schedule. The percentage of coverage relative to total time is also shown.
Total	This column displays the amount of time (usually in hours) over the schedule's cycle

Access to Schedule Details

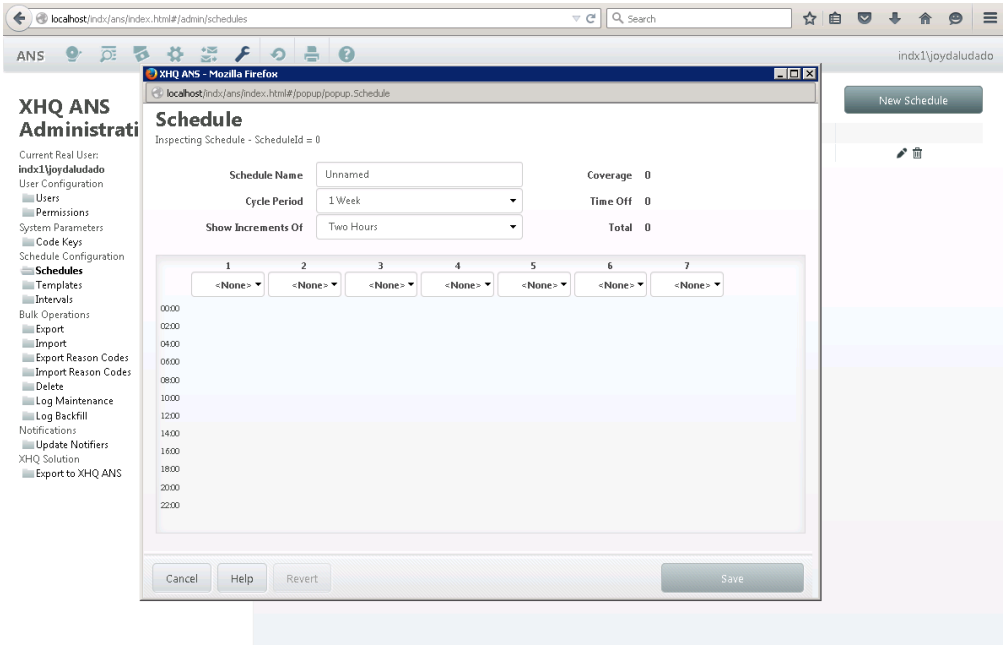
By double-clicking on an item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the Schedule Details screen and is used to create, inspect and edit schedule information. In addition to the double-clicking technique, there are three icons that provide related functionality.

Schedule Details Icons

Icon	Description
	This button launches the Schedule Details screen to create a new schedule.
	This icon launches the Schedule Details screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a schedule's information. If no item is selected, this icon is disabled.

Schedule Details Dialog

The Schedule Details dialog allows you to edit certain information about the schedule. The Schedule Details dialog can be used to create or modify schedules.



The following describes each field on this screen.

Schedule Details Controls

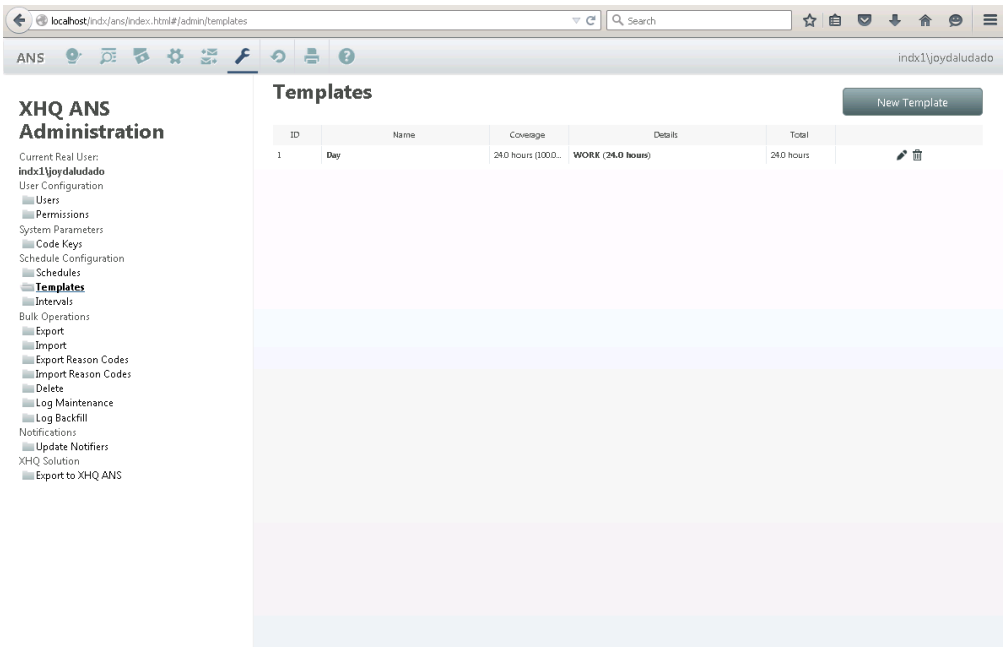
Control	Description
Schedule Name	The name of the schedule that end users use when configuring notification routings. You should use a unique and descriptive name that allows the user to easily recognize.
Cycle Period	This field can be any of the supported cycle periods. A cycle period defines how many days a schedule lasts before it repeats.
Show Increments Of	This field controls how the schedule is displayed in the editor. It has no affect on the actual schedule details
Cycle Day Editor	Each column in the schedule display area shows the scheduled time for that day. You can change the configuration of each cycle day by selecting a "Template" from the drop down list box.

Schedule Details Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Template Maintenance Tool

The Template maintenance tool provides the environment for maintaining XHQ ANS templates for schedule cycle days. Templates can be added to the list as desired. Templates are used to configure schedules cycle days.



Template Maintenance Tool

A template consists of a number of "intervals" or schedule times over a period of a day (24 hours). A template can be applied to a cycle day of a schedule to indicate how time is scheduled for that cycle day. Schedules and intervals are created and edited using other tools in the Administration tool suite.

Main Screen

Templates Table Columns

Column	Description
ID	This column displays the ID of the Template.
Name	This column displays the name of the Template.
Coverage	This column displays the amount of time (usually in hours) covered by full work time over the total amount of time defined by the template. The percentage of coverage relative to total time is also shown.
Details	This column shows how the time is broken down by scheduling category.
Total	This column displays the amount of time (usually in hours) over the template's scope.

Access To Template Details

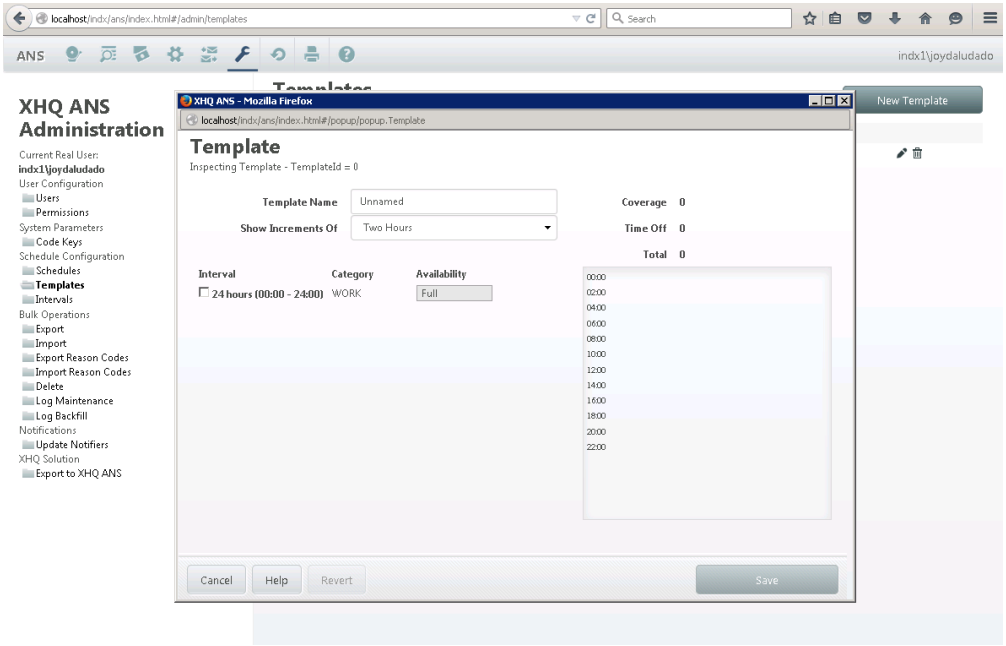
By double-clicking on an item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the Template Details screen and is used to create, inspect and edit template information. In addition to the double-clicking technique, there are three icons that provide related functionality.

Schedule Details Icons

Icon	Description
	This button launches the Template Details screen to create a new template.
	This icon launches the Template Details screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a template's information. If no item is selected, this icon is disabled.

Template Details Dialog

The Template Details dialog allows you to edit certain information about the template. The Template Details dialog can be used to create or modify templates.



The following describes each field on this screen.

Template Details Controls

Control	Description
Template Name	The name of the template that schedule editors use when configuring schedules. You should use a unique and descriptive name that allows the administrator to easily recognize.
Show Increments Of	This field controls how the template is displayed in the editor. It has no affect on the actual template details.
Interval Configuration	This table consists of three columns: • **Interval** List of intervals with check boxes to allow addition or deletion of intervals from the template • **Category** The category name associated with the interval • **Availability** A color-keyed indicator of the availability associated with the interval. Full availability means that the person/resource is fully available during the interval. None means that the person/resource is not available.
Template Display	This displays the intervals (to which the template is applied) in a tabular form so that one can visualize the coverage in a more calendar-oriented fashion. The color coding of the interval shows the availability that time. If the template is meant to start late in

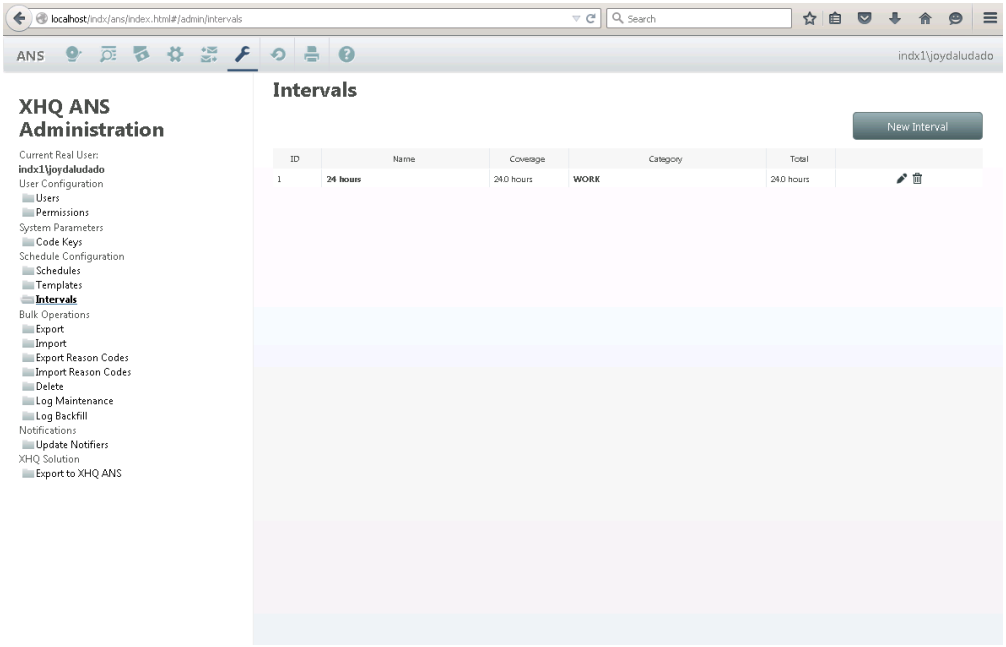
Control	Description
	the day and end early in the morning, two columns are displayed. If two overlapping schedules are configured, an error message is shown where the intervals overlap.

Template Details Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Interval Maintenance Tool

The Interval maintenance tool provides the environment for maintaining XHQ ANS intervals for scheduling templates. Intervals can be added to the list as desired. Intervals are used to configure templates that are used in schedule editing. These are the building blocks of schedules in XHQ ANS.



Interval Maintenance Tool

An interval is a period of time covering a 24-hour period or less. An interval is also defined to have "full" availability or none. An interval can be categorized to lend more meaning its use in your enterprise. Two categories are provide with XHQ by default: WORK and OFF. Typically, these categories are assigned to intervals with full and none availability, respectively. These categories are used in the ANS notification routing configuration to determine how a schedule is used to filter notifications by time.

Main Screen

Intervals Table Columns

Column	Description
ID	This column displays the ID of the Interval.
Name	This column displays the name of the Interval.
Coverage	This column displays the amount of time (usually in hours) covered by full work time over the total amount of time defined by the interval. The percentage of coverage relative to total time is also shown.
Category	This column shows the category, if any, associated with the Interval.
Total	This column displays the amount of time (usually in hours) over the interval's scope.

Access to Interval Details

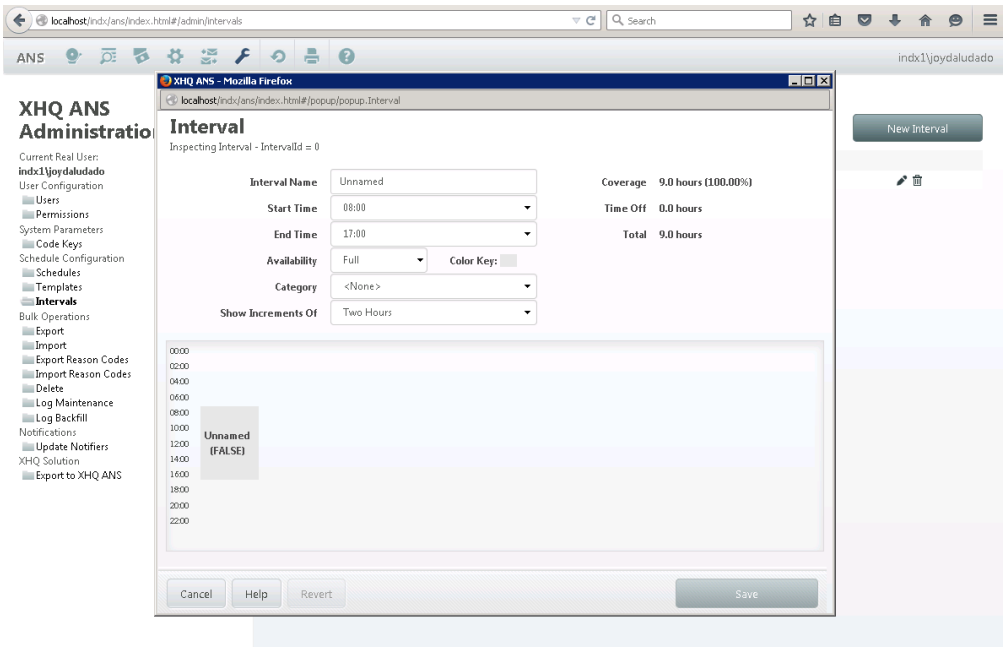
By double-clicking on an item, one can gain access to more information on that item in a separate window. This window, discussed later, is called the Interval Details screen and is used to create, inspect and edit interval information. In addition to the double-clicking technique, there are three icons that provide related functionality.

Interval Details Icons

Icon	Description
	This button launches the Interval Details screen to create a new interval.
	This icon launches the Interval Details screen to edit the selected table item. If no item is selected, this icon is disabled.
	This icon is used to delete a interval's information. If no item is selected, this icon is disabled.

Interval Details Dialog

The Interval Details dialog allows you to edit certain information about the interval. The Interval Details dialog can be used to create or modify intervals.



The following tables describes each field and button on this screen.

Interval Details Controls

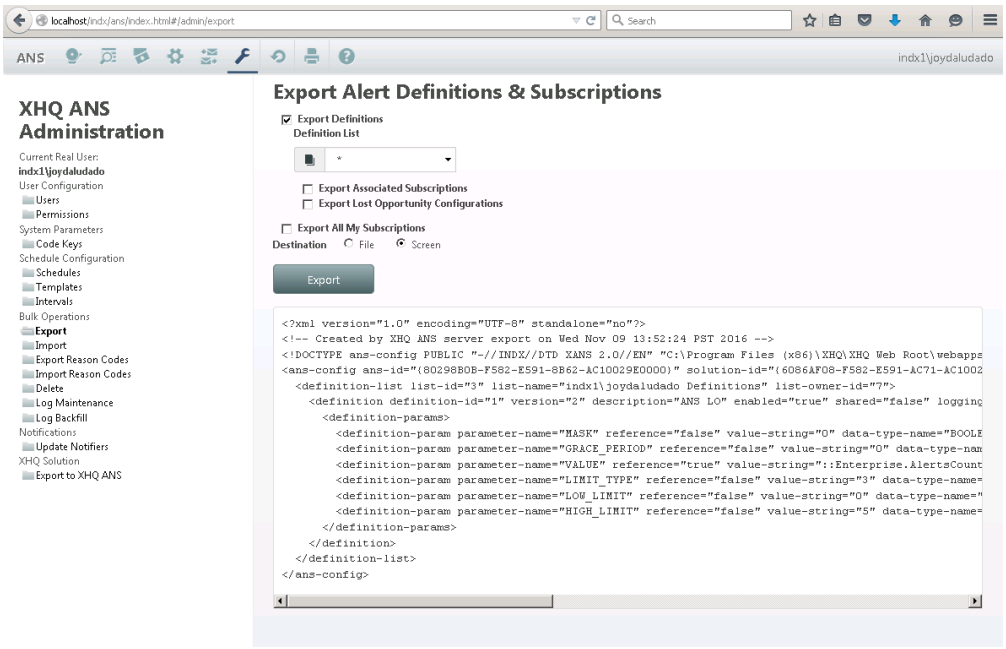
Control	Description
Interval Name	The name of the interval that schedule editors use when configuring schedules. You should use a unique and descriptive name that allows the administrator to easily recognize.
Start Time	The start time of the interval. More granular times can be selected by changing the granularity of the Show Increments Of field.
End Time	The end time of the interval. More granular times can be selected by changing the granularity of the Show Increments Of field.
Show Increments Of	This field controls how the interval is displayed in the editor. It has no affect on the actual interval details.
Availability	This field allows the selection of availability. Please see the explanation of availability above for more details. The color key next to the selector matches the color of the interval defined in the Interval Display area.
Category	Allows a category to be associated with the interval. Additional categories may be defined in the Code Keys editor. The associated code type is `INTRVL_TYPE`.
Interval Display	This displays the interval in a tabular form so that one can visualize the coverage in a more calendar-oriented fashion. The color coding of the interval shows the availability during that time. If the interval is meant to start late in the day and end early in the morning, two columns are displayed.

Interval Details Dialog Buttons

Button	Description
Help	Use this button to bring up online help.
Revert	Use this button to restore the existing (saved) definition.
Cancel	Use this button to close the window without saving changes.
OK	Use this button to save changes and close the window.

Export Alert Definitions and Subscriptions Tool

The XHQ ANS Administration Export function allows you to export your alert definitions and subscriptions to an external XML file or to the screen.



Export Definition Tool

The export file contains all information necessary to recreate the alert definition lists, list sections, and definitions that you specify when you perform the export. This file may be transported to another XHQ ANS and imported to create the same definitions on that system, or modified and re-imported on the original system to update the existing definitions.

Check the **Export Associated Subscriptions** box to export all the subscriptions associated with the alert definitions that belong to the selected definition list. From the **Definition List** drop-down, select the wildcard (*) to export all the definitions, and their associated subscriptions, that exist in the XHQ ANS database.

To export the LO configuration associated with the conditions definition, check the **Export Lost Opportunity Configurations** option.

For more information, go to the topic, *Exporting and Importing the LO Configuration*.

To export only your subscriptions, check **Export All My Subscriptions**. Note, doing so enables the **Export Definitions** option. Deselect the Export Definitions box to export only your subscriptions without alert definitions.

If **Export All My Subscriptions** is unchecked, you must at least export alert definitions.

There are two **Destination** options: export the XML to an external XML **File**; or, export the XML to the **Screen** (as seen in the image above).

For Safari Users

Clicking **Export** displays the following message:

Click **OK** and a window opens with the XML file content. Click **Command+S** to save the file. Enter a file name (for example, `reason_codes_export.xml`).

So, when exporting subscriptions, you have two options:

1. You can export all the subscriptions associated with the alert definitions that belong to the Definition List you selected. This is done by selecting (checking) the **Export Associated Subscriptions** box.

   ### Things to Note for Option 1

   - Because of the nature of the association between definitions and subscriptions, this option allows you to export subscriptions belonging to *other users*.
   - If you select the wildcard (*) from the Definition List drop-down, then all the definitions, as well as all their subscriptions that exist in the ANS database, is exported.

2. You can export all of your subscriptions. This is done by selecting the **Export All My Subscriptions** box.

   ### Things to Note for Option 2

   - In this case, only the subscriptions that you own are exported in XML.
   - By selecting **Export All My Subscriptions**, you can deselect (uncheck) **Export Definitions** to export only your subscriptions, without any alert definitions.

DTD Validation for the Export XML

The validation DTD is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>

<!ELEMENT ans-config (((definition-list | definition)* | deleted-definition*),
subscription-lists?)>
<!ATTLIST ans-config
ans-id CDATA #IMPLIED
solution-id CDATA #IMPLIED
solution-name CDATA #IMPLIED
catalog-id CDATA #IMPLIED
account-id CDATA #IMPLIED
user-id CDATA #IMPLIED
>
<!ELEMENT definition-list (list-section | definition)*>
<!ATTLIST definition-list
list-name CDATA #REQUIRED
```

```
list-id CDATA #IMPLIED
list-owner-id CDATA #IMPLIED
>
<!ELEMENT list-section (definition*)>
<!ATTLIST list-section
section-name CDATA #REQUIRED
section-id CDATA #IMPLIED
sort-order CDATA "0"
>
<!ELEMENT definition (definition-params, definition-info?)>
<!ATTLIST definition
definition-id CDATA #IMPLIED
version CDATA #IMPLIED
description CDATA #REQUIRED
list-name CDATA #IMPLIED
section-name CDATA #IMPLIED
default-severity (1 | 2 | 3) "2"
shared (true | false) #REQUIRED
enabled (true | false) #REQUIRED
logging-enabled (true | false) #REQUIRED
type-name CDATA #REQUIRED
category-name CDATA #REQUIRED
anchor-path CDATA #REQUIRED
view-name CDATA #REQUIRED
valid (true | false) #IMPLIED
>
<!ELEMENT definition-params (definition-param*)>
<!ELEMENT definition-param EMPTY>
<!ATTLIST definition-param
parameter-name CDATA #REQUIRED
value-string CDATA #REQUIRED
reference (true | false) "false"
data-type-name (INT | STRING | FLOAT | BOOLEAN) #REQUIRED
>
<!ELEMENT definition-info (#PCDATA)>
<!ELEMENT deleted-definition EMPTY>
<!ATTLIST deleted-definition
definition-id CDATA #IMPLIED
>
<!ELEMENT subscription-lists (subscription-list+)>
<!ELEMENT subscription-list (subscription*)>
<!ATTLIST subscription-list
list-name CDATA #REQUIRED
list-id CDATA #IMPLIED
enabled (true | false) #REQUIRED
group-type CDATA #IMPLIED
group-rtn-notification (true | false) #IMPLIED
app-usage (ANS | TM | ELOGS) #IMPLIED
list-owner CDATA #IMPLIED
>
<!ELEMENT subscription EMPTY>
<!ATTLIST subscription
subscription-id CDATA #REQUIRED
definition-id CDATA #REQUIRED
description CDATA #IMPLIED
enabled (true | false) #REQUIRED
severity (Low | Medium | High) #IMPLIED
single-shot (true | false) #IMPLIED
delay-seconds CDATA #IMPLIED
rtn-notification (true | false) #IMPLIED
>
```

EXAMPLE: XML FILE FOR EXPORTING ANS SUBSCRIPTIONS

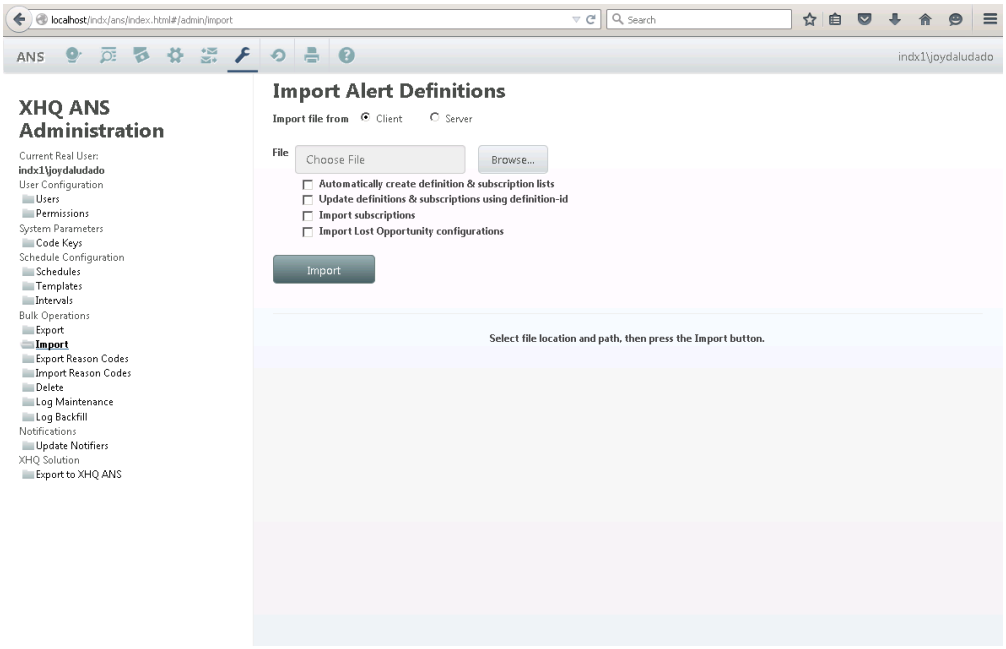
```
<?xml version="1.0" encoding="UTF-8"?>

<!-- Created by XHQ ANS export on Thu Oct 28 14:01:19 PDT 2010 -->
<!DOCTYPE ans-config PUBLIC "-//INDX//DTD XANS 2.0//EN" "XANS_2.0.dtd">

<ans-config
ans-id="{0D1D8F60-358B-91DC-8F76-AC1001050000}"
solution-id="{0C8E3A60-358B-91DC-B239-AC1001050000}"
solution-name="Enterprise"
catalog-id="{0B752D40-358B-91DC-9958-AC1001050000}"
account-id="INDX1\calingruita"
user-id="3"
>
<subscription-lists>
<subscription-list list-id="30"
list-name="Financial"
enabled="true"
group-type="First Out"
group-rtn-notification="false"
app-usage="ANS"
list-owner="indx1\calingruita">

<subscription subscription-id="449"
definition-id="5"
description="Bucsi23"
enabled="true"
severity="High"
single-shot="true"
delay-seconds="0"
rtn-notification="true"/>

<subscription subscription-id="257"
definition-id="312"
description="Pus1"
enabled="true"
severity="Low"
single-shot="false"
delay-seconds="0"
rtn-notification="false"/>

<subscription subscription-id="422"
definition-id="326"
description="PI_Masking_3_Limit_HI-LO_2"
enabled="true"
severity="Low"
single-shot="false"
delay-seconds="0"
rtn-notification="false"/>

<subscription subscription-id="253"
definition-id="311"
description="Pus0"
enabled="true"
severity="Low"
single-shot="false"
delay-seconds="0"
rtn-notification="false"/>
```

```
<subscription subscription-id="370"
definition-id="293"
description="PI_Trender_2_Limit_HI-LO_1"
enabled="true"
severity="Low"
single-shot="false"
delay-seconds="0"
rtn-notification="false"/>

</subscription-list>
</subscription-lists>

</ans-config>
```

Import Alert Definitions Tool

The XHQ ANS Administration Import function allows you to create or update alert definitions, definition lists, list sections, and subscriptions based on the contents of an XML file.

The XML import file may have been generated by the XHQ ANS Export facility or by any other means that produces a compatible format. (The required XML format is defined by the Document Type Definition in http://*server*/indx/xans/XANS_1.0.dtd.)



Import Definitions Tool

The file imported may reside on a disk accessible to your local client machine or on the XHQ ANS server machine.

If a local client file is being imported, it is automatically uploaded to the server machine, the import operation is performed, and the temporary file is deleted from the server.

The ability to import a file on the server is provided primarily to allow an alternate path if there are problems uploading a file from your web browser to the server via HTTP, and to avoid unnecessary network transfers if the file is already on the server.

The import procedure can automatically create any definition/subscription lists and/or list sections referenced by the definitions/subscriptions being imported, if they do not already exist. If your intent is to create or update definitions/subscriptions in existing lists, you can disable (uncheck) the **Automatically create definition & subscription lists** option to avoid accidentally creating new lists or sections.

If the import file was created by the XHQ ANS Export facility, the definition elements include the "definition-id" used internally to uniquely identify a particular alert definition. You can specify that this internal definition-id be used to locate the definitions to be updated during the import instead of the definition name. Note that this "update by ID" function is the only way to perform an import that modifies the names of existing definitions (otherwise the import would create new definitions with the new names rather than updating the names of any existing definitions).

WARNING
This feature should be used with caution. If the import file was generated on a different XHQ ANS system, the definition-ids in the file will be unrelated to the internal ids in the existing system, and an

import using definition-ids may cause unpredictable definitions to be modified.

Note that only definitions/subscriptions that are owned by you (or the user you are impersonating) will be updated. Likewise any newly created definitions/subscriptions will be owned by you.

To specify a path to an import XML file, select either **Client** or **Server** (depending on the file location), and then **Browse** to the file.

Check the **Automatically create definition & subscription lists** box to create (during the import process) new subscription lists for the lists that do not already exist in the XHQ ANS database. If this option is left unchecked, then these missing subscription lists are skipped during the import process.

To import the subscriptions from an XML file, check the **Import subscriptions** box. By default, this option is unchecked and so only the alert definitions are imported.

To import the LO configuration from XML, check the **Import Lost Opportunity Configurations** option.

For more information, go to the topic *Exporting and Importing the LO Configuration*.

The log area displays the import status, listing which subscription list and subscription is being created, updated, or processed. Once the import is complete, an import summary is given, providing the total number of alert definitions, subscription lists, and subscriptions that were created and updated, as well as any errors that occurred.

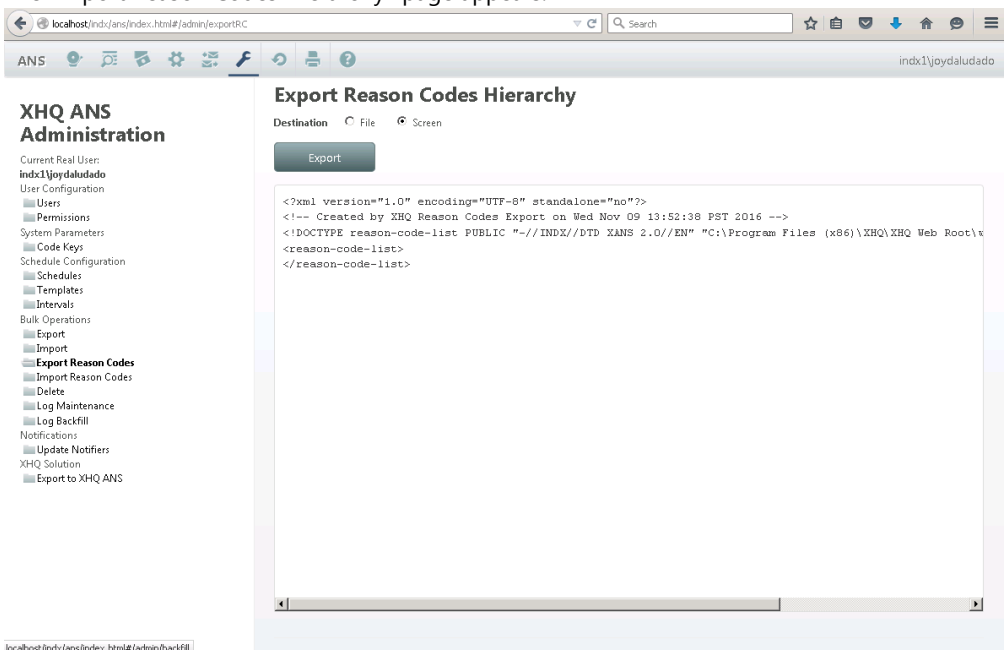
Export/Import Reason Codes Tools

These tools enable you to export/import Reason Codes.

For more information, go to the topic, *Lost Opportunity and Reason Management*, located in the **XHQ Performance Management Guide**.

To export a Reason Code hierarchy

1. From the XHQ ANS Administration homepage, under Bulk Operations, click **Export Reason Codes**. The "Export Reason Codes Hierarchy" page appears.



2. For **Destination**, do either of the following:
   - Select **File** to save the output XML to a location you specify.
   - Select **Screen** to display the output XML.
3. Click **Export**.

For more information, go to the topic, *Validation DTD for Reason Code XML*, which can be found in the Appendices of the **XHQ Performance Management Guide**.

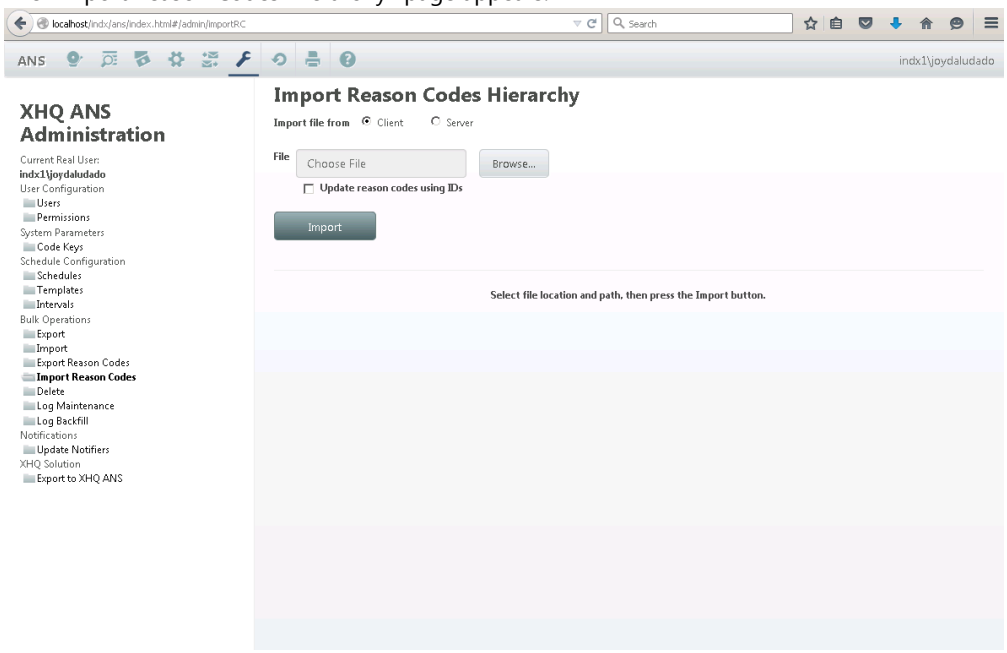
For Safari Users

Clicking **Export** displays the following message:

Click **OK** and a window opens with the XML file content. Click **Command+S** to save the file. Enter a file name (for example, `reason_codes_export.xml`).

To import a Reason Code hierarchy

1. From theXHQ ANS Administration homepage, under Bulk Operations, click **Import Reason Codes**.
   The "Import Reason Codes Hierarchy" page appears.



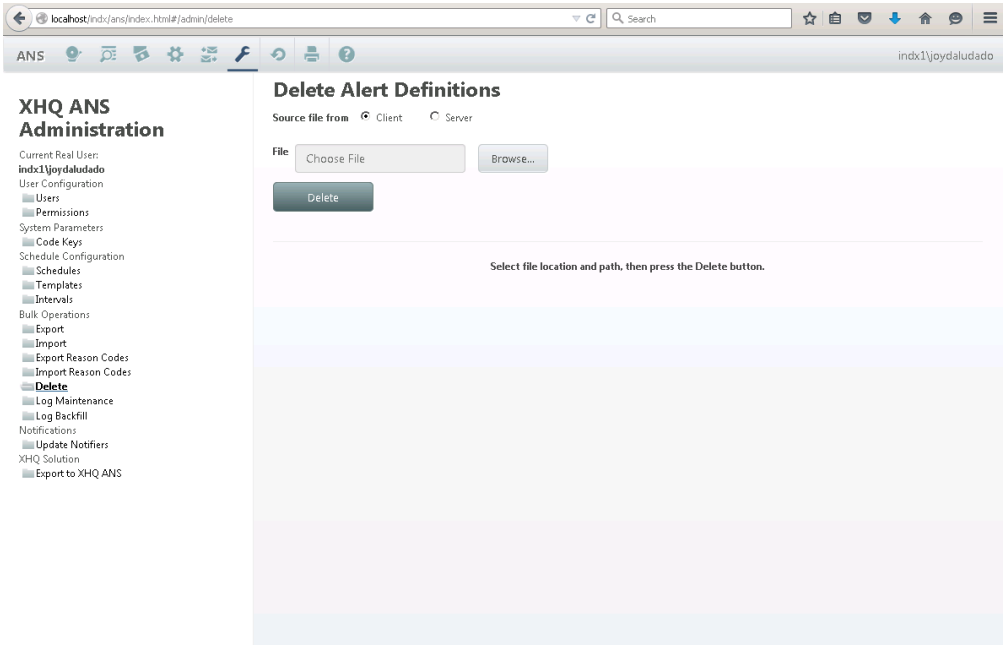
2. For **Import file from**, select the location of the exported XML file, either on the **Client** or **Server**.
3. For **File**, click **Browse** and locate the XML file.
4. OPTIONAL
   Check **Update reason codes using Ids** to update the Reason Codes based on their IDs (rather than their names).

   This only works to rename Reason Codes on the same machine through a bulk operation. If the option is unchecked (which is expected when porting from a different machine), then the Reason Code IDs from the XML are ignored, and actual names and parent paths are used to determine if an update is needed for a Reason Code record. By default, this checkbox is unchecked.

5. Click **Import**.

Delete Definitions Tool

The XHQ ANS Administration Delete tool allows you to delete alert definitions based on the contents of an XML file. The XML import file may have been generated by the automatic XHQ ANS Export facility or by any other means that produces a compatible format. (The required XML format is defined by the Document Type Definition in `http://server/indx/xans/XANS_1.1.dtd`.)



Delete Definitions Tool

The file to be imported may reside on a disk accessible to your local client machine or on the web server machine. If a local client file is to be imported, it is automatically uploaded to the server machine, the import operation is performed, and the temporary file is deleted from the server. The ability to import a file on the server is provided primarily to allow an alternate path if there are problems uploading a file from your web browser to the server via HTTP, and to avoid unnecessary network transfers if the file is already on the server.

The import file created by the automatic XHQ ANS Export facility, the deleted-definition elements include the "definition-id" used internally to uniquely identify a particular alert definition.

WARNING
This feature should be used with caution. If the import file was generated on a different XHQ ANS system, the definition-ids in the file will be unrelated to the internal ids in the existing system, and an import using definition-ids may cause unpredictable definitions to be deleted.

To delete XHQ ANS Definitions

1. Log in as, or impersonate, the user whose definitions are to be deleted.
2. Enter the full path to the import file (or browse for it if Import file from Client is selected).

3. Press the Delete button.
4. Examine the status of the import operation displayed in the lower pane for errors.
   Depending on the size of the import file, there may be a delay of several seconds before status messages begin to display.

Deleting Alert Definitions in Bulk

When deleting Alert Definitions using the Bulk operation, you must manually create an XML file to delete the ANS condition definitions.

Example XML:

```
<?xml version="1.0" encoding="UTF-8"?>


<!-- Created by XHQ ANS export on Sun May 11 08:18:08 PDT 2014 -->
<!DOCTYPE ans-config PUBLIC "-//INDX//DTD XANS 2.0//EN" "XANS_2.0.dtd">
<ans-config
  ans-id="{20DCA107-D9C6-E391-A9C0-AC1002740000}"
  solution-id="{0039DD05-D9C6-E391-853E-AC1002740000}"
  solution-name="PiPHD"
  catalog-id="{60ED110C-D8C6-E391-A0BB-AC1002740000}"
  account-id="ACME\joesmith"
  user-id="10">
    <deleted-definition definition-id="5"/>
    <deleted-definition definition-id="8"/>
</ans-config>
```

The **DefId** of the alerts you want to delete (highlighted in the above example) are needed to generate this XML file.

To determine the DefId

1. From **XHQ ANS**, open the **Configuration Tool**.
2. From the list of **Definitions**, double-click the definition you want to delete.
   The "Alert Definition" screen appears.
3. Note at the bottom of the screen, the **DefId** is displayed. Record this number.
4. **Repeat** steps 2 and 3 for each definition you want to delete.

   Once you have the DefIds, you will perform a bulk export.
5. Go to the **XHQ ANS Administration** site and click the **Export** link under the **Bulk Operations** section.
   The "Export Alert Definitions & Subscriptions" screen appears.
6. Click **Export Definitions** and select a **Definition List**.
7. Then click **Export**.

   Your next step is to copy a portion of the exported XML and paste it onto a newly created XML file. This new XML file will be used for the bulk delete.
8. Open the exported XML file and copy the first few lines, starting with the XML declaration down to the "ans-config" start-tag element.

   Example:

```
<?xml version="1.0" encoding="UTF-8"?>


<!-- Created by XHQ ANS export on Sun May 11 08:18:08 PDT 2014 -->
<!DOCTYPE ans-config PUBLIC "-//INDX//DTD XANS 2.0//EN" "XANS_2.0.dtd">
```

```
<ans-config
  ans-id="{20DCA107-D9C6-E391-A9C0-AC1002740000}"
  solution-id="{0039DD05-D9C6-E391-853E-AC1002740000}"
  solution-name="PiPHD"
  catalog-id="{60ED110C-D8C6-E391-A0BB-AC1002740000}"
  account-id="ACME\joesmith"
  user-id="10"
>
```

9. **Create** a new XML file and save it as **xans_delete.xml**, for example.
10. **Paste** the text from step 8, go to the end and enter a new line.
11. Type the following:

```
<deleted-definition definition-id="ALERT_DEF_ID"/>
```

12. Replace ALERT_DEF_ID with the DefId you recorded in step 3.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>


<!-- Created by XHQ ANS export on Sun May 11 08:18:08 PDT 2014 -->
<!DOCTYPE ans-config PUBLIC "-//INDX//DTD XANS 2.0//EN" "XANS_2.0.dtd">

<ans-config
  ans-id="{20DCA107-D9C6-E391-A9C0-AC1002740000}"
  solution-id="{0039DD05-D9C6-E391-853E-AC1002740000}"
  solution-name="PiPHD"
  catalog-id="{60ED110C-D8C6-E391-A0BB-AC1002740000}"
  account-id="ACME\joesmith"
  user-id="10"
>
    <deleted-definition definition-id="5"/>
```

13. Repeat this for each definition you want to delete.

Example:

```
    <deleted-definition definition-id="5"/>
    <deleted-definition definition-id="8"/>
```

14. Enter the end-tag:

```
</ans-config>
```

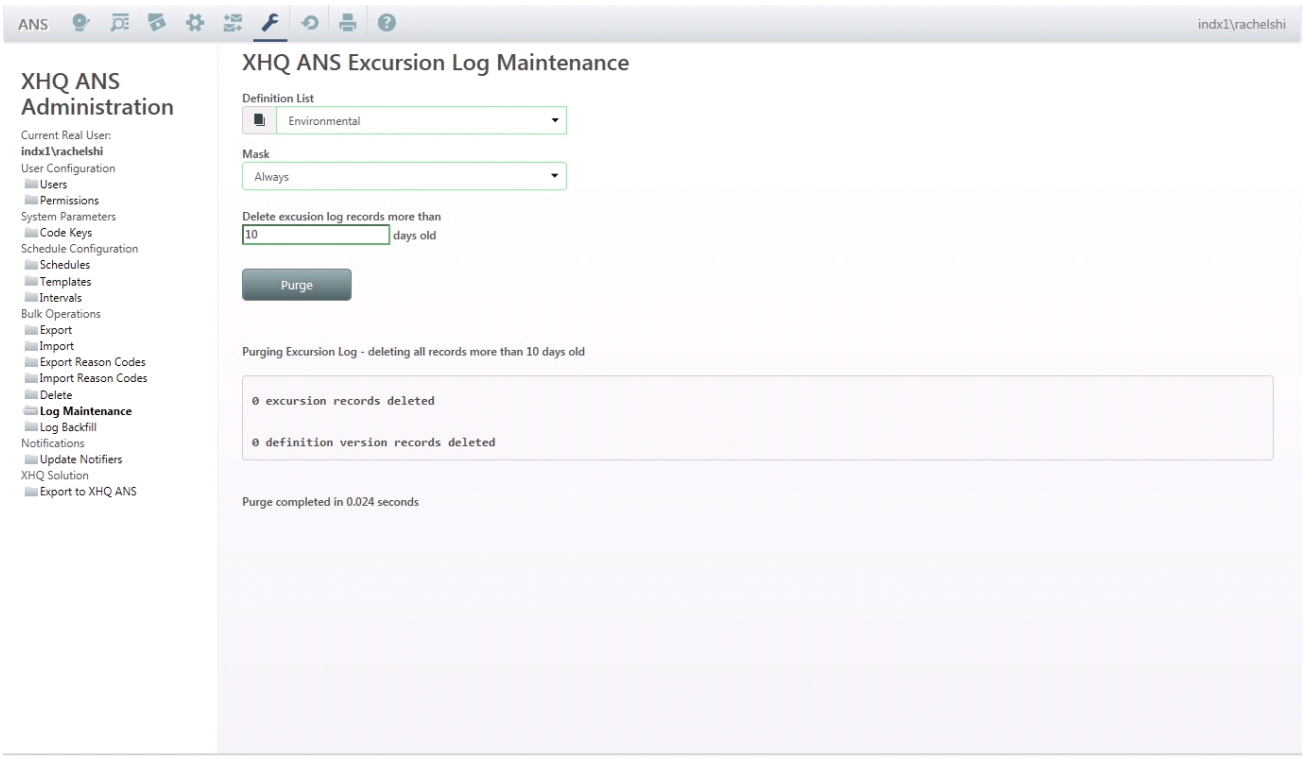
Example of the entire script:

```
<?xml version="1.0" encoding="UTF-8"?>


<!-- Created by XHQ ANS export on Sun May 11 08:18:08 PDT 2014 -->
<!DOCTYPE ans-config PUBLIC "-//INDX//DTD XANS 2.0//EN" "XANS_2.0.dtd">

<ans-config
  ans-id="{20DCA107-D9C6-E391-A9C0-AC1002740000}"
  solution-id="{0039DD05-D9C6-E391-853E-AC1002740000}"
  solution-name="PiPHD"
  catalog-id="{60ED110C-D8C6-E391-A0BB-AC1002740000}"
  account-id="ACME\joesmith"
  user-id="10"
>
    <deleted-definition definition-id="5"/>
    <deleted-definition definition-id="8"/>
</ans-config>
```

15. **Save** `xans_delete.xml` to a location you can access.
16. From the **XHQ ANS Administration**, under **Bulk Operations**, click **Delete**. The "Delete Alert Definitions" screen appears.
17. For Source, click **Client**.
18. **Browse** to the `xans_delete.xml` file.
19. Click **Delete**.

Excursion Log Maintenance

The XHQ ANS Excursion Log Maintenance function allows a XHQ ANS administrator to delete old excursion history records from the database. Depending on the amount of disk space available and the quantity and frequency of process excursions, this might be needed periodically to prevent the database from growing too large.



Excursion Log Maintenance

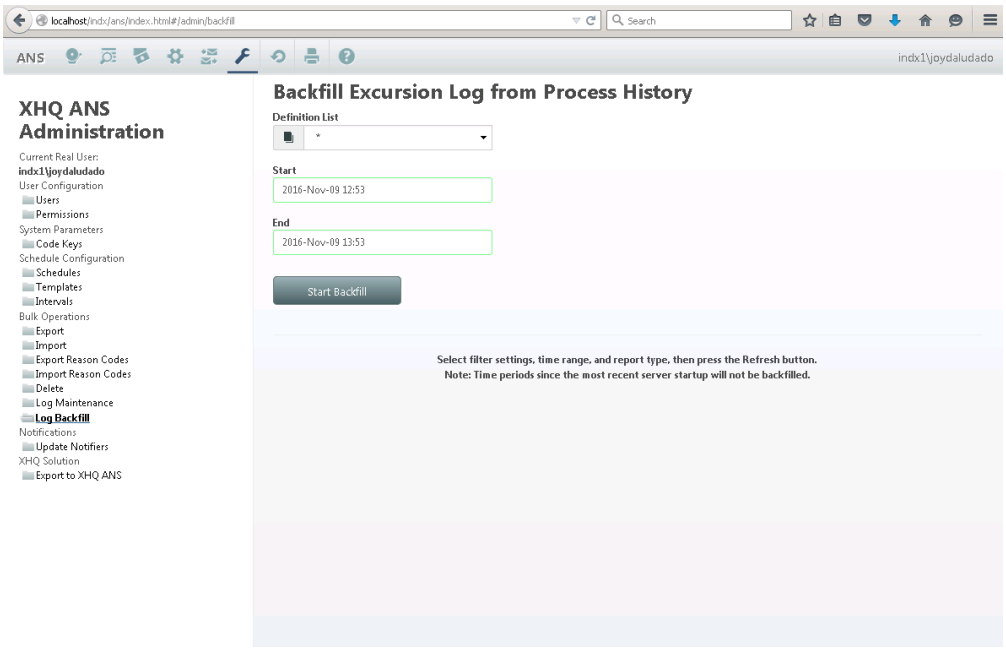
In addition to deleting any history of excursions older than the age you specify, any old alert definition versions that are no longer referenced by excursion records are also deleted. You can purge excursion logs based on age, definition list, or mask.

To purge old excursion history

1. Do any of the following:
   - Select a Definition List;
   - Select a Mask;
   - Enter the number of days to remove all excursion logs older than the days you entered.
2. Press the Purge button.
3. Examine the status messages in the lower pane.

Excursion Log Backfill Tool

The XHQ ANS Excursion Log Backfill function allows you to (re)create excursion log entries over a specified time range based on process history for the values involved.

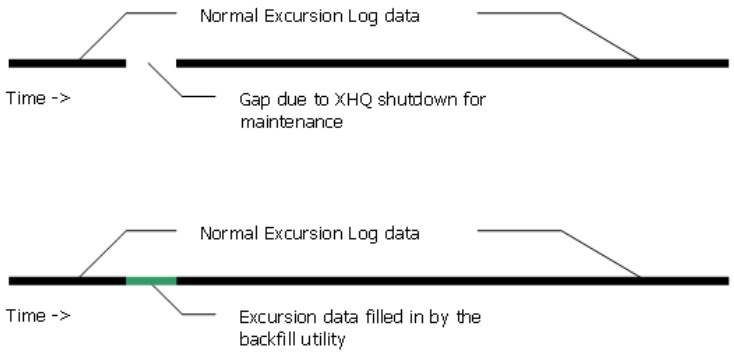


Backfill Excursion Log

This feature is primarily intended to allow an administrator to fill in excursion history for periods of server downtime. In this usage, the start time should be set to the time that the server was shut down, and the end time should be set to the time that the server was restarted.

About Backfilling

During periods when XHQ ANS is not running (whether it is a planned shutdown or an unplanned system crash or a network outage), the XHQ ANS Excursion Log will have gaps that should otherwise contain actual excursion data, resulting in reports that are incomplete and/or inaccurate. The purpose of *backfilling* is to fill-in these gaps with the correct state. The XHQ ANS Excursion Log Backfill Utility gives you the ability to create (or recreate) excursion log information retroactively over a specified time range, based on the process history for the values involved.



With this utility, XHQ ANS is able to generate accurate and complete excursion records using historical process information. It can be applied to a large number of definitions and works only on the historical data prior to the most recent startup of the XHQ system.

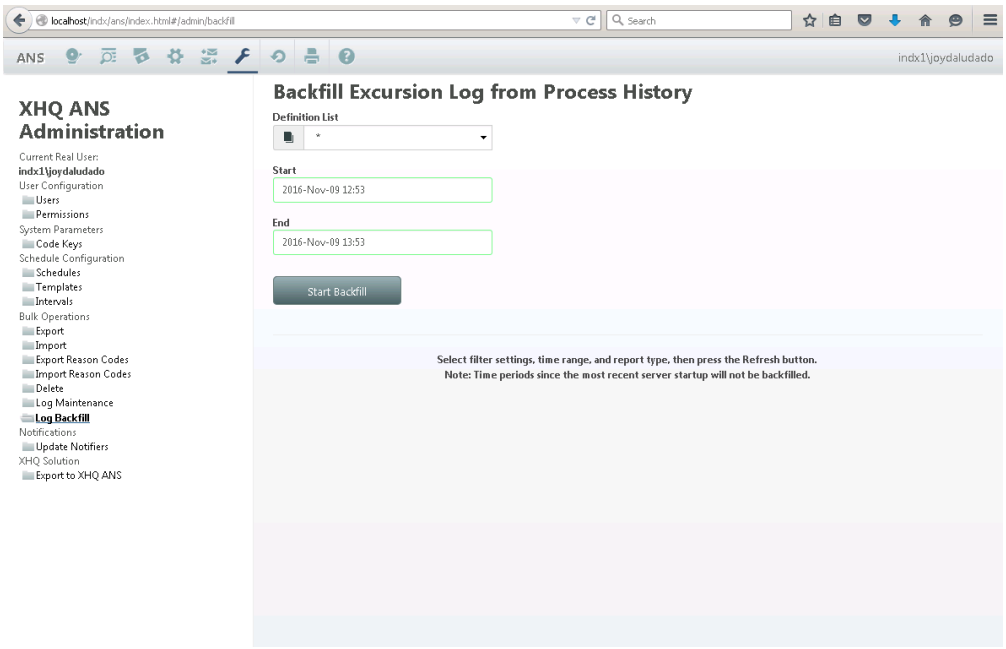
The backfill operation requires a user with XHQ ANS Administration permission.

Important Things to Consider

- A backfill operation "rewrites history" for a specified time period, which could destroy large amounts of previously correct excursion history. Make sure that all required history data is available for the backfill period for all selected definitions.
- An excursion report covering a past time period may show different results when run on another day if a backfill operation has been performed between executions of the report. An excursion report is a snapshot of excursion log data available at the time of the report run. If a backfill operation is performed, this historical data may have changed, so running another report may give results that differ from a report run before the backfill operation.
- During the backfill operation, a large amount of process history may need to be retrieved from the backend historian and a large number of excursion log records may need to be inserted into the XHQ ANS database (depending on conditions such as the number of alert definitions and the time period to be backfilled). Therefore, these activities will impact the performance of both the historian and XHQ ANS.
- Currently, the HiLo, Deviation, and Rate-of-Change detector types are supported. The Staleness detector type is not supported.
- Only one backfill operation should be performed for a given definition at a time. This restriction avoids possible interference between two, ongoing backfill operations attempting to recreate excursion history for the same definition within overlapping time periods.
- The excursion records created by backfilling from process history may not exactly match the records that would have been created had the system been up during that time period. This is because the values retrieved from process history may not exactly match the real-time values in either timing or value (especially if history compression is used).

Using the Backfill Utility

As previously stated, the primary function of the backfill utility is to allow you to fill in excursion history for periods of server downtime. To configure the utility, you simply set the start time to the time that the server was shutdown (or slightly earlier) and the end time to the time that the server was restarted (or slightly later).



Backfill Excursion Log from Process History Tool

Excursion Log Backfill Utility Controls

Control	Description
Start	The default is one hour prior to the "End" time.
End	The default is the current time.
Definition List	A list of definitions owned by the user. **Note:** The asterisk (*) indicates all definitions from lists owned by the user as well as those owned by other users that have been shared and are accessible to the user.
Start Backfill	Pressing this button starts the backfill operation.

To use the backfill utility

1. From the **XHQ ANS Administration page**, click **Log Backfill** from the list of tools.
   The "Backfill Excursion Log from Process History" page appears.
2. From the backfill utility, under Definition List, **select the definition list** containing the definitions you would like to backfill.

   Selecting the asterisk (*) backfills ALL definitions from lists owned by the user as well as those owned by other users that have been shared and are accessible to the user.
3. Set the **Start** and **End** date/times. The start time must be before the end time.
4. Click **Start Backfill**.
   The results of the backfill operation appear in the Status section. Depending on the number of definitions and time range being processed, the backfill operation may take several minutes or longer to complete.

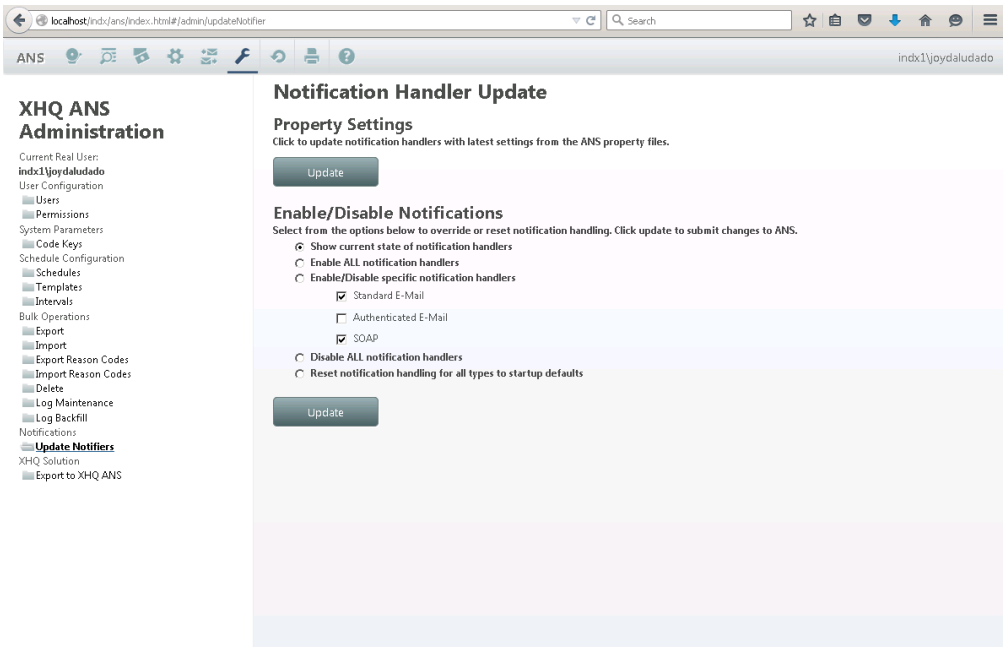
Troubleshooting a Backfill Operation

The following table lists possible errors that may appear in the Status section after a backfilling operation.

Error	Description
"Invalid time range"	The End date/time is limited to the most recent start-up time of the server. This means that you cannot backfill periods later than the time when the server was last started. If both the selected start and end times are after the last server start, you will get "Invalid time range" errors because the end time is adjusted to a time that is before the start time.
"Time range too long"	If the selected period is longer than the maximum allowed, you will get a "Time range too long" error. The maximum period to backfill is limited to prevent excessive load on the process historian. The maximum time range is set by an XHQ ANS property, a system-wide configuration parameter, with the default value of three (3) days. For more information on the XHQ ANS properties file, go to the topic, *Using the ANS Properties Files*. In addition, the entered start/end times for each definition are automatically extended to include any excursions that were in progress for that definition at those times. This adjustment may cause the maximum time limit to be exceeded and cause a "Time range too long" error for some definitions.
"0 excursions generated"	Definitions that are invalid, disabled, or do not have logging enabled are skipped and will show this message in the status section.
"AnsException: Start time is after most recent server startup"	You are trying to backfill into present or future data. Enter a time period that is before the time the alert server was started up.

Notification Handler Update Tool

The XHQ ANS Administration Notification Handler Update function allows you to update the configuration of the notification handlers (email, and so forth) with the current settings in the ans.properties file or enable/disable notifications for the system.



Notification Handler Update Tool

Updating the Notification Handlers

To update the notifiers, press the Update button. This signals the alert server to re-read the ans.properties configuration file and update the settings of the notification handlers.

Property Update Results

After the update is complete, you should see an indication that the notifiers were updated in the lower portion of the window. If a problem occurs during the update, the error message is displayed instead.

Enable/Disable Notifications

This portion of the Notification Handler Update administration page allows you to enable or disable notifications or examine the current settings. You may enable all notification handlers, disable all notification handlers or selectively set enable or disable for each available type. You may also reset the notification handling to values specified in the ans.properties file (or default settings if such properties are not specified).

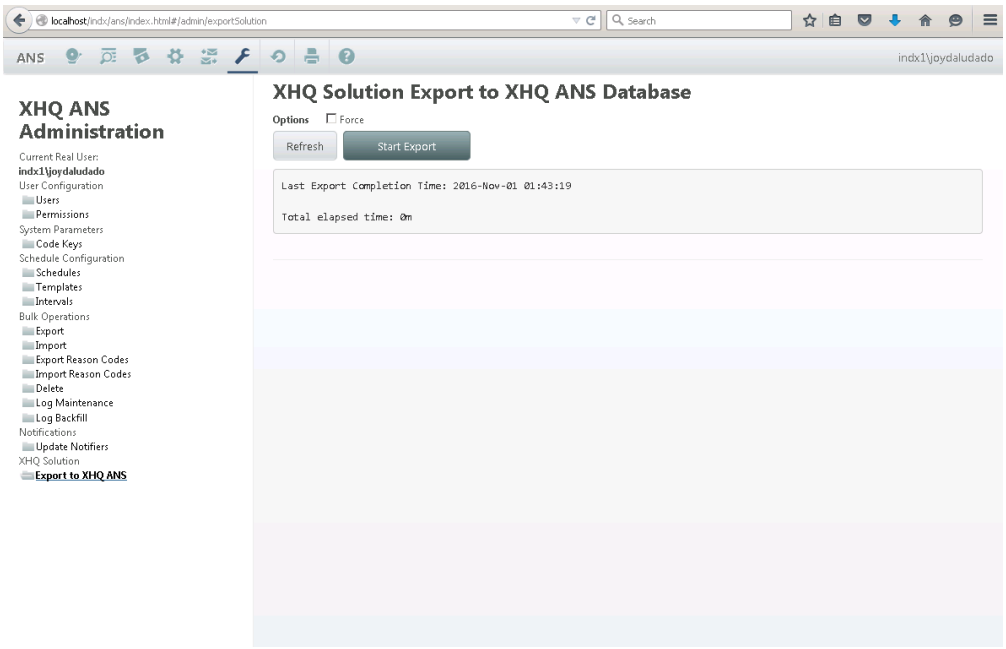
Enable/Disable Update Results

After the update or query is complete, you should see an indication of current state of the notifiers in the lower portion of the window. If a problem occurs during the update or query, the error message is displayed instead.

Solution Export to XHQ ANS Database Tool

The XHQ ANS subsystem relies on certain information about the solution being present in an internal XHQ ANS database. Although this information is normally maintained automatically, certain operations or errors may result in the database becoming out-of-sync with the XHQ solution. The XHQ Solution Export to XHQ ANS Database function causes the solution data to be rewritten to the database.

This tool requires the XHQ ANS system account to be a member of the Solution Admins group. If not a member, then the XHQ ANS system account needs to be added to Solution Admins group, which requires the restart of the Solution Server.



Solution Export to XHQ ANS Database Tool

To re-enable mixed mode storage

1. From a CMD window run as **Administrator**, enter the location for the **`%XHQ_SERVER_HOME%\bin`** directory, which by default is `C:\Program Files (x86)\XHQ\XHQ Server\bin`.
2. After the prompt, type **`xhqci_s restorestgmode`** and click **ENTER**.
   This step ensures that the database connection is set up properly so that the Solution Server can operate in mixed mode.
3. When finished, type **`xhqci_s dbexport`** and click **ENTER**.
   Upon completion, the `dbexport` data in the database is synchronized with the solution metadata. In addition, subsequent changes to the solution are duplicated to the database.

For more information on **xhqci command-line options**, see the topic, *Using the xhqci Batch File*, located in the XHQ Administrator's Guide.

Additional Tools

Transferring Ownership

This script enables the administrator to transfer ownership of ANS conditions and subscriptions from one user to another. The script, **changeowner.bat**, is located in the **XHQDB\dbadmin\bin** folder.

To run the script, from a command prompt, enter the following:

```
changeowner.bat xhq_password existing_owner new_owner
```

Setting XHQ ANS Configuration Parameters

Edit the XHQ ANS `config.json` file to define the XHQ Server and the XHQ ANS API Server hosts.

To set configuration parameters in config.json

1. Go to the **%XHQ_WEB_DATA%\repos\conf\web\examples** directory (which by default is `<systemdrive>:\XHQ\data\repos\conf\web\examples`).
2. Locate the ans folder and copy it to the **%XHQ_WEB_DATA%\repos\conf\web** directory.

   The config.json file is then located in the `%XHQ_WEB_DATA%\repos\conf\web\ans` directory (which by default is `<systemdrive>:\XHQ\data\repos\conf\web\ans`).
3. Open the **config.json** file and locate the following snippet:

```
"application": {
    "version": "1.0",
    "serverHost": "localhost",
    "webAPIServerHost": "localhost",
    "serviceBase": "/indx/xhqwi/api/ans/",
    "impServiceBase": "/indx/xhqwi/api/ans/",
    "coreServiceBase": "/indx/xhqwi/api/core/",
    "adminServiceBase": "/indx/xhqwi/api/admin/",
    "loServiceBase": "/indx/xhqwi/api/lo/",
    "loggerServiceBase": "/indx/xhqwi/api/core/",
    "preferredLanguage": "en",
    "fallbackLanguage": "en"
  },
```

   The values highlighted in yellow are default values.
4. For the **serverHost parameter**, replace `localhost` with the **name of the XHQ Server** to which you want to connect.
5. For the **webAPIServerHost parameter**, replace `localhost` with the **name of the XHQ ANS API Server** to which you want to connect.
6. **Save** and close the **config.json** file.

Using XHQ ANS with a Redundant Solution

See the topic, *ANS and Redundancy*, located in the XHQ Administrator's Guide.

Using the XHQ ANS Properties Files

The XHQ ANS properties files allow you to set user preferences for XHQ ANS. There are three files:

- The **`ans.properties`** file
  Use this file to set general user preferences.
- The **`ansmail.properties`** file
  Use this file to format a notification message sent through a **standard SMTP** channel.
- The **`ansauthmail.properties`** file
  Use this file to format a notification message sent through an **authenticated SMTP** channel.

These files are stored at the location specified by the environment variable **`%XHQ_SERVER_REPOS%`** (which is typically `XHQ\XHQ Server\repos`). A copy of these files (with default values) can also be found in the `XHQ\XHQ Server\repos_empty` directory. You can use a text editor to edit this file.

- Property names are **case-sensitive**.
- Upon making changes to and saving these files, you must restart the XHQ Server.

ans.properties

The **`ans.properties`** file allows you to set general user preferences for XHQ ANS. This file can be found at the location specified by the environment variable **`%XHQ_SERVER_REPOS%`** (which is typically `%SystemDrive%\XHQ\data\repos`).

Properties not listed by default in the `ans.properties` file may be added manually. The `ans.properties` file will then need to be saved and the XHQ Server will need to be restarted.

Starting XHQ ANS

To start XHQ ANS, the `ans.properties` file must be included in the repos.

ANS Server Port

Property	Description
`ans.server.port`	This is the main port number for communication with the XHQ ANS alert server. *Default:* ans.server.port=5105

ANS E-mail Notification Properties

Property	Description
`ans.notify.email.smtpServer`	The e-mail server hostname. *Default:* ans.notify.email.smtpServer=<machinename> Where <machinename> is the fully qualified name of the machine on the network where the SMTP server runs (using port 25). **Important:** If the SMTP server provided is **invalid**, email notifications are **not** sent nor are they saved. That is, notifications are **not queued** so that they can be sent once a valid SMTP server is provided.
`ans.notify.email.fromAddress`	The e-mail address to be used as the notifications sender. *Default:* ans.notify.email.fromAddress=<senderaddress> Where <senderaddress> is the name of a valid address that the SMTP server recognizes. *Example:* ans.notify.email.fromAddress=john.smith@acme.com
`ans.notify.email.smtpPort`	The port number for the SMTP server. *Default:* ans.notify.email.smtpPort=25
`ans.notify.email.requireSSL`	Controls SSL use for e-mails. *Default:* ans.notify.email.requireSSL=false
`ans.notify.email.` `ignoreServerCertificate`	Ignores server certificate. *Default:* ans.notify.email.ignoreServerCertificate=false

ANS E-mail Notification Authentication

Property	Description
`ans.notify.authemail.user`	The username of the authenticated user that can access the SMTP server.
`ans.notify.authemail.password`	The password of the authenticated user that can access the SMTP server.
`ans.notify.authemail.smtpServer`	The e-mail server hostname. *Default:* ans.notify.email.smtpServer=<machinename> Where <machinename> is the fully qualified name of the machine on the network where the SMTP server runs (using port 25).
`ans.notify.authemail.smtpPort`	The port number for the SMTP server.

Property	Description
	Default: ans.notify.authemail.smtpPort=25
`ans.notify.authemail.requireSSL`	Controls SSL use for all authenticated e-mail. *Default:* ans.notify.authemail.requireSSL=false
`ans.notify.authemail.ignoreServerCertificate`	Ignores server certificate. *Default:* ans.notify.authemail.ignoreServerCertificate=false

Virus scanners may provide additional protection features (for example, McAfee® Access Protection prohibits, by default, the sending of e-mail unless the sending application is explicitly added to an allowed list). In this case, the `xhq_aserver.exe` file must be added to the "Processes to Exclude" list of the associated virus scanner before e-mails can be successfully sent from the XHQ ANS Server. If this is not done, ANS may log a message such as the following in the `ans-0.out` log file:

```
03/04/2011 11:10:47.060 SEVERE: Error processing notification

EXCEPTION: com.indx.xhq.ans.server.AnsNotifyException:
javax.mail.MessagingException: Could not connect to SMTP host:
192.168.2.11, port: 25; nested exception is: java.net.ConnectException:
Connection refused: connect
```

ANS Subsystem Properties

Property	Description
`ans.solution.username`	The username to be used by the XHQ ANS alert server to connect to the XHQ system.
`ans.savedStateExpiration`	This is the length of time (in **milliseconds**) that the state of all conditions is considered to be valid since the system was shut down when states are loaded at system start up. The default value in the properties file is 2 hours (2 * 60 * 60 * 1000). *Default:* ans.savedStateExpiration=7200000

ANS Detector Properties

Property	Description
`ans.detector.evaluationDelay`	The length of time (in **milliseconds**) that all detectors will wait after receiving an input value update before reevaluating the condition. *Default:* ans.detector.evaluationDelay=5000
`ans.detector.activeAtThreshold`	Controls the default behavior of detectors when evaluating against alert limits. If **true** (which is the default), the active state is declared when the value is equal to or outside the specified limit.

Property	Description
	If **false**, the active state is declared only when the value exceeds the specified limit. *Default:* ans.detector.activeAtThreshold=true
`ans.detector.validationInterval`	The time interval (in **minutes**) between two successive system retries to validate the ANS detectors that are invalid at startup. *Default:* ans.detector.validationInterval=5 **Note:** If this property is not set, then the default value of 5 minutes is assumed.

ANS Logging Properties

Property	Description
`ans.logger.MaxEventQueue`	The maximum number of entries allowed in the logger input queue. *Default:* ans.logger.MaxEventQueue=100000
`ans.logging.formatter.dateStampInterval`	The interval (in **milliseconds**) at which to print a date stamp in the log. *Default:* ans.logging.formatter.dateStampInterval=3600000

ANS Backfill Utility Properties

Property	Description
`ans.backfill.interpolationInterval`	The interval (in **milliseconds**) to be used for requesting interpolated history. *Default:* ans.backfill.interpolationInterval=60000
`ans.backfill.maxTimeRange`	The maximum period (in **days**) to backfill. The default is set to 3 days. *Default:* ans.backfill.maxTimeRange=3

ANS Subscription Properties

Property	Description
`ans.subscribe.eventExpiration`	The length of time (in **milliseconds**) that an event queued for Subscription Manager processing can remain in the queue. Events that cannot be processed within this period of time will be dropped, and not remote notifications will be sent. *Default:* ans.subscribe.eventExpiration=1800000
`ans.subscribe.maxEventQueue`	The maximum number of entries allowed in the Subscription Manager input queue. *Default:* ans.subscribe.maxEventQueue=100000

ansmail.properties and ansauthmail.properties

These two property files allow you to format a notification message. The **`ansmail.properties`** file is used for messages sent through a **standard SMTP** channel. And the **`ansauthmail.properties`** file is used for messages sent through an **authenticated SMTP** channel (for example, sending SMS messages through the Exchange Server).

The authenticated user account and password for these notifications are configured in the **`ans.properties`** file.

Both property files can be found at the location specified by the environment variable **`%XHQ_SERVER_REPOS%`** (which is typically `%SystemDrive%\XHQ\data\repos`).

Formatting a Notification Message

The following properties may be set to control the message format:

`subj`	The subject line of the message.
`body`	The body of the message.

Things to note

- To create a new line in the format, use the **`\n`** (newline) escape sequence.
- To continue the setting to the next line in the file, put a **`\`** (backslash) at the last position on the line.
- To include a \ (backslash) character in the formatted message, use the **`\\`** (double-backslash) escape sequence.

```
#-------------------------------------------------------------------------------
---
# Example short mail notification format
#-------------------------------------------------------------------------------
---
subj=XHQ Alert: <%EventDescription%> - <%EventStateDescription%>

                                Substitutable Token Example
body=Event Details:\n\n\
 Plant/Section         : <%EventAnchorPath%>\n\
 .                       (<%EventListName%> / <%EventListSectionName%>)\n\n\
 Condition Description : <%EventDescription%>\n\
 Violation Type        : <%EventStateDescription%> at <%EventTime%>\n\
 Value at violation    : <%EventParamValue%> <%EventParamUnits%>\n\
 Current State         : <%EventState%>\n\
\n\
 You have indicated that this condition is <%SubscriptionSeverity%>
severity.\n\
 This is a SingleShot notification? <%SubscriptionSingleShot%>\n\n\
\n\
 This notification was sent by <%UserName%>\n\
 \n\
 DefId: <%EventDefId%>\n\
 Trend:
http://WASABI2K3C/indx/xans/ans_trend.jsp?DefinitionId=<%EventDefId%>&StartTime
=<%EventTimeMillis%>
```

Example of ansauthmail.properties file

List of Substitutable Tokens

These tokens are for use with both standard and authenticated SMTP notification messages.

When the e-mail message is generated, the formatter scans the template for special tokens with the **<%*TokenName*%>** syntax. When this syntax is encountered and the token name is valid (must be listed in the "Substitutable Tokens" table below), the formatter substitutes the value in place of the token. If the name found within the token delimeters is invalid (does not match any of the names in the table below), then the text is left unchanged in the generated message.

There must be no whitespace in or around the substituted token name.

Example: `<%EventDetectorType%>`

Substitutable Tokens

Name	Description
`ANSWebHost`	The web host that serves the ANS web user interface. This can be used to form a URL to a specific ANS page in the e-mail message.
`EventDefID`	The event definition ID.
`EventVersion`	The event version.
`EventDescription`	The event description.
`EventCategory`	The event category.
`EventConditionInfo`	The event alert condition information email.
`EventState`	The event state.

Name	Description
EventStateDescription	The event state description.
EventTime	The date and time that the event occurred (formatted with US-style date and time. *Example:* 03/22/2007 11:01:07.122
EventTimeMillis	The event timestamp in milliseconds since January 1, 1970 GMT.
EventListId	The event list ID.
EventListName	The event list name.
EventListSectionId	The event list section ID.
EventListSectionName	The event list section name.
EventViewName	The view name associated with the event.
EventOwnerId	The event owner.
EventAnchorPath	The event anchor path.
EventDetectorType	The event detector type.
GracePeriodSeconds	The grace period (in seconds).
RtnGracePeriodSeconds	The "Return to Normal" (RTN) grace period (in seconds).
EventParamValue	The event parameter value.
EventParamUnits	The event parameter units.
EventParamHiLimit	The event parameter Hi limit.
EventParamLoLimit	The event parameter Lo limit.
SubscriptionId	The alert subscription ID.
SubscriptionDescription	The alert subscription description.
SubscriptionSeverity	The alert subscription severity.
SubscriptionOwnerId	The alert subscription definition owner ID.
SubscriptionEnabled	Denotes if the alert subscription status is enabled.
SubscriptionRtnNotify	The alert subscription Return to Normal notification.
SubscriptionSingleShot	The alert subscription Single Shot notification.
RouteId	The route ID.
RouteDestination	The route email destination.
RouteEnabled	Denotes if routing status is enabled.
RouteScheduleId	The route schedule ID.
RouteIntervalType	The route interval type.
RouteSeverity	The route severity.

Name	Description
UserName	The user name.
UserLocale	The user's locale.
UserPreferenceSetId	The user's preference set ID.
UserDictionaryId	The user's dictionary ID.

8 | Grouping Conditions

With XHQ ANS grouping, you can control the notification process for a group of alert conditions. There are three types of grouping currently supported in XHQ ANS:

- **First Out**
  A notification is sent only once when the **first** condition in the group becomes active. Therefore, subsequent conditions within the group that become active do not trigger a notification. Only when all the conditions in the group return to normal can a new notification be sent.

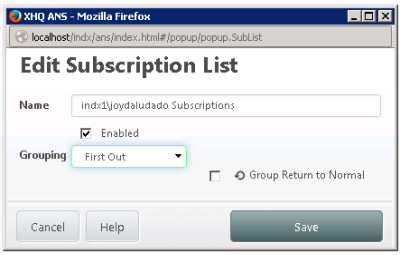
  Use Case:

  A user defines a group of alert conditions that monitor a pump. The user selects the First Out grouping type. So instead of being notified each time a pump condition becomes active, the user is only notified once - when the first condition in the group becomes active.

- **Alert on Severity**
  A notification is sent when a condition within the group becomes active. However, if another condition within the group becomes active with a severity that is **higher** than the previous condition that triggered the notification, then a new notification is sent.

- **Last Out**
  A notification is sent only once when the **last** condition in the group becomes active and all the group conditions are therefore active. Only when all the conditions in the group return to normal can a new notification be sent.

You can set the Grouping attribute when creating or editing a Subscription List. If any of the above grouping types are selected, then the Subscription List behaves as an XHQ ANS Group.

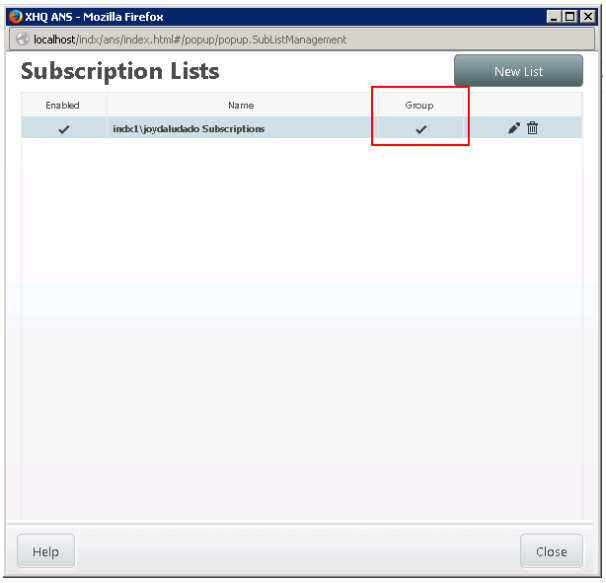


If the grouping attribute is set to **None**, then there is no grouping for the Subscription List.

When a grouping type is selected, the **Group Return to Normal** option becomes available. If checked, then a notification is sent to the user indicating that the last condition in the group is returned to normal. All group conditions are normal and so the state of the group is set to normal.

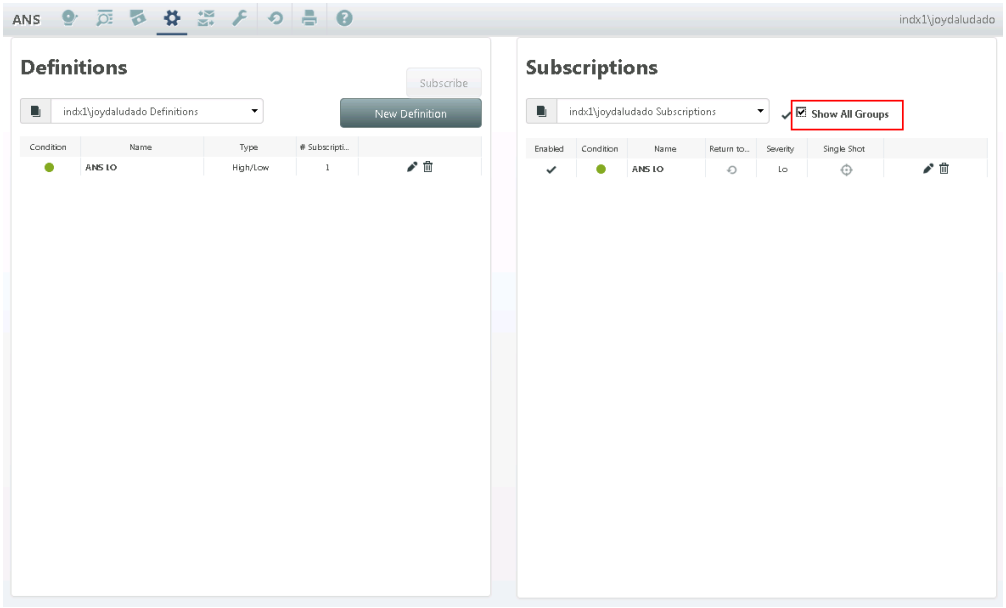
Groups can also be created through Target Management or eLogs. For more information, refer to the *XHQ Performance Management Guide*.

In addition, a **Group column** appears in the Subscription List Manager, indicating which list members are part of the group.



Subscription List Manager

From the XHQ ANS Configuration Tool, the **Show All Groups** option is available, enabling the user to have access to all groups, including the ones created in Target Management.



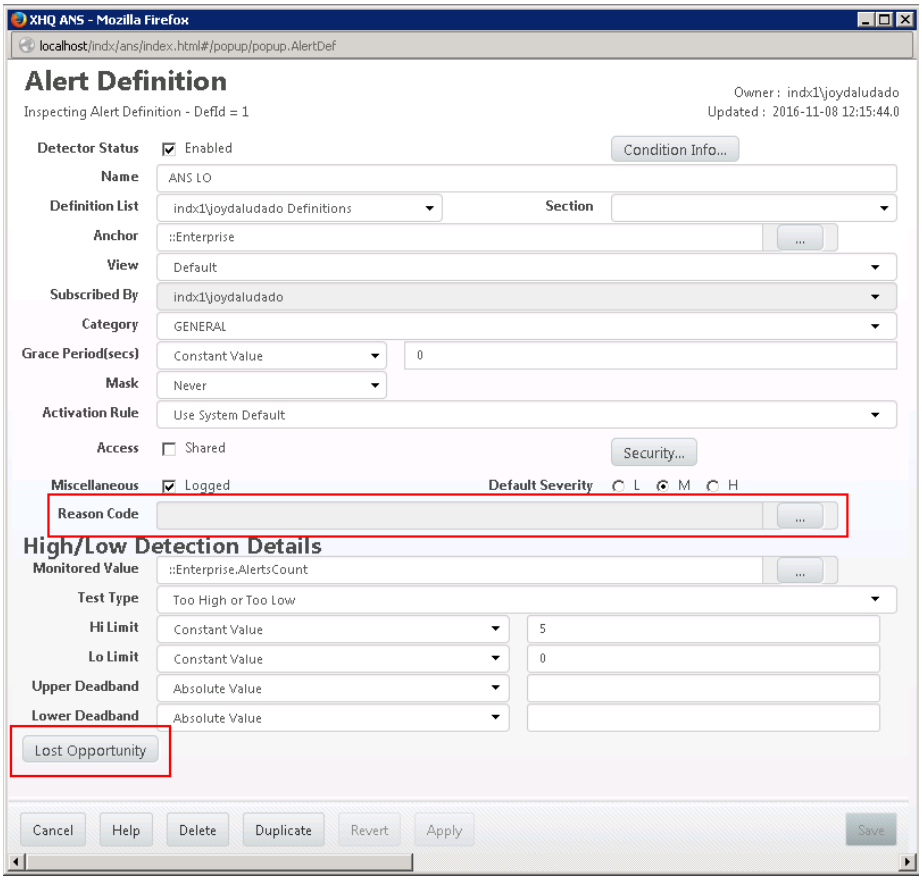
XHQ ANS Configuration Tool

9 | Lost Opportunity Configuration

The Lost Opportunity (LO) extension module provides a mechanism to normalize the cost associated with a process deviation. LO is calculated for each deviation as well as defined intervals in the system. These LO values are then assigned Reason Codes, which are then used to aggregate the LO values across the XHQ hierarchy. Consequently, this enables you to analyze the best/worst actors in the process.

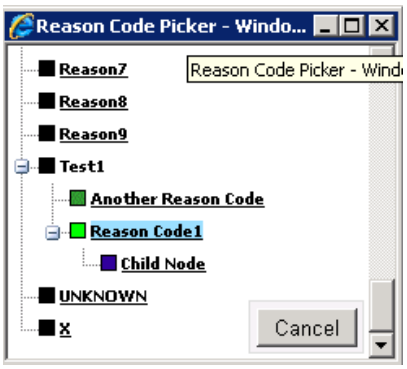
This section focuses on LO configuration and reporting. For more information on Lost Opportunity in general, go to the topic, *Lost Opportunity and Reason Management*, located in the XHQ Performance Management Guide.

The XHQ ANS **Alert Definition screen** (for condition definition configuration) enables you to identify the Reason Code and configure Lost Opportunity.



XHQ ANS Alert Definition Screen

Note in the image above, the **Reason Codebox**, which displays the default Reason Code configured in XHQ Performance Management. If you prefer, click the browse button to launch the **Reason Code Picker** to browse for a Reason Code.

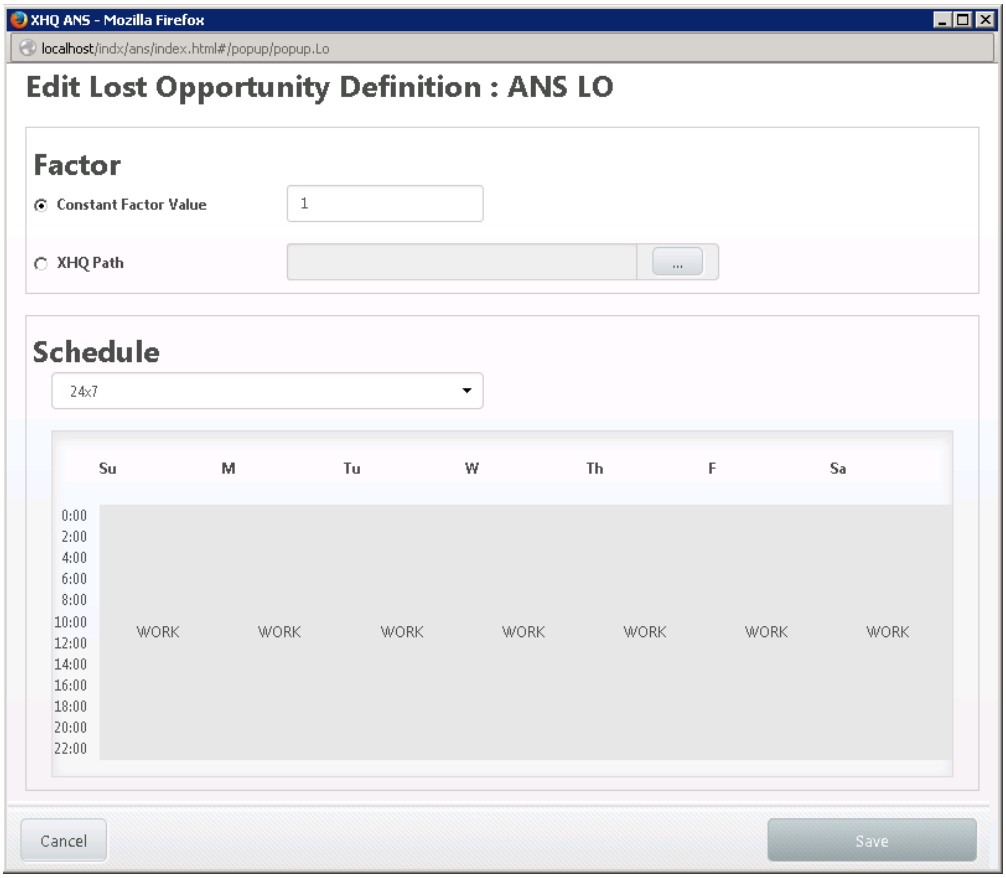


Reason Code Picker

The "Default Reason Code" option may be blank. Associating a default Reason Code with a condition definition is optional.

Also note the **Lost Opportunity button**. This button is only enabled if the XHQ release in use has a valid LO license, the detector type used is of type "HI/LO" or "Deviation", and the condition definition is being updated or edited (meaning, the XHQ ANS condition definition must already have been created and either the Apply or OK buttons already clicked).

When you click the Lost Opportunity button, the **Edit Lost Opportunity Definition** screen appears.



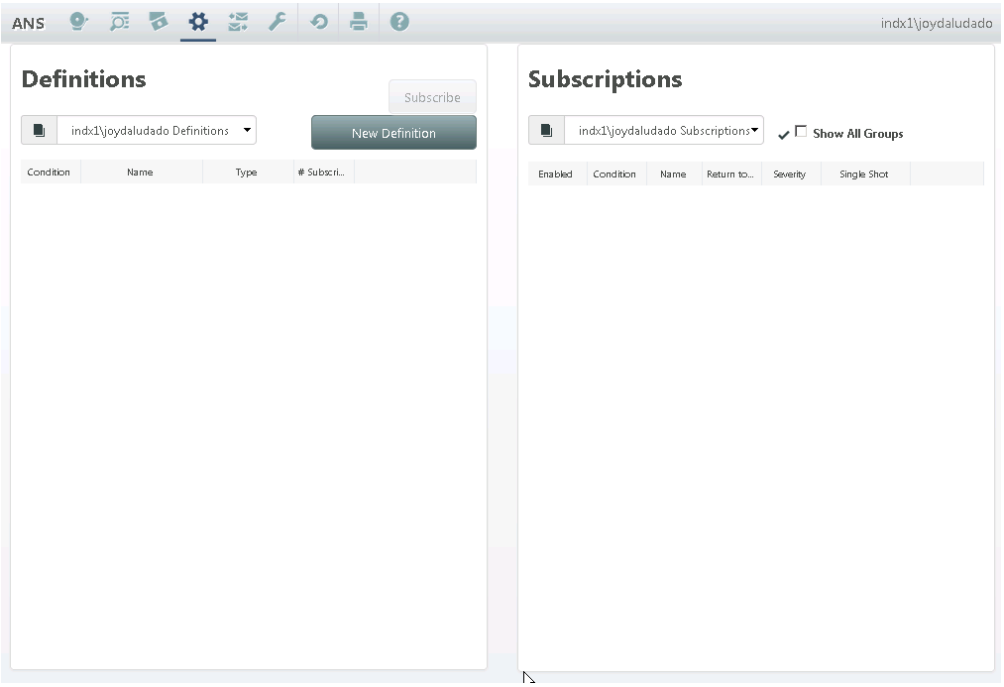
In this screen, you identify the **LO normalization factor**, which can either be a **Constant Factor Value** or an **XHQ Path** (or tag).

Optionally, you may set the schedule associated with the LO used in calculated the time slices.

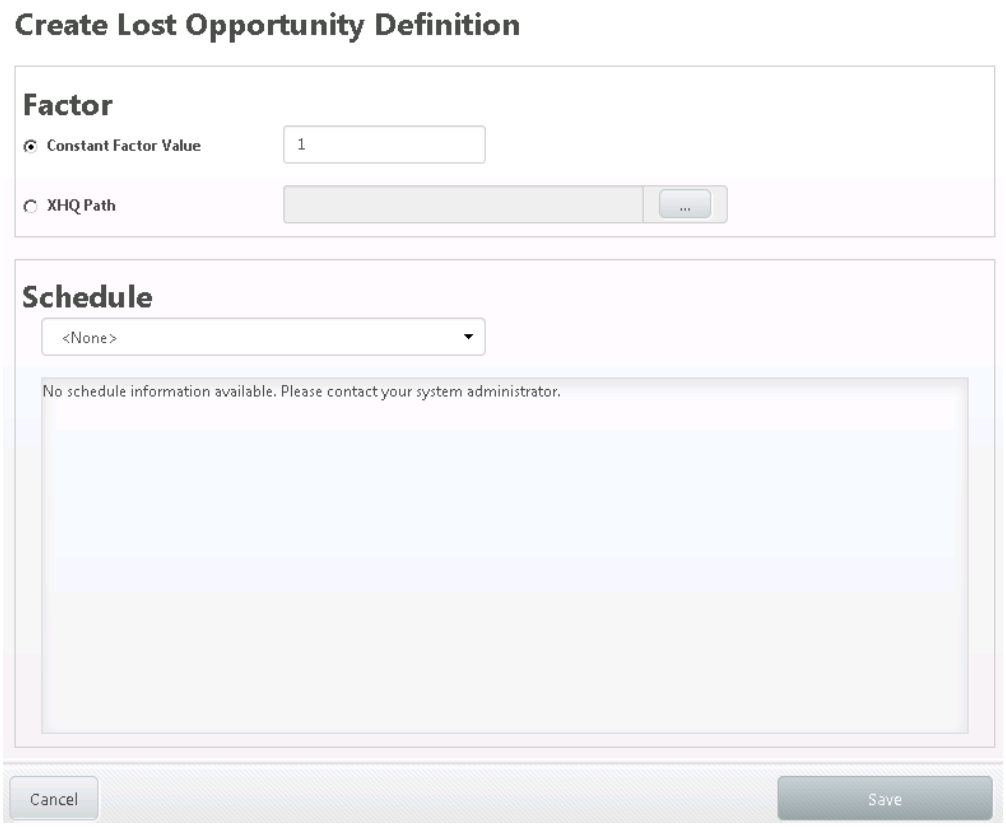
To configure Lost Opportunity

1. Launch XHQ ANS. You may use the URL, `http://<server_name>/indx/ans/index.html`, where `<server_name>` is the name of your server.
2. From the top navigation bar, click the **Configuration** icon.

The "Definitions - Subscriptions" page appears.



3. Click **New Definition**.
   The "Alert Definition" page appears.
4. Verify that the **Detector Status** box is **Enabled** (checked).
5. Enter a **Name**.
6. For **Miscellaneous**, check **Logged**.
7. Under the High/Low Detection Details section, for **Monitored Value**, enter the path to your variable.
8. Enter a **Hi Limit** and a **Lo Limit**.
9. Click **Save**.
   This returns you to the "Definitions - Subscriptions" page.
10. Under Definitions, locate the newly create definition and click the **Edit** icon.
    The "Alert Definition" page appears. Note the Lost Opportunity button is now enabled.
11. Click **Lost Opportunity**.
    The "Create Lost Opportunity Definition" page appears.



12. Select a **Schedule** and click **OK**.
    This returns you to the "Alert Definition" page.
13. Click **Save**.
    This returns you to the "Definitions - Subscriptions" page.
14. Next, go to the **repos** directory that is stored at the location specified by the environment variable, **`%XHQ_SERVER_REPOS%`** (which by default is `C:\XHQ\data\repos`).
15. Locate the **`app.properties`** file and, using a text editor, edit this file.
16. Scroll down to the lines:
    ```
    app.ans.tmsystem.username=tmsystem
    app.ans.losystem.username=losystem
    ```
17. Edit the values to include the **domain** and the **user name**, separated by double back slashes (\\).

    The user name value is **case-sensitive**.

    Example:
    ```
    app.ans.tmsystem.username=acme\\joesmith
    app.ans.losystem.username=acme\\joesmith
    ```

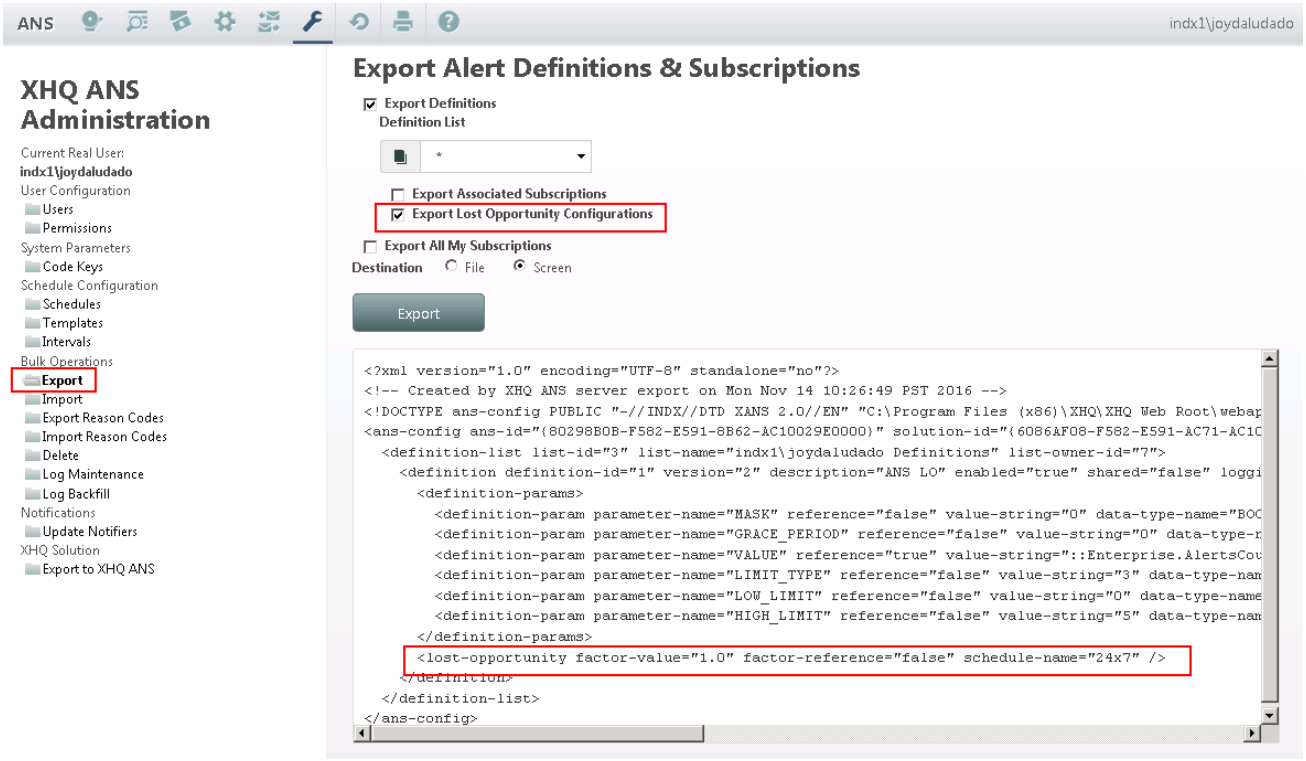
app.properties *

```
# The following properties section defines the names of system owned Performance Management components.
# Do NOT rename, modify, or delete these components in the Catalog.
# Do NOT modify these section entries and defaults unless expressly approved by XHQ Customer Support.
app.pi.class=XHQ_PM_Performance_Indicator
app.target.class=XHQ_PM_Target
app.target.rec.class=XHQ_PM_Target_Record
app.limit.class=XHQ_PM_Limit

# This following property defines the name of the tag component used by the Application Server.
# This tag component name must correspond to the tag component name used in the Solution, e.g. XTag.
# If they differ, modify this property to reflect the tag component name used in the Solution.
app.metric.class=XTag

# Target Management system user name used in the Alert Notification System.
# IMPORTANT! In order to be able to use Target Management in conjunction with ANS this property
# needs to be set to a valid user that can be authenticated by the Enterprise (Model) server.
app.ans.tmsystem.username=acme\\joesmith
app.ans.losystem.username=acme\\joesmith

# Default Performance Indicator group name used by the Application Server.
# Do NOT modify this section unless expressly approved by XHQ Customer Support.
app.pi.default.group=KPI_Group
```

18. **Save** the file.

Exporting and Importing the LO Configuration

Use the XHQ ANS Administration > Export Alert Definitions & Subscription tool to export the LO configuration to XML.



XHQ ANS Administration: Export Alert Definitions and Subscriptions Tool

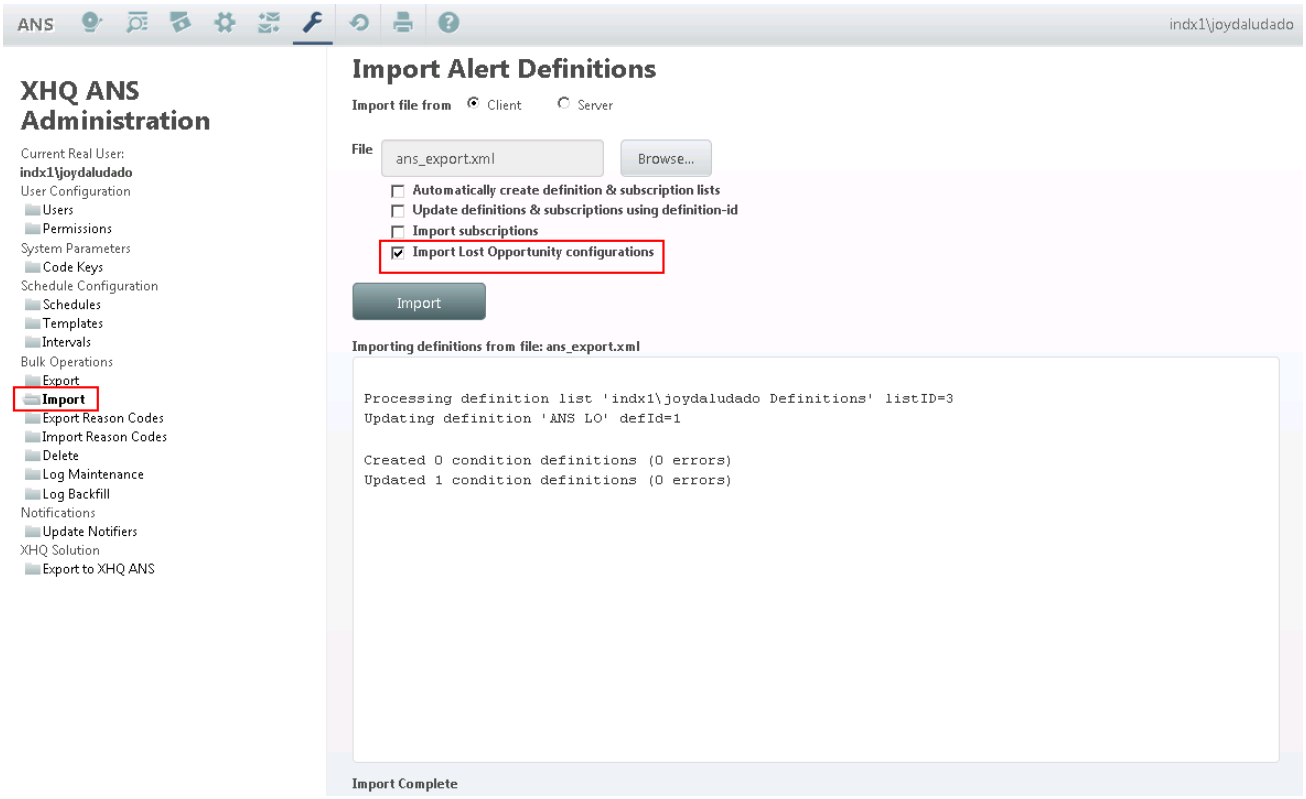
For more information, go to the topic, *Export Alert Definitions and Subscriptions Tool*.

To **export** the LO configuration associated with the conditions definition, check the **Export Lost Opportunity Configurations** option.

The validation DTD element for LO is similar to the following:

```
<!ELEMENT definition (default-reason-code?, definition-params, definition-info?, lost-
opportunity?)>

<!ELEMENT lost-opportunity EMPTY>
<!ATTLIST lost-opportunity
factor-value CDATA #REQUIRED
factor-reference (true | false) "false"
schedule-name CDATA #REQUIRED
>
```

To **import** the LO configuration from XML, use the XHQ ANS Administration > Import Alert Definitions tool .



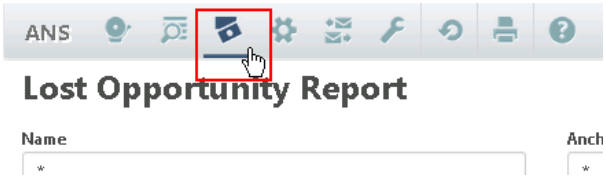
XHQ ANS Administration: Import Alert Definitions Tool

For more information, go to the topic *Import Alert Definitions Tool.*

To import the LO configuration from XML, check the **Import Lost Opportunity Configurations** option.

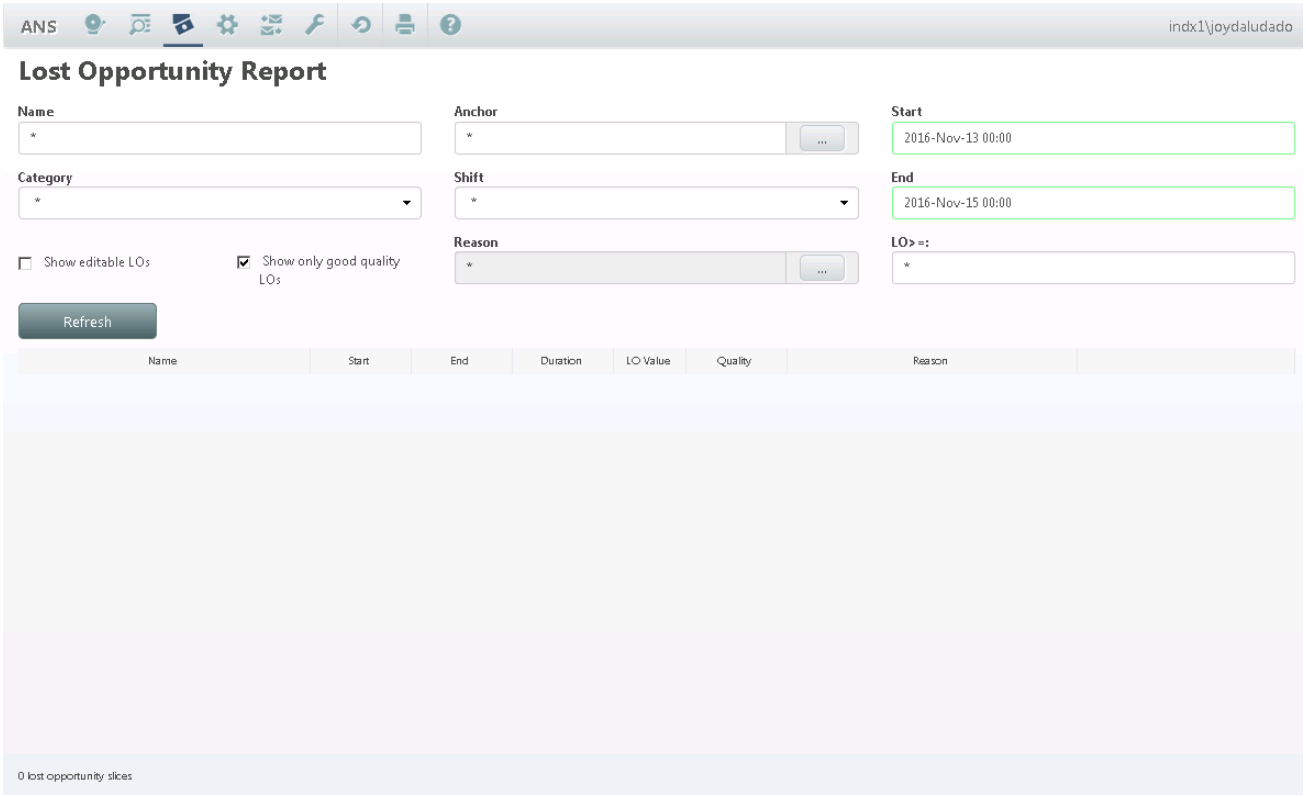
Generating the LO Summary Report

From the XHQ ANS toolbar, click the **Lost Opportunity Cost** button to generate an LO Summary Report.



This launches the **Lost Opportunity Report** screen, which enables you to set the following search criteria (filters).

Option	Description
Name	The condition definition name associated with the LO slice.
Start	The slice date/time start.
End	The slice date/time end.
Anchor	The condition definition anchor.
Category	The condition definition category.
Editable	Check if the slice is editable by the current user.
Good Quality	Check if only Good quality LOs are displayed.
Interval	The slice interval.
Reason	The reason code.
LO Value	Greater than or equal to the given LO value.

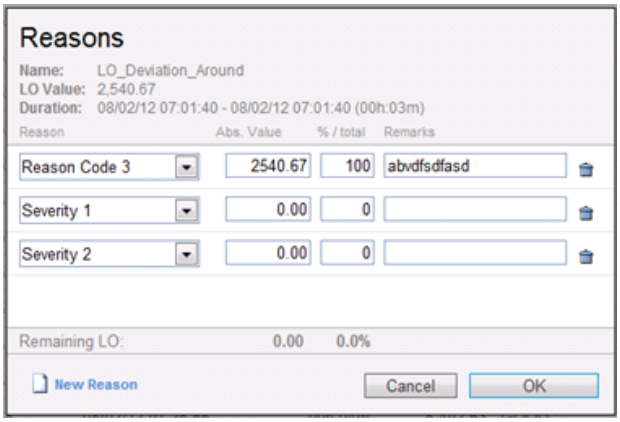


Lost Opportunity Report

The generated report displays the following (as seen in the generated table located at the bottom portion of the example image above):

- The Condition Definition **Name** associated with the LO slice.
- The slice date/time **Start**.
- The slice date/time **End**.
- The slice **Duration**
- The **LO Cost Value**.
- (If the "Show only good quality LOs" checkbox is checked) The Good **Quality** LOs.
- The **Reason** Code associated with the LO time slice.

Click the icon to edit the Reasons for each LO time slice record. This launches the **Reasons** Code Editor.



Reason Code Editor

This editor enables you to update the Reasons as well as specify multiple Reasons associated with the same slice record (based on either a percentage or absolute value from the total LO Cost associated with the slice record).

Appendices

Section Contents

A - For the Application Developer

Log Summary Report

The JSP file used to generate standard, webpage-based, formatted Excursion Reports, is:

```
/Program Files/XHQ/XHQ Web Root/indx/xans/log_summary_report.jsp
```

(which is on the disk that is the target of a standard XHQ installation with the XHQ ANS option enabled).

The XHQ installer creates a "virtual (web) directory" at the "indx" node in the above path. That is, the JSP file can be referenced in a URL as follows:

```
http://<systemname>/indx/xans/log_summary_report.jsp
```

Where **<systemname>** is the machine/server on which XHQ is running.

There are a series of query parameters that can be (and, usually are) optionally appended to the preceding URL that are used to control the scope and general context of the report. Generally speaking, an **Excursion Report** renders logged event data that is stored in a relational database by XHQ ANS. As such, the constructed URL specifies the "conditions" and timeframe of interest. The conditions have several parameters that can be used to filter out unwanted entries. The timeframe can be an absolute one, wherein the URL specifies a start and end time/date, or it can be based on a "shift."

The shift concept is currently restricted to this report, i.e. there is no systemic notion of a shift. Rather, the report JSP itself has a built-in, hard-coded "shift" of 6am to 6pm (and 6pm to 6am). (Future versions of XHQ ANS may have a configurable means to alter the shift definition.) When using the shift-based option to specify a timeframe (as opposed to an absolute start and end time), the URL may specify whether a particular shift is to be the timeframe *OR* the shift so-specified marks the beginning of the report timeframe, and the end is "now." In either case, shifts are always relative to the current time. This is explained in more detail below.

The **log_summary_report.jsp** itself is NOT intended as a user-customizable entity.

If no query parameters are specified in the URL the default behavior of the resulting report is to include all "shared" (that is, global/system-wide) conditions that have had at least one excursion (count > 1) since the beginning of the current shift.

Query Parameters

Time Period Specification

Parameter	Description
StartDate	This parameter indicates the start of the time range of interest as an absolute time. This is a string of the general form: "YYYY-MMM-DD HH:mm" where YYYY is the year, MMM is the abbreviation for the month, DD is the day of the month, HH is the hour (0-23), and mm is the minute of the hour (0-59). This date specification must be exactly as indicated.
EndDate	This parameter indicates the end of the time range of interest as an absolute time. This is a string of the general form: "YYYY-MMM-DD HH:mm" where YYYY is the year, MMM is the abbreviation for the month, DD is the day of the month, HH is the hour (0-23), and mm is the minute of the hour (0-59). This date specification must be exactly as indicated.
Shift	This parameter, relative to "now" indicates which single shift is to be reported on. This

Parameter	Description
	parameter is used as an alternative to calculating, then specifying an absolute StartDate and EndDate. The value of this parameter is the number of shifts offset from "now". For example, the current shift would be indicated as "Shift=0" (the report period will be from the beginning of the current shift through the current time); the previous shift as "Shift=-1" (beginning of the previous shift through the end of the previous shift); and so on. As mentioned earlier, each shift is a 12 hour period beginning at 6am or 6pm.
Shifts	This parameter, relative to "now" indicates which shift to use as the start of the report period. The usage is similar to that of the Shift parameter, except that all shifts will be included through the current time. For example, if "Shifts=-1", then the report will include all excursions that occurred since the beginning of the previous shift through the current time, not just *during* the previous shift.

Filters on conditions and their associated parameters

Parameter	Description
NameFilter	This parameter is a simple wildcard specifying which conditions to include in the report, on a condition definition "name" basis. If condition definitions have a well-behaved name pattern, that includes a well known string, then this parameter could be used to filter out all but those conditions whose name contains that string. For example, if a reactor-related condition had the word "Reactor" in the definition name, then one could use something like "NameFilter=*Reactor*" to only get those conditions on the report. "NameFilter=*" would include all conditions; this is the default behavior if this parameter is omitted.
AnchorFilter	Similar to NameFilter, except based on the Anchor path string assigned to the conditions.
CategoryFilter	This parameter can be specified to include only those conditions assigned to a particular system-wide category or categories. "CategoryFilter=Operating", for example, would only include those conditions assigned to the "Operating" category (assuming that category exists in the system, of course). The value "*" means all categories, and is the default behavior is the parameter is omitted from the URL.
ListType	The only valid value for this parameter is "0" (meaning "definition" lists, as opposed to "subscription" lists) and is the default behavior if omitted.
ListFilter	This parameter is used to specify which "Lists" are to be included in the report. The value of this parameter may contain one or more list names (or wildcard patterns of list names) or the value "*" meaning "all lists" which is the default behavior if omitted. If more than one list is to be included, then the list names should be separated by the vertical bar character "|". For example, if a report is to include conditions contained in lists "2H2S" and "4CU", then one would specify "ListFilter=2H2S|4CU".

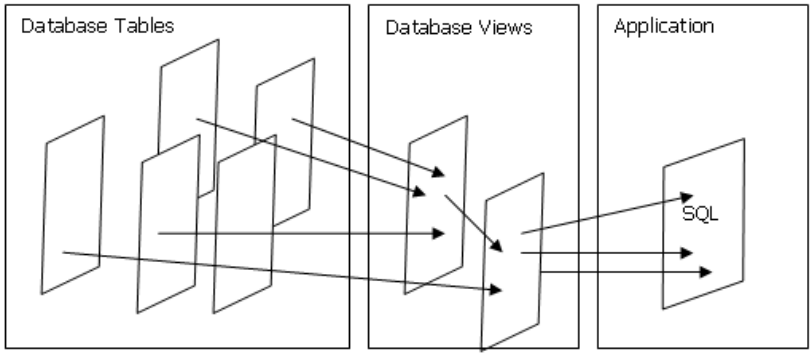
Miscellaneous Filters and other controls

Parameter	Description
Title	This parameter may be used to control the static header text that appears at the right, top of the report screen. If omitted the text "Excursion Summary Report" is inserted. The value of this parameter may contain HTML to control formatting of complex header information. For example, if the report should have the following:

Parameter	Description
	Plant Report *4 Crude Unit* To affect this header, add the following to the URL: **`Title=Plant Report <em>4 Crude Unit</em>`** The entire URL would look something like: `http://stop/indx/xans/log_summary_report.jsp?&ListFilter=4CU&Title=Plant%20Report <em>4%20Crude%20Unit</em>`
CountMin	This parameter specifies the excursion count threshold to apply to the report. For example, if CountMin=3, then only those conditions that had 3 or more excursions during the reporting period will be included. The default value of this parameter is 1, unless the AllDefs parameter is included (which forces the CountMin to "0".)
DurationMin	This parameter specifies the duration threshold to apply to a report. The value of the parameter is a percentage. This percentage applies to the reporting period specified. For example, if DurationMin=25, then only those conditions that were active (i.e. "true") for a total combined period of time of 25% or more of the time period of the report will be included. The default value for this parameter is "0". If both CountMin and DurationMin are specified, the report will include only those conditions that meet both criteria.
AllDefs	If included, this valueless parameter causes the report to include all defined conditions within the scope of the rest of the condition filters by effectively setting the DurationMin to "0" and CountMin to "0".

Database Views

Database views allow read-only access to commonly used information such as XHQ ANS current and logged (excursion) data. This information is extracted from theXHQ High-Performance Database (the embedded database within the XHQ system) and could prove useful to application engineers or customer application groups in building customized solutions.



Database Views Model

XHQ provides database views for various features and, for your convenience, are documented in the sections relevant to the given feature:

- **Monitoring/XHQStats** in the *XHQ Connection Guide*;
- **Performance Management** (Target Management) and **View Statistics** in the *XHQ Performance Management Guide*;
- **XHQ ANS** in this section.

XHQ database views are for use by the XHQ solution only. You may configure an XHQ internal database connection to have READ access to these database views for the sole purpose of data integration into the XHQ solution (for example, into XHQ views). Any other use would violate the terms of the XHQ license. It is explicitly not permitted to access the XHQ embedded database from outside XHQ in any form or to access any internal tables or views other than reading the database views documented in this section.

When to Use Database Views

The following are typical examples of when database views could be useful.

- **To display the current status of specific individual alerts on an XHQ view.**
  Show a visual indication of alert statuses on a process diagram. For example, show a red box around process values that are out of limits.
- **To incorporate the collection view of current plant/equipment alerts into an XHQ view.**
  Build an XHQ view of a particular plant or major equipment item that includes a table of all active alerts associated with that plant/equipment.
- **To incorporate the collection view of a specific alert history into an XHQ view.**
  Build an XHQ view that displays the alert history (excursions) for a specified alert over a specified time period.
- **To create a custom web report showing all disabled alerts.**
  Write a custom report/web page listing all alerts that are currently disabled.

The examples above may require customized scripts.

Getting XHQ ANS Data

Use the following database views to retrieve XHQ ANS data.

For . . .	The database view name is . . .
Alert Current Status	XHQ_ANS_CONDITION_STATUS_V
Excursion Log	XHQ_ANS_EXCURSION_LOG_V
Database Views Meta Data	XHQ_COLUMN_COMMENTS_V
"Mask-able" Condition Definitions	XHQ_ANS_MASKABLE_CONDITIONS_V

Using the Alert Current Status Database View

The Alert Current Status database view provides access to the following XHQ ANS data for a particular alert.

- Condition definition unique ID
- Alert Name/Description
- Current State (Active/Inactive)
- State Description (for example, Above High Limit)
- Shared indicator
- Time of entry into current state
- Detector status (OK or not)
- Detector type (for example, HiLo, ROC)
- Owner
- Definition List
- Definition Section
- Category
- Anchor path
- Associated view
- Additional Information text
- Enabled/Disabled indicator
- Logged indicator
- Monitored member path/alias

The database view name for current status is **XHQ_ANS_CONDITION_STATUS_V**.

View Details

ColumnName	DataType	Null	Description
DEFINITION_ID	NUMBER (10)	N	The unique identifier of the definition.
DEF_DESC	NVARCHAR2 (128)	N	The user-defined descriptive name of the condition.
ACTIVE	NUMBER (1)	N	Indicates if the condition is active.
STATE_DESC	NVARCHAR2 (80)	N	The name of the condition state.
SHARED	NUMBER (1)	N	Indicates that this definition may be shared.
TS	DATE	N	The time and date at which the last state transition occurred.
OK	NUMBER (1)	N	The detector has enough good data to make a determination.
DETECTOR_TYPE	NVARCHAR2 (128)	N	The type of detector used for condition detection.

ColumnName	DataType	Null	Description
XHQUSER	NVARCHAR2 (80)	N	The account ID of the user that created the definition.
DEF_LIST	NVARCHAR2 (128)	N	The user-definable name of the list.
SECTION_NAME	NVARCHAR2 (128)	Y	The unique name of the section within the definition list.
CATEGORY	NVARCHAR2 (128)	Y	The category of condition as defined by the definition creator.
ANCHOR_PATH	NVARCHAR2 (2000)	Y	An XHQ path that indicates what object in the XHQ solution is associated with this alert. This column is used to provide a means of navigation from ANS-specific screens to XHQ views and vice-versa.
XHQ_VIEW	NVARCHAR2 (128)	Y	The name of the view that is associated with a condition definition.
ALERT_INFO	NVARCHAR2 (2000)	Y	Free text field for information on what to do when the condition occurs.
HIGH_LIMIT	NVARCHAR2 (2000)	Y	The High Limit value for the alert in case the alert uses the HILO detector; it can be a number or a string reference (XHQ absolute path).
HI_REF_FLG	NUMBER (1)	Y	Flag that indicates if the High Limit value for the alert is a string reference (XHQ absolute path) or not.
LOW_LIMIT	NVARCHAR2 (2000)	Y	The Low Limit value for the alert in case the alert uses the HILO detector; it can be a number or a string reference (XHQ absolute path).
LO_REF_FLG	NUMBER (1)	Y	Flag that indicates if the Low Limit value for the alert is a string reference (XHQ absolute path) or not.
ENABLED	NUMBER (1)	N	Indicates whether or not the condition is to be detected at runtime.
LOGGED	NUMBER (1)	N	Indicates that excursions should be logged.
MONITORED_VALUE	NVARCHAR2 (2000)	N	The monitored value (alias or full path or literal) for the definition.
MASKED	NUMBER (1)	N	The alert is masked and may be ignored.

Using the Excursion Log Database View

The Excursion Log database view provides access to the following XHQ ANS data for a particular excursion.

- Excursion log unique ID
- Condition definition unique ID
- Alert Name/Description
- State Description (for example, Above High Limit)
- Start time of excursion
- End time of excursion
- Minimum Value
- Maximum Value
- Average Value
- Quantity Sampled
- Detector type (for example, HiLo, ROC)
- Owner
- Category
- Anchor path
- Associated view
- Monitored member path/alias

The excursion log view may have millions of rows. Therefore, you should constrain queries to a subset.

The database view name for the excursion log is **`XHQ_ANS_EXCURSION_LOG_V`**.

View Details

ColumnName	DataType	Null	Description
EXCURSION_ID	NUMBER (10)	N	The unique identifier of the excursion.
DEFINITION_ID	NUMBER (10)	N	The unique identifier of the definition.
DEF_DESC	NVARCHAR2 (128)	N	The descriptive name of the condition.
STATE_DESC	NVARCHAR2 (80)	N	The name of the condition state.
START_TS	DATE	N	The time and date when the excursion started.
END_TS	DATE	Y	The time and date when the excursion ended.
MIN	FLOAT	Y	The minimum value sampled during the excursion (as defined by the condition detector).
MAX	FLOAT	Y	The maximum value sampled during the excursion (as defined by the condition detector).
AVG	FLOAT	Y	The time-weighted average samples during the excursion (as defined by the condition detector).
QTY_SAMPLED	NUMBER (10)	Y	The number of samples (of all quality types) processed by the detector during the excursion.
DETECTOR_TYPE	NVARCHAR2 (80)	N	The type of detector used for condition detection.
XHQUSER	NVARCHAR2 (80)	N	The account ID of the user that created the definition.
CATEGORY	NVARCHAR2 (80)	Y	The category of condition as defined by the definition creator.
ANCHOR_PATH	NVARCHAR2 (256)	Y	The anchor point of the condition definition as a

ColumnName	DataType	Null	Description
			path in XHQ.
XHQ_VIEW	NVARCHAR2 (30)	Y	The name of the view that is associated with a condition definition.
MONITORED_VALUE	NVARCHAR2 (256)	N	The monitored value (alias or full path or literal) for the definition.

Retrieving Database Views Meta Data

All columns for views are documented in the column comments table. This table includes the following information and can be queried to determine what a particular column means in one of the views:

- View (table) name
- Column name
- Column comments

The database view name is **`XHQ_COLUMN_COMMENTS_V`**.

View Details

ColumnName	DataType	Null
TABLE_NAME	NVARCHAR2 (30)	N
COLUMN_NAME	NVARCHAR2 (30)	N
COMMENTS	NVARCHAR2 (4000)	Y

Showing Mask-able Condition Definitions Database View

This database view allows you to query the definitions that are "potentially" mask-able. If a definition's MASK setting refers to another XHQ member, it may be masked at runtime if the referenced member's value is true.

The mask-able condition table includes the following information:

- Condition definition unique ID
- Alert Name/Description
- Mask Member

For more information on masking, go to the topic, *Configuration Alert Definition Display*.

The database view name is **`XHQ_ANS_MASKABLE_CONDITION_V`**.

View Details

ColumnName	DataType	Null	Description
DEFINITION_ID	NUMBER (10)	N	The unique identifier of the definition.
DEF_DESC	NVARCHAR2 (128)	N	The user-defined descriptive name of the condition.
MASK_MEMBER	NVARCHAR2 (256)	N	The referenced XHQ member.

Accessing Database Views from the XHQ Platform

The examples in this section shows you how to access the excursion log database view from XHQ, using the Oracle connector.

EXAMPLE: USING THE ORACLE CONNECTOR TO ACCESS THE EXCURSION LOG DATABASE VIEW

1. From the XHQ Workbench, create a component named **Excursion** with the following members:

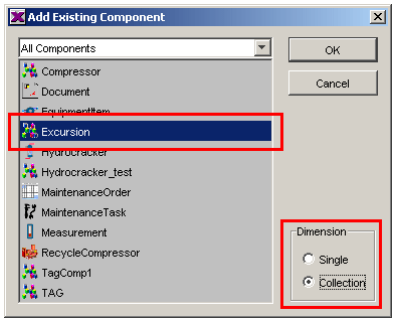
Name	Type
EXCURSION_ID	Integer
MONITORED_VALUE	String
STATE_DESC	String

2. Next, create a component named **Tag** with the following members:

Name	Type
EXCURSIONS	Excursion collection **Tip**: Add the existing component "Excursion" with the Dimension set to "Collection."
TAGNAME	String
UNITS	Integer

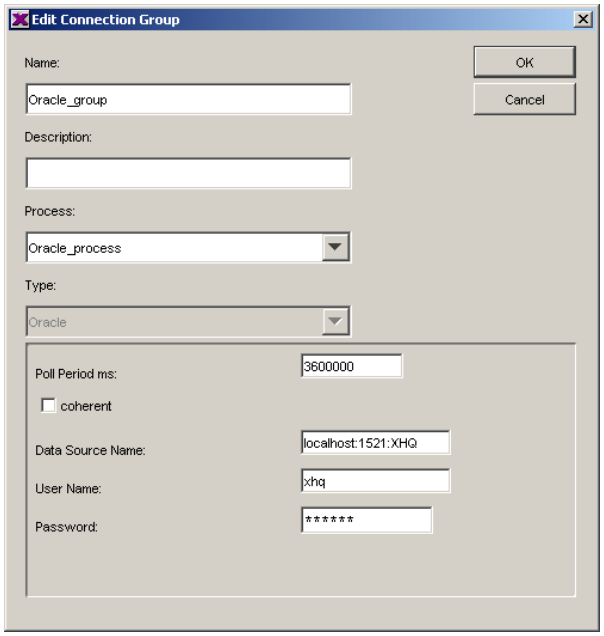
Configure the TAGNAME member with the Key tag attribute.

When adding the member component "Excursions" as an existing component to the "Tag" component, make sure that you set the **`Dimension`** to "Collection".



3. Configure the **Oracle** connection by:
   - Injecting the Oracle connector type;
   - Adding the connection process;
   - Creating the connection group, using the following:

For . . .	Enter . . .
Data Source Name	`localhost:1521:XHQ`
Username	`xhq`
Password	(Use the password you entered during the XHQ installation.)



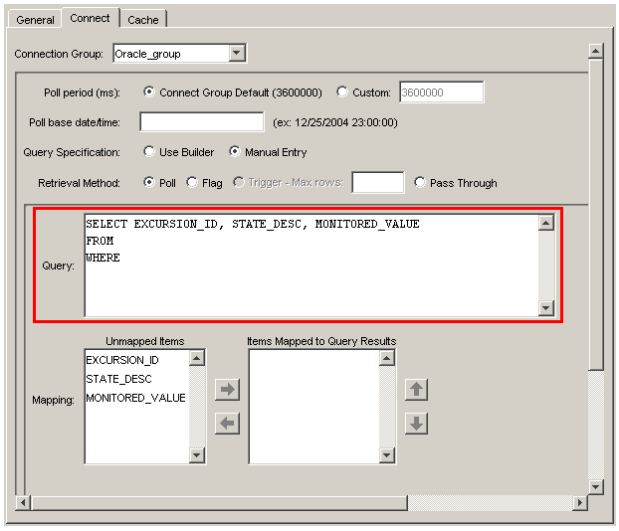
For more information, see the topic, *Oracle Connector*, located in the XHQ Connection Guide.

4. From the **XHQ Solution Builder**, in the **Configure menu**, click **Update to Latest Components**.
5. Create the **Excursions collection** based on the Excursion component (see step 1).
6. Create the **Tags collection** based on the Tag component (see step 2).
7. From the navigation tree, under **Collections**, click (to select) **Tags**.
8. From the **Inventory Items panel**, click (to select) **Excursions**.
9. Click the **Link** tab.
10. For **Collection**, select **Excursions**.
11. In the **Constraint** text box, enter:

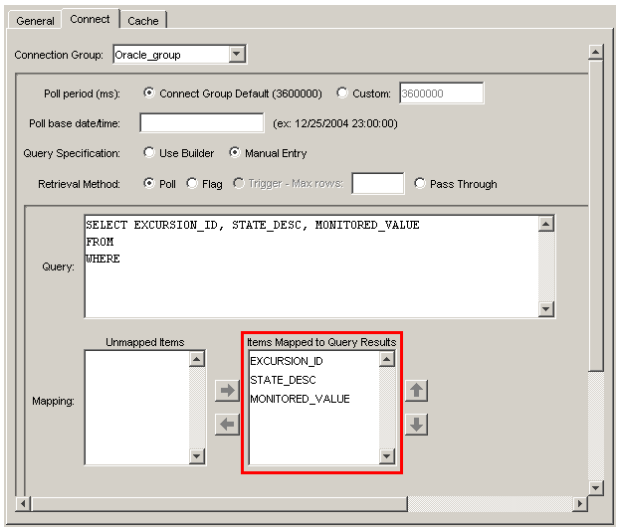
```
WHERE monitored_value='%tagname%'
```

12. From the navigation tree, select the **Excursion collection** and then click the **Connect** tab.
13. From the **Connection Group** list, select the **Oracle** connection group you configured.
14. For **Poll Period**, click **Connect Group Default**.
15. Under **Query Specification**, select **Manual Entry**.
    This allows you to manually enter SQL statements.
16. For **Retrieval Method**, click **Poll** to execute the query from the entire table at the set poll rate.
17. In the **Query** text box, enter the **SQL statement**:

```
SELECT EXCURSION_ID, STATE_DESC, MONITORED_VALUE
```



18. In the **Mapping: Unmapped Items** list box, select the members included in the SQL query (which are **`EXCURSION_ID`**, **`STATE_DESC`**, **`MONITORED_VALUE`**) and click the RIGHT arrow to add them to the **Items Mapped to Query Results** list.



You must order members in the **Items Mapped to Query Results** field box in precisely the same extraction order you entered in the Query field.

19. IF NEEDED
    Use the UP or DOWN arrow, located to the right of the **Items Mapped to Query Results** box, to reorder members.
20. Click **Save Configuration**.

B - The ANS SOAP Notification Handler

The following is the XML structure and attributes for the alert event data. The XHQ ANS SOAP Notification Handler generates a SOAP request message containing this XML structure any time an alert event occurs.

```
<AnsEvent>
  <EventDefID>int</EventDefID>
  <EventVersion>int</EventVersion>
  <EventDescription>string</EventDescription>
  <EventCategory>string</EventCategory>
  <EventState>string</EventState>
  <EventStateDescription>string</EventStateDescription>
  <EventTime>string</EventTime>
  <EventTimeMillis>long</EventTimeMillis>
  <EventListId>int</EventListId>
  <EventListName>string</EventListName>
  <EventListSectionId>int</EventListSectionId>
  <EventListSectionName>string</EventListSectionName>
  <EventOwnerId>int</EventOwnerId>
  <EventAnchorPath>string</EventAnchorPath>
  <EventDetectorType>string</EventDetectorType>
  <GracePeriodSeconds>int</GracePeriodSeconds>
  <EventParamValue>string</EventParamValue>
  <EventParamUnits>string</EventParamUnits>
  <EventParamHiLimit>string</EventParamHiLimit>
  <EventParamLoLimit>string</EventParamLoLimit>
  <EventConditionInfo>string</EventConditionInfo>
  <AnsWebHost>string</AnsWebHost>
  <SubscriptionId>int</SubscriptionId>
  <SubscriptionDescription>string</SubscriptionDescription>
  <SubscriptionSeverity>string</SubscriptionSeverity>
  <SubscriptionOwnerId>int</SubscriptionOwnerId>
  <SubscriptionEnabled>boolean</SubscriptionEnabled>
  <SubscriptionRtnNotify>boolean</SubscriptionRtnNotify>
  <SubscriptionSingleShot>boolean</SubscriptionSingleShot>
  <RouteId>int</RouteId>
  <RouteWsdlUrl>string</RouteWsdlUrl>
  <RouteWebMethod>string</RouteWebMethod>
  <RouteProtocol>string</RouteProtocol>
  <RouteEnabled>boolean</RouteEnabled>
  <RouteScheduleId>int</RouteScheduleId>
  <RouteIntervalType>string</RouteIntervalType>
  <RouteSeverity>string</RouteSeverity>
  <UserName>string</UserName>
  <UserLocale>string</UserLocale>
  <UserPreferenceSetId>int</UserPreferenceSetId>
  <UserDictionaryId>int</UserDictionaryId>
</AnsEvent>
```

XML Structure for the Alert Event Data

The following code example is the WSDL interface that is expected by the XHQ ANS SOAP notification handler for a SOAP request method.

```
- <s:complexType name="ANSEventData">
  - <s:sequence>
      <s:element minOccurs="1" maxOccurs="1" name="EventDefID" type="s:int" />
      <s:element minOccurs="1" maxOccurs="1" name="EventVersion" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="EventDescription" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventCategory" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventState" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventStateDescription" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventTime" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="EventTimeMillis" type="s:long" />
      <s:element minOccurs="1" maxOccurs="1" name="EventListId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="EventListName" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="EventListSectionId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="EventListSectionName" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="EventOwnerId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="EventAnchorPath" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventDetectorType" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="GracePeriodSeconds" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="EventParamValue" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventParamUnits" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventParamHiLimit" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventParamLoLimit" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="EventConditionInfo" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="AnsWebHost" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="SubscriptionId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="SubscriptionDescription" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="SubscriptionSeverity" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="SubscriptionOwnerId" type="s:int" />
      <s:element minOccurs="1" maxOccurs="1" name="SubscriptionEnabled" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="SubscriptionRtnNotify" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="SubscriptionSingleShot" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="RouteId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="RouteWsdlUrl" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="RouteWebMethod" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="RouteProtocol" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="RouteEnabled" type="s:boolean" />
      <s:element minOccurs="1" maxOccurs="1" name="RouteScheduleId" type="s:int" />
      <s:element minOccurs="0" maxOccurs="1" name="RouteIntervalType" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="RouteSeverity" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="UserName" type="s:string" />
      <s:element minOccurs="0" maxOccurs="1" name="UserLocale" type="s:string" />
      <s:element minOccurs="1" maxOccurs="1" name="UserPreferenceSetId" type="s:int" />
      <s:element minOccurs="1" maxOccurs="1" name="UserDictionaryId" type="s:int" />
    </s:sequence>
  </s:complexType>
```

Due to a limitation in the third-party SAAJ library used to generate the SOAP request message, the web service that implements the WSDL interface in the example above must reside on the same machine as the XHQ ANS Server.

Other than the names of the XML attributes, only the name of the element for the complex type must match. This name must always be **`AnsEvent`**.

The name of the web service end point and operation (method) can be anything, since both the web service WSDL URL and the web method names are specified during the XHQ ANS Notification Routing configuration. The only restriction is that the web service must implement one method that takes the **`AnsEvent`** input parameter. This input parameters can be any .NET structure or class that has all the XML attributes (as seen in the code example above) as fields or properties. The return type for the method is Boolean (true/false).

EXAMPLE 1

In this example, the method is **OnANSEventData**.

```
<s:element name="OnANSEventDataResponse">
  <s:complexType>
  <s:sequence>
<s:element minOccurs="1" maxOccurs="1" name="OnANSEventDataResult" type="s:boolean" />
  </s:sequence>
  </s:complexType>
  </s:element>
  </s:schema>
  </wsdl:types>
```

In .NET, the method signature is:

```
[WebMethod(Description = "Gets the ANS Event Data and returns a boolean   flag to
indicate the success or failure of the operation.")]

public bool OnANSEventData(ANSEventData AnsEvent)
```

Because the consumption of this method is synchronous on the XHQ ANS Java-side, it is recommended that you perform all required XML transformations and invoke/consume other web services in a different method.

The template of a SOAP 1.1 request and the response messages for an `OnANSEventData` method looks like this:

```
Content-Length: length
SOAPAction: "http://webservice.siemens.xhq.com/OnANSEventData"

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <soap:Body>
    <OnANSEventData xmlns="http://webservice.siemens.xhq.com">
      <AnsEvent>
        <EventDefID>int</EventDefID>
        <EventVersion>int</EventVersion>
        <EventDescription>string</EventDescription>
        <EventCategory>string</EventCategory>
        <EventState>string</EventState>
        <EventStateDescription>string</EventStateDescription>
        <EventTime>string</EventTime>
        <EventTimeMillis>long</EventTimeMillis>
        <EventListId>int</EventListId>
        <EventListName>string</EventListName>
        <EventListSectionId>int</EventListSectionId>
        <EventListSectionName>string</EventListSectionName>
        <EventOwnerId>int</EventOwnerId>
        <EventAnchorPath>string</EventAnchorPath>
        <EventDetectorType>string</EventDetectorType>
        <GracePeriodSeconds>int</GracePeriodSeconds>
        <EventParamValue>string</EventParamValue>
        <EventParamUnits>string</EventParamUnits>
        <EventParamHiLimit>string</EventParamHiLimit>
        <EventParamLoLimit>string</EventParamLoLimit>
        <EventConditionInfo>string</EventConditionInfo>
        <AnsWebHost>string</AnsWebHost>
        <SubscriptionId>int</SubscriptionId>
        <SubscriptionDescription>string</SubscriptionDescription>
        <SubscriptionSeverity>string</SubscriptionSeverity>
        <SubscriptionOwnerId>int</SubscriptionOwnerId>
        <SubscriptionEnabled>boolean</SubscriptionEnabled>
        <SubscriptionRtnNotify>boolean</SubscriptionRtnNotify>
        <SubscriptionSingleShot>boolean</SubscriptionSingleShot>
        <RouteId>int</RouteId>
        <RouteWsdlUrl>string</RouteWsdlUrl>
        <RouteWebMethod>string</RouteWebMethod>
        <RouteProtocol>string</RouteProtocol>
        <RouteEnabled>boolean</RouteEnabled>
        <RouteScheduleId>int</RouteScheduleId>
        <RouteIntervalType>string</RouteIntervalType>
        <RouteSeverity>string</RouteSeverity>
        <UserName>string</UserName>
        <UserLocale>string</UserLocale>
        <UserPreferenceSetId>int</UserPreferenceSetId>
        <UserDictionaryId>int</UserDictionaryId>
      </AnsEvent>
    </OnANSEventData>
  </soap:Body>
</soap:Envelope>
```

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset=utf-8
Content-Length: length

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" x
  <soap:Body>
    <OnANSEventDataResponse xmlns="http://webservice.siemens.xhq.com">
      <OnANSEventDataResult>boolean</OnANSEventDataResult>
    </OnANSEventDataResponse>
  </soap:Body>
</soap:Envelope>
```

EXAMPLE 2

The following example shows actual XML alert event values for the SOAP request issued by the ANS SOAP handler.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
 <SOAP-ENV:Body>
  <OnANSEventData xmlns="http://webservice.siemens.xhq.com">
  <AnsEvent>
<EventDefID>341</EventDefID>
<EventVersion>4</EventVersion>
<EventDescription>SOAP_Test</EventDescription>
<EventCategory>Pulisca</EventCategory>
<EventState>ACTIVE/UNMASKED</EventState>
<EventStateDescription>High</EventStateDescription>
<EventTime>2011-03-23 13:30:43.662</EventTime>
<EventTimeMillis>1300912243662</EventTimeMillis>
<EventListId>1</EventListId>
<EventListName>SMART Definitions</EventListName>
<EventListSectionId>1</EventListSectionId>
<EventListSectionName>Gruia_Baba</EventListSectionName>
<EventOwnerId>3</EventOwnerId>
<EventAnchorPath>::Enterprise</EventAnchorPath>
<EventDetectorType>High/Low</EventDetectorType>
<GracePeriodSeconds>0</GracePeriodSeconds>
<EventParamValue>18.0</EventParamValue>
<EventParamUnits > PSA</EventParamUnits >
<EventParamHiLimit>10.0</EventParamHiLimit>
<EventParamLoLimit>5.0</EventParamLoLimit>
<EventConditionInfo>Detailed info about pomp pressure</EventConditionInfo>
<AnsWebHost>staff.corp.indxhq.com</AnsWebHost>
<SubscriptionId>450</SubscriptionId>
<SubscriptionDescription />
<SubscriptionSeverity>Low</SubscriptionSeverity>
<SubscriptionOwnerId>3</SubscriptionOwnerId>
<SubscriptionEnabled>true</SubscriptionEnabled>
<SubscriptionRtnNotify>true</SubscriptionRtnNotify>
<SubscriptionSingleShot>false</SubscriptionSingleShot>
<RouteId>11</RouteId>
<RouteWsdlUrl>http://grinds/indx/answs/ANSWS.asmx?WSDL</RouteWsdlUrl>
<RouteWebMethod>OnANSEventData</RouteWebMethod>
<RouteProtocol>SOAP 1.1</RouteProtocol>
<RouteEnabled>true</RouteEnabled>
<RouteScheduleId>1</RouteScheduleId>
<RouteIntervalType>WORK</RouteIntervalType>
<RouteSeverity>Low+Medium+High</RouteSeverity>
<UserName>indx1\\georgemichael</UserName>
<UserLocale>English (United States) (en_US)</UserLocale>
<UserPreferenceSetId>1</UserPreferenceSetId>
<UserDictionaryId>1</UserDictionaryId>
  </AnsEvent>
  </OnANSEventData>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

XHQ ANS SOAP Notification Pre-requisites

For XHQ ANS SOAP-based notification to work properly when SSL (HTTPS) is used, two conditions must be met:

- The user (under which the XHQ ANS server process and also the XHQ Service runs) must have permission to access the XHQ ANS Web Service through IIS, using Windows Integrated Security. Otherwise, a "401 Access Denied" error occurs when the XHQ ANS web service is invoked by the XHQ ANS SOAP handler.
- The X.509 digital root certificate used to secure the XHQ ANS web service must be imported as a Java Trusted Certification entry in the key store "cacerts" file on the XHQ machine running the XHQ ANS server. See the following topic, *To secure the ANS web service using the digital root certificate*.

To secure the ANS web service using the digital root certificate

1. Use the Java **keytool utility** to manage certificates.
   Keytool is a command-line utility with numerous arguments that allows you to create and manage keystores for housing digital certificates.

   For the keytool documentation, go to this website:
   `http://docs.oracle.com/javase/7/docs/technotes/tools/windows/keytool.html`

   You can list the current certificates contained within a keystore using the `keytool -list` command. The initial (default) password for the cacerts keystore is **`changeit`**. The location of this file on the XHQ machine is:

   (for **32-bit** machines)

   ```
   %XHQ_SERVER_HOME%\jre\lib\security\cacerts
   ```

   (for **64-bit** machines)

   ```
   %XHQ_SERVER_HOME_X64%\jre\lib\security\cacerts
   ```

2. Use the `keytool -list` command for the cacerts keystore.

   Example:

   (for **32-bit** machines)

   ```
   keytool -list -keystore "%XHQ_SERVER_HOME%\jre\lib\security\cacerts"
   ```

   (for **64-bit** machines)

   ```
   keytool -list -keystore "%XHQ_SERVER_HOME_X64%\jre\lib\security\cacerts"
   ```

3. Enter `keystore password: changeit`

   The following (or similar) appears:

   ```
   Keystore type: JKS
   Keystore provider: SUN

   Your keystore contains 76 entries

   digicertassuredidrootca, Jan 7, 2008, trustedCertEntry,
   Certificate fingerprint (MD5): 87:CE:0B:7B:2A:0E:49:00:E1:58:71:9B:37:A8:93:72
   trustcenterclass2caii, Jan 7, 2008, trustedCertEntry,
   Certificate fingerprint (MD5): CE:78:33:5C:59:78:01:6E:18:EA:B9:36:A0:B9:2E:23
   thawtepremiumserverca, Dec 2, 2009, trustedCertEntry,
   Certificate fingerprint (MD5): A6:6B:60:90:23:9B:3F:2D:BB:98:6F:D6:A7:19:0D:46
   swisssignsilverg2ca, Aug 13, 2008, trustedCertEntry,
   Certificate fingerprint (MD5): E0:06:A1:C9:7D:CF:C9:FC:0D:C0:56:75:96:D8:62:13
   swisssignplatinumg2ca, Aug 13, 2008, trustedCertEntry,
   Certificate fingerprint (MD5): C9:98:27:77:28:1E:3D:0E:15:3C:84:00:B8:85:03:E6
   ```

```
equifaxsecureebusinessca1, Jul 18, 2003, trustedCertEntry,
Certificate fingerprint (MD5): 64:9C:EF:2E:44:FC:C6:8F:52:07:D0:51:73:8F:CB:3D
thawteserverca, Dec 2, 2009, trustedCertEntry,
Certificate fingerprint (MD5): EE:FE:61:69:65:6E:F8:9C:C6:2A:F4:D7:2B:63:EF:A2
utnuserfirstclientauthemailca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): D7:34:3D:EF:1D:27:09:28:E1:31:02:5B:13:2B:DD:F7
thawtepersonalfreemailca, Dec 2, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 53:4B:1D:17:58:58:1A:30:A1:90:F8:6E:5C:F2:CF:65
utnuserfirsthardwareca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 4C:56:41:E5:0D:BB:2B:E8:CA:A3:ED:18:08:AD:43:39
entrustevca, Apr 28, 2009, trustedCertEntry,
Certificate fingerprint (MD5): D6:A5:C3:ED:5D:DD:3E:00:C1:3D:87:92:1F:1D:3F:E4
certumca, Feb 10, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 2C:8F:9F:66:1D:18:90:B1:47:26:9D:8E:86:82:8C:A9
addtrustclass1ca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 1E:42:95:02:33:92:6B:B9:5F:C0:7F:DA:D6:B2:4B:FC
entrustrootcag2, Jun 22, 2010, trustedCertEntry,
Certificate fingerprint (MD5): 4B:E2:C9:91:96:65:0C:F4:0E:5A:93:92:A0:0A:FE:B2
equifaxsecureca, Jul 18, 2003, trustedCertEntry,
Certificate fingerprint (MD5): 67:CB:9D:C0:13:24:8A:82:9B:B2:17:1E:D1:1B:EC:D4
quovadisrootca3, Jun 9, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 31:85:3C:62:94:97:63:B9:AA:FD:89:4E:AF:6F:E0:CF
quovadisrootca2, Jun 9, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 5E:39:7B:DD:F8:BA:EC:82:E9:AC:62:BA:0C:54:00:2B
digicerthighassuranceevrootca, Jan 7, 2008, trustedCertEntry,
Certificate fingerprint (MD5): D4:74:DE:57:5C:39:B2:D3:9C:85:83:C5:C0:65:49:8A
secomvalicertclass1ca, May 1, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 65:58:AB:15:AD:57:6C:1E:A8:A7:B5:69:AC:BF:FF:EB
equifaxsecureglobalebusinessca1, Jul 18, 2003, trustedCertEntry,
Certificate fingerprint (MD5): 8F:5D:77:06:27:C4:98:3C:5B:93:78:E7:D7:7D:9B:CC
geotrustuniversalca, Dec 3, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 92:65:58:8B:A2:1A:31:72:73:68:5C:B4:A5:7A:07:48
thawteprimaryrootcag3, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): FB:1B:5D:43:8A:94:CD:44:C6:76:F2:43:4B:47:E7:31
verisignclass3ca, Dec 2, 2009, trustedCertEntry,
Certificate fingerprint (MD5): EF:5A:F1:33:EF:F1:CD:BB:51:02:EE:12:14:4B:96:C4
deutschetelekomrootca2, Nov 6, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 74:01:4A:91:B1:08:C4:58:CE:47:CD:F0:DD:11:53:08
utnuserfirstobjectca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): A7:F2:E4:16:06:41:11:50:30:6B:9C:E3:B4:9C:B0:C9
geotrustprimaryca, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 02:26:C3:01:5E:08:30:37:43:A9:D0:7D:CF:37:E6:BF
verisignclass1ca, Dec 2, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 86:AC:DE:2B:C5:6D:C3:D9:8C:28:88:D3:8D:16:13:1E
baltimorecodesigningca, May 10, 2002, trustedCertEntry,
Certificate fingerprint (MD5): 90:F5:28:49:56:D1:5D:2C:B0:53:D4:4B:EF:6F:90:22
baltimorecybertrustca, May 10, 2002, trustedCertEntry,
Certificate fingerprint (MD5): AC:B6:94:A5:9C:17:E0:D7:91:52:9B:B1:97:06:A6:E4
starfieldclass2ca, Jan 20, 2005, trustedCertEntry,
Certificate fingerprint (MD5): 32:4A:4B:BB:C8:63:69:9B:BE:74:9A:C6:DD:1D:46:24
camerfirmachamberscommerceca, Oct 10, 2008, trustedCertEntry,
Certificate fingerprint (MD5): B0:01:EE:14:D9:AF:29:18:94:76:8E:F1:69:33:2A:84
ttelesecglobalrootclass3ca, Feb 10, 2009, trustedCertEntry,
Certificate fingerprint (MD5): CA:FB:40:A8:4E:39:92:8A:1D:FE:8E:2F:C4:27:EA:EF
verisignclass3g5ca, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): CB:17:E4:31:67:3E:E2:09:FE:45:57:93:F3:0A:FA:1C
trustcenteruniversalcai, Jan 7, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 45:E1:A5:72:C5:A9:36:64:40:9E:F5:E4:58:84:67:8C
ttelesecglobalrootclass2ca, Feb 10, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 2B:9B:9E:E4:7B:6C:1F:00:72:1A:CC:C1:77:79:DF:6A
verisignclass3g3ca, Mar 25, 2004, trustedCertEntry,
```

```
Certificate fingerprint (MD5): CD:68:B6:A7:C7:C4:CE:75:E0:1D:4F:57:44:61:92:09
certumtrustednetworkca, Feb 10, 2009, trustedCertEntry,
Certificate fingerprint (MD5): D5:E9:81:40:C5:18:69:FC:46:2C:89:75:62:0F:AA:78
certplusclass3pprimaryca, May 27, 2009, trustedCertEntry,
Certificate fingerprint (MD5): E1:4B:52:73:D7:1B:DB:93:30:E5:BD:E4:09:6E:BE:FB
verisignclass3g2ca, Mar 25, 2004, trustedCertEntry,
Certificate fingerprint (MD5): A2:33:9B:4C:74:78:73:D4:6C:E7:C1:F3:8D:CB:5C:E9
globalsignr3ca, Aug 17, 2009, trustedCertEntry,
Certificate fingerprint (MD5): C5:DF:B8:49:CA:05:13:55:EE:2D:BA:1A:C3:3E:B0:28
utndatacorpsgcca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): B3:A5:3E:77:21:6D:AC:4A:C0:C9:FB:D5:41:3D:CA:06
secomscrootca2, Aug 17, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 6C:39:7D:A4:0E:55:59:B2:3F:D6:41:B1:12:50:DE:43
secomscrootca1, May 1, 2008, trustedCertEntry,
Certificate fingerprint (MD5): F1:BC:63:6A:54:E0:B5:27:F5:CD:E7:1A:E3:4D:6E:4A
gtecybertrustglobalca, May 10, 2002, trustedCertEntry,
Certificate fingerprint (MD5): CA:3D:D3:68:F1:03:5C:D0:32:FA:B8:2B:59:E8:5A:DB
verisignuniversalrootca, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 8E:AD:B5:01:AA:4D:81:E4:8C:1D:D1:E1:14:00:95:19
trustcenterclass4caii, Jan 7, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 9D:FB:F9:AC:ED:89:33:22:F4:28:48:83:25:23:5B:E0
globalsignr2ca, Aug 1, 2007, trustedCertEntry,
Certificate fingerprint (MD5): 94:14:77:7E:3E:5E:FD:8F:30:BD:41:B0:CF:E7:D0:30
certplusclass2primaryca, May 27, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 88:2C:8C:52:B8:A2:3C:F3:F7:BB:03:EA:AE:AC:42:0B
digicertglobalrootca, Jan 7, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 79:E4:A9:84:0D:7D:3A:96:D7:C0:4F:E2:43:4C:89:2E
globalsignca, Mar 26, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 3E:45:52:15:09:51:92:E1:B7:5D:37:9F:B1:87:29:8A
thawteprimaryrootca, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 8C:CA:DC:0B:22:CE:F5:BE:72:AC:41:1A:11:A8:D8:12
geotrustglobalca, Jul 18, 2003, trustedCertEntry,
Certificate fingerprint (MD5): F7:75:AB:29:FB:51:4E:B7:77:5E:FF:05:3C:99:8E:F5
soneraclass2ca, Mar 28, 2006, trustedCertEntry,
Certificate fingerprint (MD5): A3:EC:75:0F:2E:88:DF:FA:48:01:4E:0B:5C:48:6F:FB
verisigntsaca, Aug 13, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 7F:66:7A:71:D3:EB:69:78:20:9A:51:14:9D:83:DA:20
quovadisrootca, Jun 9, 2009, trustedCertEntry,
Certificate fingerprint (MD5): 27:DE:36:FE:72:B7:00:03:00:9D:F4:F0:1E:6C:04:24
soneraclass1ca, Mar 28, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 33:B7:84:F5:5F:27:D7:68:27:DE:14:DE:12:2A:ED:6F
valicertclass2ca, Jan 20, 2005, trustedCertEntry,
Certificate fingerprint (MD5): A9:23:75:9B:BA:49:36:6E:31:C2:DB:F2:E7:66:BA:87
comodoaaaca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 49:79:04:B0:EB:87:19:AC:47:B0:BC:11:51:9B:74:D0
aolrootca2, Mar 26, 2008, trustedCertEntry,
Certificate fingerprint (MD5): D6:ED:3C:CA:E2:66:0F:AF:10:43:0D:77:9B:04:09:BF
keynectisrootca, Jun 8, 2009, trustedCertEntry,
Certificate fingerprint (MD5): CC:4D:AE:FB:30:6B:D8:38:FE:50:EB:86:61:4B:D2:26
addtrustqualifiedca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 27:EC:39:47:CD:DA:5A:AF:E2:9A:01:65:21:A9:4C:BB
aolrootca1, Jan 17, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 14:F1:08:AD:9D:FA:64:E2:89:E7:1C:CF:A8:AD:7D:5E
verisignclass2g3ca, Mar 25, 2004, trustedCertEntry,
Certificate fingerprint (MD5): F8:BE:C4:63:22:C9:A8:46:74:8B:B8:1D:1E:4A:2B:F6
addtrustexternalca, May 2, 2006, trustedCertEntry,
Certificate fingerprint (MD5): 1D:35:54:04:85:78:B0:3F:42:42:4D:BF:20:73:0A:3F
verisignclass2g2ca, Mar 25, 2004, trustedCertEntry,
Certificate fingerprint (MD5): 2D:BB:E5:25:D3:D1:65:82:3A:B7:0E:FA:E6:EB:E2:E1
geotrustprimarycag3, Nov 24, 2009, trustedCertEntry,
Certificate fingerprint (MD5): B5:E8:34:36:C9:10:44:58:48:70:6D:2E:83:D4:B8:05
```

```
swisssigngoldg2ca, Aug 13, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 24:77:D9:A8:91:D1:3B:FA:88:2D:C2:FF:F8:CD:33:93
entrust2048ca, Jun 22, 2010, trustedCertEntry,
Certificate fingerprint (MD5): EE:29:31:BC:32:7E:9A:E6:E8:B5:F7:51:B4:34:71:90
gtecybertrust5ca, May 10, 2002, trustedCertEntry,
Certificate fingerprint (MD5): 7D:6C:86:E4:FC:4D:D1:0B:00:BA:22:BB:4E:7C:6A:8E
camerfirmachambersignca, Oct 10, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 9E:80:FF:78:01:0C:2E:C1:36:BD:FE:96:90:6E:08:F3
camerfirmachambersca, Oct 10, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 5E:80:9E:84:5A:0E:65:0B:17:02:F3:55:18:2A:3E:D7
godaddyclass2ca, Jan 20, 2005, trustedCertEntry,
Certificate fingerprint (MD5): 91:DE:06:25:AB:DA:FD:32:17:0C:BB:25:17:2A:84:67
entrustsslca, Jan 9, 2003, trustedCertEntry,
Certificate fingerprint (MD5): DF:F2:80:73:CC:F1:E6:61:73:FC:F5:42:E9:C5:7C:EE
verisignclass1g3ca, Mar 25, 2004, trustedCertEntry,
Certificate fingerprint (MD5): B1:47:BC:18:57:D1:18:A0:78:2D:EC:71:E8:2A:95:73
secomevrootca1, May 1, 2008, trustedCertEntry,
Certificate fingerprint (MD5): 22:2D:A6:01:EA:7C:0A:F7:F0:6C:56:43:3F:77:76:D3
verisignclass1g2ca, Mar 25, 2004, trustedCertEntry,
Certificate fingerprint (MD5): DB:23:3D:F9:69:FA:4B:B9:95:80:44:73:5E:7D:41:83
```

Your next step is to add the root certificate used to secure the XHQ ANS web service through SSL to this keystore.

4. Begin by **exporting** your CA Root certificate as a **DER-encoded binary** file and **saving** it as **`C:\answsRoot.cer`**.
5. View the installed certificates by navigating to **Tools** > **Internet Options** > **Content** > **Certificates**.
6. Once you open the certificates, **locate** the one you just installed under **Trusted Root Certification Authorities**.
7. Select the installed certificate, click **Export**, and save it (DER encoded binary) under your**`C:` drive**.
8. Use the **`keytool -import`** command to import the file into your **cacerts keystore**.

   Example:

   ```
   keytool –import –noprompt –trustcacerts –alias ALIASNAME -file FILENAME_OF_THE_
   INSTALLED_CERTIFICATE -keystore PATH_TO_CACERTS_FILE -storepass PASSWORD
   ```

9. Enter keystore password: `changeit`

   The following (or similar) appears:

   ```
   Owner: CN=Division name, OU=Department, O=Your Company, L=Anytown,
   ST=NC, C=US, EmailAddress=you@company.com
   Issuer: CN=Division name, OU=Department, O=Your Company, L=Anytown,
   ST=NC, C=US, EmailAddress=you@company.com
   Serial number: 79805d77eecfadb147e84f8cc2a22106
   Valid from: Wed Sep 19 14:15:10 EDT 2001 until: Mon Sep 19 14:23:20 EDT 2101
   Certificate fingerprints:
   MD5: B6:30:03:DC:6D:73:57:9B:F4:EE:13:16:C7:68:85:09
   SHA1: B5:C3:BB:CA:34:DF:54:85:2A:E9:B2:05:E0:F7:84:1E:6E:E3:E7:68
   Trust this certificate? [no]: yes
   Certificate was added to keystore
   ```

   This command adds the certificate information into the cacert file.

10. Run the **`keytool -list`** command again to **verify** that your private root certificate was added to the key store file:

    ```
    keytool -list -keystore "%XHQ_SERVER_HOME%\jre\lib\security\cacerts"
    ```

In the list of all the certificates, the one just added should appear. This confirms that your private root certificate has been added to the cacerts keystore as a trusted certificate authority on the XHQ machine running the XHQ ANS server.

If the root certificate for the X.509 certificates (used to secure the ANS web service using SSL) is not present in the Java certification repository for the machine running the XHQ ANS server, then the following error occurs in the XHQ ANS logs:

```
javax.net.ssl.SSLHandshakeException: sun.security.validator.ValidatorException: PKIX path building failed: sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target
```

C - HTML5 Redirects

The following links for the JSP-based XHQ ANS pages (with parameters, if set) are redirected to the HTML5-based equivalent.

The JSP-based ANS pages are deprecated. To minimize the effort to update existing links to the HTML5-based XHQ ANS pages, the following redirects exist.

JSP-based XHQ ANS Link	HTML5-based XHQ ANS Redirect
http://localhost/indx/xans/	http://localhost/indx/ans/
http://localhost/indx/xans/main.jsp	http://localhost/indx/ans/
http://localhost/indx/xans/alert_definition.jsp	http://localhost/indx/ans/#/ansDisplay
http://localhost/indx/xans/log_summary_report.jsp	http://localhost/indx/ans/#/ansDisplay
http://localhost/indx/xans/alert_definition.jsp?DefId=20	http://localhost/indx/ans/#/alertDefinition?defId=20
http://localhost/indx/xans/condition_info.jsp?DefId=20	http://localhost/indx/ans/#/conditionInfo?defId=20
http://localhost/indx/xans/alert_subscription.jsp?SubId=34	http://localhost/indx/ans/#/alertSubscription?subId=34
http://localhost/indx/xans/security_editor.jsp?DefId=20	http://localhost/indx/ans/#/securityEditor?defId=20
http://localhost/indx/xans/notification_routing_details.jsp?RouteId=3	http://localhost/indx/ans/#/notificationRoutingDetails?routeId=3
http://localhost/indx/xans/user_details.jsp?UserId=15	http://localhost/indx/ans/#/userDetails?userId=15
http://localhost/indx/xans/schedule_details.jsp?ScheduleId=1&HourDivisor=-2	http://localhost/indx/ans/#/scheduleDetails?scheduleId=1
http://localhost/indx/xans/template_details.jsp?TemplateId=1&HourDivisor=-2	http://localhost/indx/ans/#/templateDetails?templateId=1
http://localhost/indx/xans/interval_details.jsp?IntervalId=1&HourDivisor=-2	http://localhost/indx/ans/#/intervalDetails?intervalId=1
http://localhost/indx/xans/code_key_details.jsp?CodeType=ANS_CONDITION_CATEGORY&CodeKey=-6	http://localhost/indx/ans/#/codeKeyDetails?codeType=ANS_CONDITION_CATEGORY&codeKey=-6
http://localhost/indx/xans/alert_count.jsp?ActiveFilter=1&ReturnType=2	http://localhost/indx/xhqwi/api/ans/localhost/alertcount