enotification™

Enterprise Alarming and Reporting for the OSIsoft™ PI System™

System Version 4.3

User Manual

(Revised April 20, 2023)

Engineering Consultants Group, Inc.

PO BOX 13375 Fairlawn, Ohio 44334 • Phone: (330) 869-9949 • Fax: (330) 869-9995 • Web: www.ecg-inc.com • E-Mail: support@ecg-inc.com

1 Table of Contents

2 Welcome

2.1 Introduction

ECG has developed an enterprise-wide alarming and reporting system for OSIsoft PI® Systems. The system is intranet-based and user-administered, with users able to configure advanced PI tag/PE equation/Message Log alarms, snapshot reports, Microsoft Excel spreadsheet reports, and PI ProcessBook screen reports. Delivery options include e-mail and any text-capable device, such as cell phones and mobile devices. Reports can be configured to be sent by schedule or by PI alarm, and alarms and reports can be shared among E-Notification users.

2.2 General License

Engineering Consultants Group, Inc.
Leaders in Process Control, Monitoring and Analysis

End User License Agreement for E-Notification Software

This document, together with all the documents referenced, is a legal agreement between you, the individual or the entity acquiring the use of this product, and Engineering Consultants Group, Inc. (“ECG”). This ECG Software Product (the “SOFTWARE”) is licensed, not sold. Rights in the software are offered only on the condition that you agree to all terms and conditions of this license agreement. Any use of the software indicates your acceptance of these terms and conditions. You have the responsibility to inform all End Users of the following license agreement.

1. GRANT OF LICENSE
This ECG License Agreement (“License”) permits you to install and use one copy of the SOFTWARE, or any prior version for the same operating system, on a single computer. You may also store or install a copy of the SOFTWARE on a storage device, such as a network server, used only to install or run the SOFTWARE on other computers over an internal network; however, the End User must acquire and dedicate a license for each separate computer on which the SOFTWARE is installed or run from the storage device. A license for the SOFTWARE may not be shared or used concurrently on different computers. The SOFTWARE is considered “in use” on a computer when it is loaded into temporary memory (i.e., RAM), installed into permanent memory (e.g., hard disk or other storage device) or installed into another computer’s permanent or temporary memory which is accessible through a Local Area Network connection to that computer. The use of the SOFTWARE is limited to the Original Intended Use. For E-Notification Software Licenses, refer to the original Bill of Sale for quantities and details.

2. COPYRIGHT
All title and copyrights in and to the SOFTWARE (including but not limited to any images, photographs, animation, video, audio, music, text, and “applets” originally created by ECG and incorporated into the SOFTWARE), the accompanying printed materials, and any copies of the SOFTWARE are owned by ECG. The SOFTWARE is protected by United States copyright laws and international treaty provisions, as well as other intellectual property laws and treaties. Therefore, you must treat the SOFTWARE like any other copyrighted material (e.g. a book or musical recording). You may not copy the printed materials accompanying the SOFTWARE.

3. DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS
You may not rent, lease, or loan any portion of the SOFTWARE or any materials accompanying the SOFTWARE. The permanent sale or transfer of the SOFTWARE or any materials accompanying the SOFTWARE is only allowed if the recipient agrees to the terms of this License and you retain no copies. The SOFTWARE and its accompanying materials are licensed as a single product. You may not reverse engineer, decompile,

or disassemble this SOFTWARE, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation. Without prejudice to any other rights, ECG may terminate this License if you fail to comply with the terms and conditions of this License. In such event, you must destroy all copies of the SOFTWARE and all of its component parts.

4. UPGRADES
If the SOFTWARE is labeled as an upgrade, you must be a properly licensed user of a product identified by ECG as being eligible for the upgrade in order to use the SOFTWARE. Once installed, the SOFTWARE replaces and/or supplements the product that formed the basis for your eligibility for the upgrade, and you must use the upgraded product in accordance with the terms of this License. The upgraded software is considered a single product and any transfer must include the most recent and all prior versions.

5. SOURCE CODE
If this SOFTWARE package provides access to the relevant source code or includes documentation describing the relevant source code, you may not disclose this information to any third party as long as ECG is available to support the SOFTWARE. Third parties, including outside contractors, are not to have access to this information, and you are responsible for taking all reasonable precautions to prevent both intended and inadvertent disclosure.

6. NO LIABILITY FOR CONSEQUENTIAL DAMAGES
To the maximum extent permitted by applicable law, in no event shall ECG or its suppliers be liable for any damages whatsoever (including without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this ECG product, even if ECG has been advised of the possibility of such damages. Because some states/jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

7. NO WARRANTIES
Absent an expressed written agreement, ECG disclaims all other warranties, expressed or implied, including but not limited to implied warranties of merchantability or fitness for a particular purpose, with regard to the SOFTWARE and the accompanying written material. The entire risk arising out of the use or performance of the SOFTWARE remains with you. The user is strongly cautioned to test the SOFTWARE thoroughly before relying on it.

8. US GOVERNMENT RESTRICTED RIGHTS
The SOFTWARE and documentation are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions set forth in subparagraph (c)(1)(ii) of The Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable. Manufacturer is Engineering Consultants Group, Inc./3394 W Market St, Akron, Ohio 44333.

PO Box 13375 · Akron, Ohio · 44334-1862
Phone: (330) 869-9949 · Fax: (330) 869-9995
Web: www.ecg-inc.com · E-mail: ecg@ecg-inc.com
© Engineering Consultants Group, Inc. · All Rights Reserved

2.3 Demo License Addendum

Addendum to End User License Agreement for E-Notification DEMO

1. ECG PRODUCT
The product is identified as “ECG E-Notification System”.
The E-Notification Licensed software includes the following components:
+ E-Larm Services (Licensed Individually)

+ E-Report Service
+ E-XL Service
+ E-PB Service
+ E-Mobile Suite
+ E-Notification Core Components
+ E-MsgLog Service
+ E-Notification Web Site

2. END USER
The End User is any employee or agent of a company or organization entity using the E-Notification software.

3. ORIGINAL INTENDED USE
The ability remotely monitor process information addresses many management concerns. This data contains information of significant economic consequence, asset status advice and the real-time needs of the operating staff. The availability and strategic utilization of this information can be the tool to realization of key corporate objectives. Retrievable process data is one thing, but making key elements available on a timely basis to those with a "need to know" is of much greater value. E-Notification was created to fulfill this corporate mission.

E-Notification provides an enterprise wide, web based notification system for OSIsoft PI® data. E-Notification users configure triggers called E-Larms that send e-mail/pages and spawn other data components. E-Larms are process point exceptions configured by the user. E-Reports, E-Trends, E-XLs, and E-PBs are data components that leverage OSIsoft's PI System and other data sources to bridge process information and e-mail systems.

E-Notification is designed for worldwide communication compatibility. The E-Notification server uses Microsoft IIS to host a web site which is available to any computer with access to the user company's intranet. The user's license permits unlimited access from multiple computers simultaneously. This capability is attained with the software installed only on the servers. The client can use any Internet browser to run E-Notification, there is no additional software required.

4. LICENSED USE
Any number of users or events can be configured on the E-Notification system within the evaluation time window. This demo license allows users to evaluate the system prior to a commitment to purchase and may be evaluated for up to 90 days. This version may only be used as a demo and may not be used for business purposes. Extensions to the evaluation agreement are granted on a case-by-case basis but must be documented and signed by an authorized ECG representative. Upon expiration of the demo license, E-Notification software must be removed from the host computer(s).

This License Agreement provides a means to protect the original intellectual properties, computer images, computer codes, company files and all other information considered proprietary to ECG. E-Notification was conceived, designed and developed solely by ECG Inc. and is, therefore, considered the property of ECG.

PO Box 13375 · Akron, Ohio · 44334-1862
Phone: (330) 869-9949 · Fax: (330) 869-9995
Web: www.ecg-inc.com · E-mail: ecg@ecg-inc.com
© Engineering Consultants Group, Inc. · All Rights Reserved

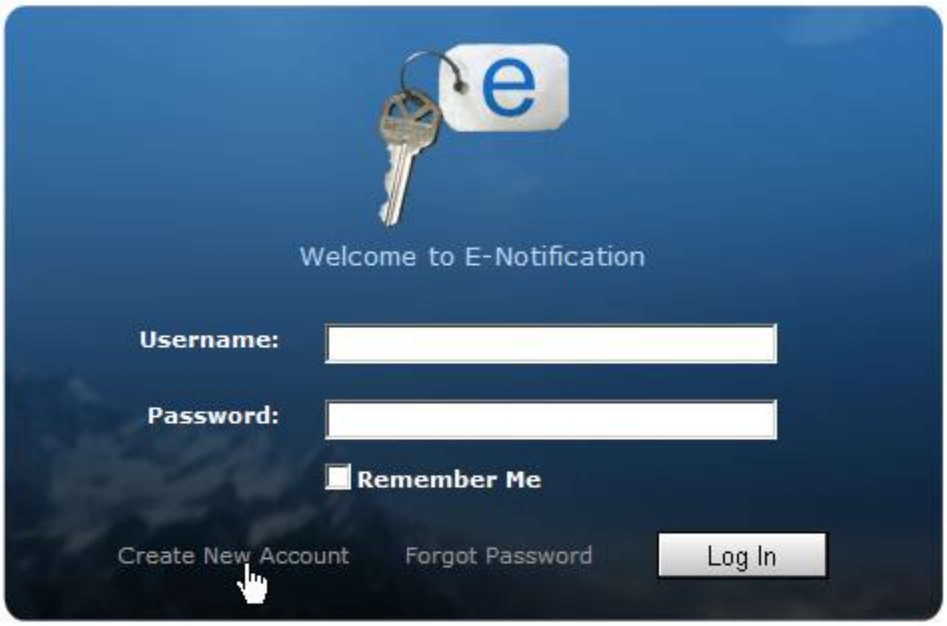
3 Web Site

3.1 Getting Started

3.1.1 Web Browsers

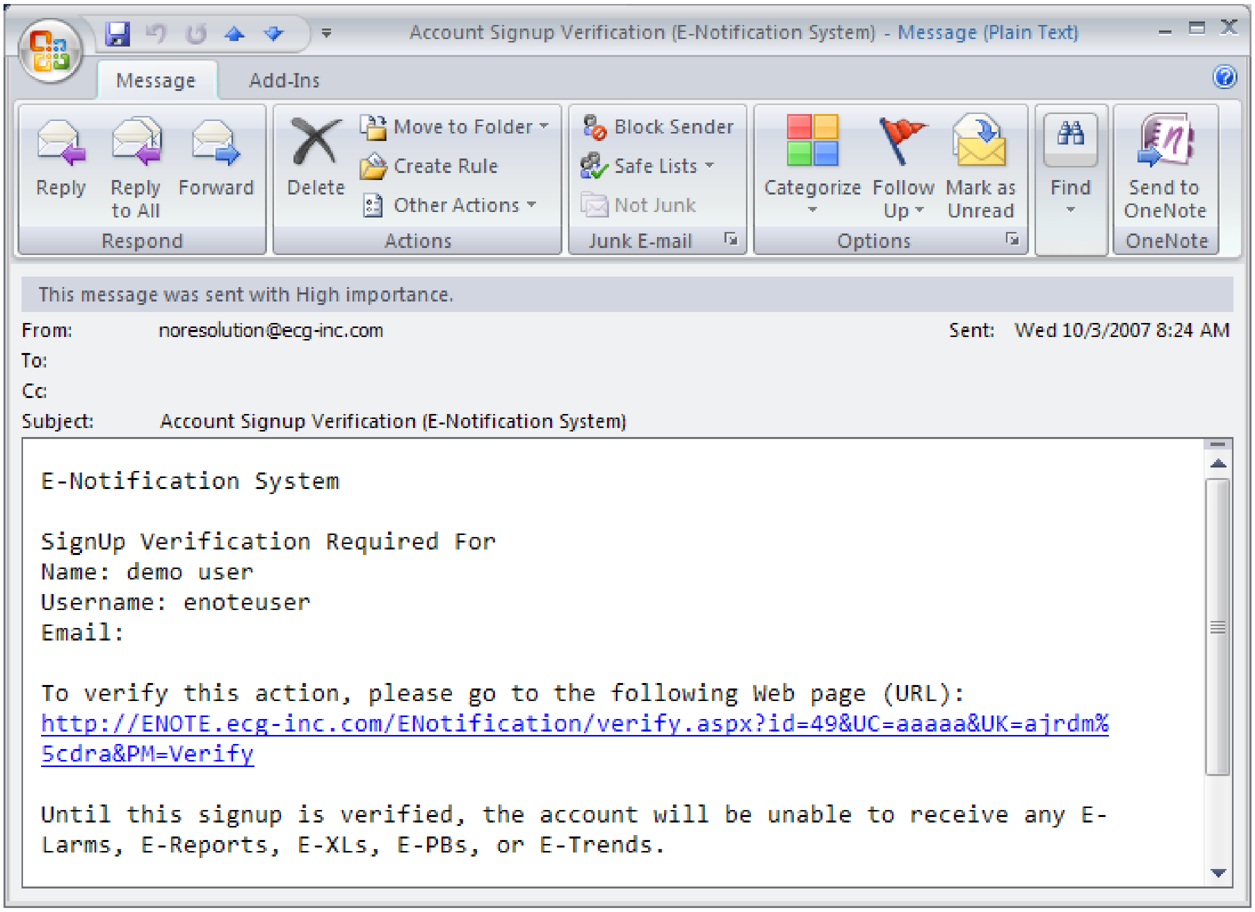
The E-Notification website requires Microsoft Internet Explorer 11+ or the latest version of Mozilla Firefox, Google Chrome, or Safari.

3.1.2 Signing Up



All users must first create an account in order to log into the E-Notification web site. Browse to the E-Notification web site, and click the "Create New Account" link. You will be directed to a page entitled "Sign Up". Complete the form, taking care to provide information for all required fields (those marked with an "*"). Please refer to the My Profile / Account Information section of this manual for more information regarding your account profile and for additional details on configuring your account.

3.1.3 Verifying Your Account

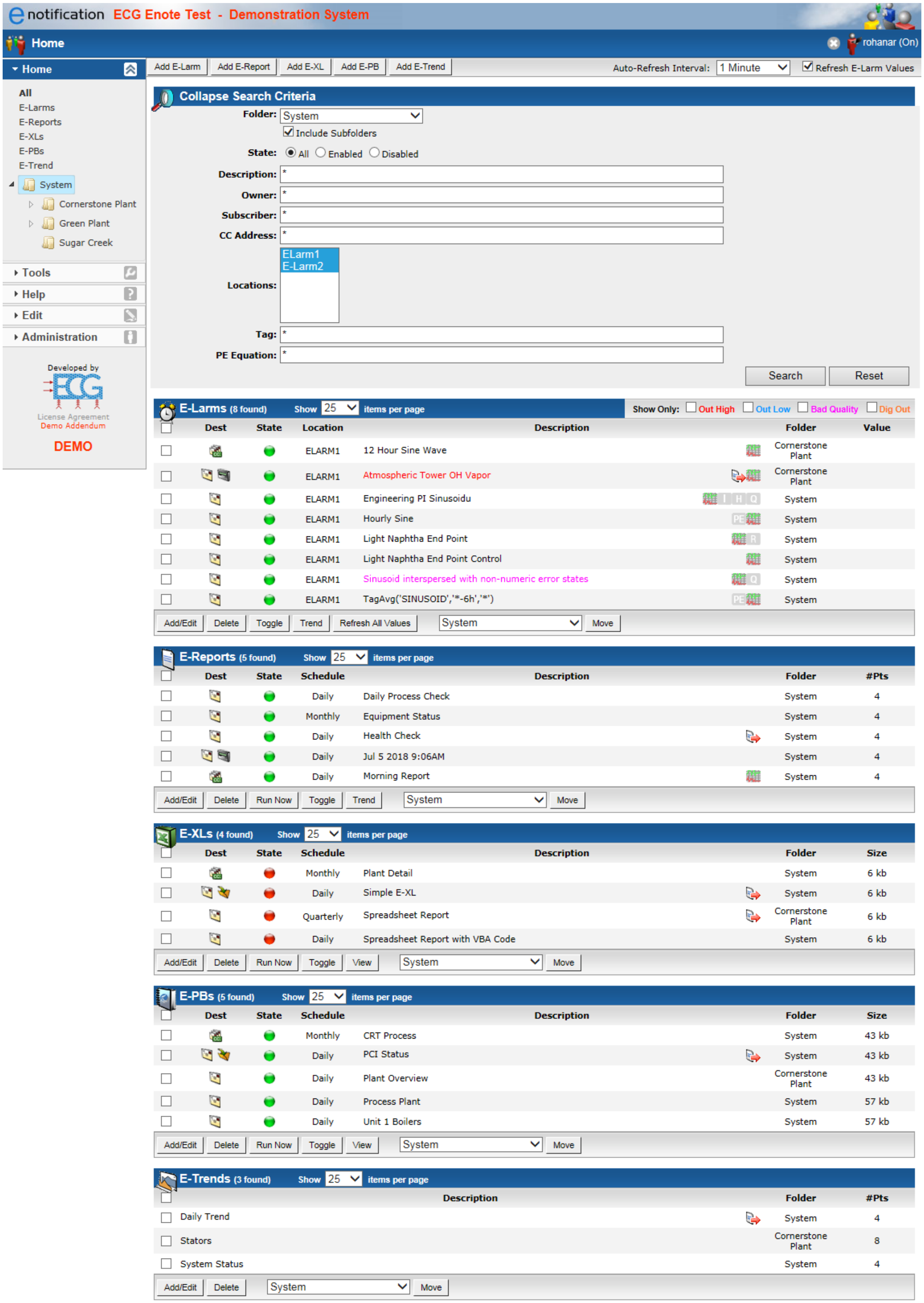


After signing up, the account may be "Unverified". If so, you will receive an e-mail message from E-Notification identifying the account that was set up and provided with a link to verify the account. Clicking the link will take you to the E-Notification web site. Log in if necessary. To determine if the account has been verified, look at your account's status displayed along with your username at the top of the page.

Please note that the E-Notification's verification requirements are configurable in various ways. The default verification requirement is "User Verification" as described above. If you do not receive an e-mail after creating an account, and your account remains unverified, please contact your E-Notification administrator as they may be required to verify new accounts.

3.1.4 Default Page Overview

Upon logging into E-Notification, the user is directed to his or her Home Page. This page consists of several sections, including E-Larms, E-Reports, E-XLs, E-PBs, and E-Trends.



notification ECG Enote Test - Demonstration System
Home
rohanar (On)
Home
All
E-Larms
E-Reports
E-XLs
E-PBs
E-Trend
System
Cornerstone Plant
Green Plant
Sugar Creek
Tools
Help
Edit
Administration
Developed by
ECG
License Agreement
Demo Addendum
DEMO
Add E-Larm
Add E-Report
Add E-XL
Add E-PB
Add E-Trend
Auto-Refresh Interval: 1 Minute
Refresh E-Larm Values
Collapse Search Criteria
Folder: System
Include Subfolders
State: All Enabled Disabled
Description: *
Owner: *
Subscriber: *
CC Address: *
Locations: ELarm1 E-Larm2
Tag: *
PE Equation: *
Search
Reset
E-Larms (8 found) Show 25 items per page
Show Only: Out High Out Low Bad Quality Dig Out
Dest State Location Description Folder Value
ELARM1 12 Hour Sine Wave Cornerstone Plant
ELARM1 Atmospheric Tower OH Vapor Cornerstone Plant
ELARM1 Engineering PI Sinusoidu System
ELARM1 Hourly Sine System
ELARM1 Light Naphtha End Point System
ELARM1 Light Naphtha End Point Control System
ELARM1 Sinusoid interspersed with non-numeric error states System
ELARM1 TagAvg('SINUSOID','*-6h','*') System
Add/Edit Delete Toggle Trend Refresh All Values System Move
E-Reports (5 found) Show 25 items per page
Dest State Schedule Description Folder #Pts
Daily Daily Process Check System 4
Monthly Equipment Status System 4
Daily Health Check System 4
Daily Jul 5 2018 9:06AM System 4
Daily Morning Report System 4
Add/Edit Delete Run Now Toggle Trend System Move
E-XLs (4 found) Show 25 items per page
Dest State Schedule Description Folder Size
Monthly Plant Detail System 6 kb
Daily Simple E-XL System 6 kb
Quarterly Spreadsheet Report Cornerstone Plant 6 kb
Daily Spreadsheet Report with VBA Code System 6 kb
Add/Edit Delete Run Now Toggle View System Move
E-PBs (5 found) Show 25 items per page
Dest State Schedule Description Folder Size
Monthly CRT Process System 43 kb
Daily PCI Status System 43 kb
Daily Plant Overview Cornerstone Plant 43 kb
Daily Process Plant System 57 kb
Daily Unit 1 Boilers System 57 kb
Add/Edit Delete Run Now Toggle View System Move
E-Trends (3 found) Show 25 items per page
Description Folder #Pts
Daily Trend System 4
Stators Cornerstone Plant 8
System Status System 4
Add/Edit Delete System Move

E-Larms

An E-Larm is simply an alarm set up to monitor an individual PI tag or PE Equation. Users may specify the high and low bounds (as well as optional deadband, extreme high and low bounds), the destination of the message, and any reports (E-Reports, E-XLs, E-PBs or E-Trends) to be "triggered" (sent) when the E-Larm sends a message. The E-Larm is the main component for most users as it allows receipt of messages based on live process data.

Take care to understand the relationship between the high bound, low bound and deadband so that you do not improperly set these values within your E-Larms.

To view the E-Larms' current values, click the "Refresh All Values" button. These values may be continually refreshed by checking the "Refresh E-Larm Values" checkbox and setting an interval via the dropdown listbox.

E-Reports

An E-Report is a report consisting of a set of PI data. Users can choose individual PI tags and user-specified PE Equations (refer to OSIsoft PI Documentation for details about PE Equations) to create an E-Report. E-Reports can be configured to be sent on a customizable schedule. Users may also choose to "trigger" an E-Report based on an E-Larm.

E-XLs

E-XLs are similar to E-Reports, however instead of reporting on PI tags or PE Equations, they report data in the form of a Microsoft Excel spreadsheet. Using OSIsoft's Excel Add-In, PI-DataLink, users may write reports, perform complex queries, and publish summaries of PI data in Excel, then upload this file to E-Notification. Data in this file is then refreshed and sent to the user on a schedule or as a "trigger" of an E-Larm. VBA macro code is also supported in Microsoft Excel versions 97, 2000, XP, and 2003. For the VBA code to run, ensure that the Workbook_Open() function contains the relevant code or function calls. For more information regarding PI-DataLink, refer to OSIsoft's PI-DataLink Documentation.

E-PBs

E-PBs are similar to E-Reports and E-XLs with the exception that PI data is reported in the form of an image taken from a display created in PI ProcessBook. A custom display can be saved in PNG or JPG image formats or be preserved as the original PDI/PIW file itself.

E-Trends

E-Trends are trends of one or more PI tags and/or PE Equations. Users may configure start time and end time, along with maximum and minimum bounds for each tag. E-Trends can be attached to any E-Report and sent along with that report.

User Information

User information includes essential contact information, including e-mail address, Text (SMS) , Text (SMS) type, preferred e-mail message format (html or plain text), and settings that allow users to specify if they want to receive messages after hours and over weekends. Users may update their account as necessary and may delete their own accounts as well.

3.1.5 Maintaining Your Account

This page outlines basic situations that users may encounter when first using E-Notification:

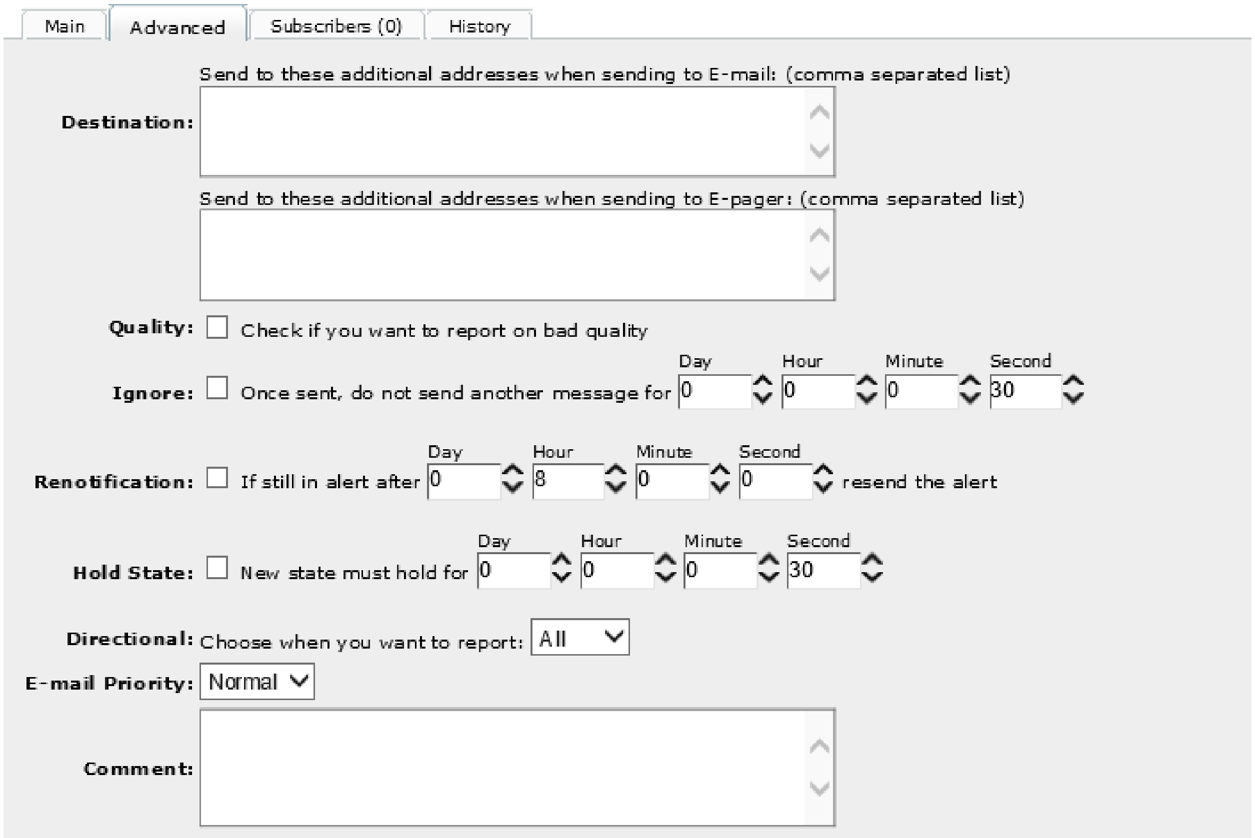
I forgot my password.

Go to the E-Notification login screen, enter your username, then click the "Forgot Password" link. A new password is sent via e-mail. This only applied to the E-Notification Built-In domain. Passwords for Active Directory accounts cannot be modified via E-Notification.

I forgot my username.

Please contact your E-Notification Administrator to retrieve your username.

I am receiving too many messages from one E-Larm.

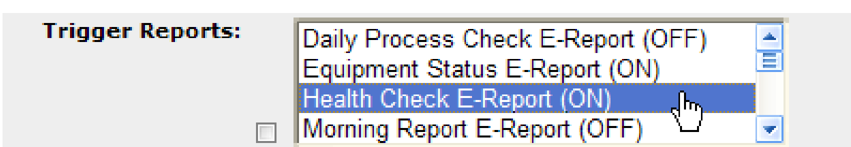


Since E-Notification monitors real-time data, an improperly configured E-Larm may generate hundreds of messages within a minute.

A likely culprit is the high bound, low bound and deadband. For example, if a user has an E-Larm setup with a high bound of 500, a low bound of 400 and a dead band of 5, and the tag it is monitoring usually varies between 490 and 510, then the user will receive many messages. Adjust these values as necessary.

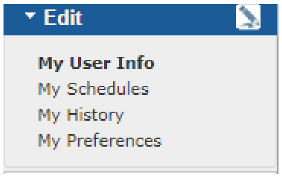
Other options (click the “Advanced” tab when editing an E-Larm) include selecting a “Direction” on which to alarm and/or choosing to average the tag over a selected period of time, thus reducing any quick "spikes" and smoothening the tag values over time.

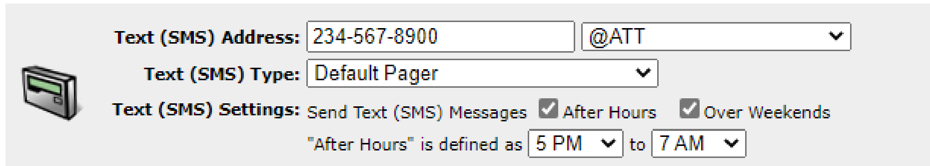
I want to receive a report (E-Report, E-XL, E-PB, etc.) when an E-Larm sends a message.



E-Notification allows users to configure their E-Larms to do more than just send a message. An E-Larm can also “trigger” other items such as E-Reports, E-XLs, etc. Edit the E-Larm on which the report should be sent. Select the checkbox beside “Trigger Reports” and select the desired report(s). These reports will now be triggered when the E-Larm is sent.

I only want E-Notification messages to be sent to my Text (SMS) when I am at work.

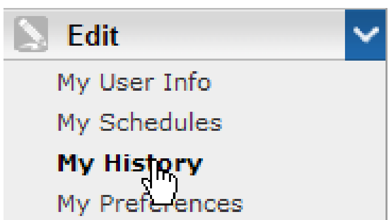




There are two mechanisms: After Hours and Over Weekends. These mechanisms are separate, so if you want Text (SMS) messages all the time except over the weekend, only use the Over Weekends mechanism. If you do not want Text (SMS) messages after certain hours and over the weekends, then use both mechanisms. You may also just use the After Hours mechanism by itself. Both mechanisms are turned on or off on the "My User Info" page.

Both mechanisms use the same night hour and morning hour to designate when After Hours begin and end, and when weekends begin and end. If the night hour is set to 5 PM, the After Hours mechanism takes effect after 5:00 PM and the Over Weekends mechanism takes effect after 5:00 PM on every Friday. If the morning hour is set to 7 AM, the After Hours mechanism stops taking effect at 7:00 AM, and the Over Weekends mechanism stops taking effect at 7:00 AM on every Monday. Note that if you have a "very important" E-Larm, you can configure it to override the After Hours and Over Weekends mechanisms just for that E-Larm. To do this, edit the particular E-Larm, and check the checkbox beside the text "Ignore After Hours and Over Weekends Settings".

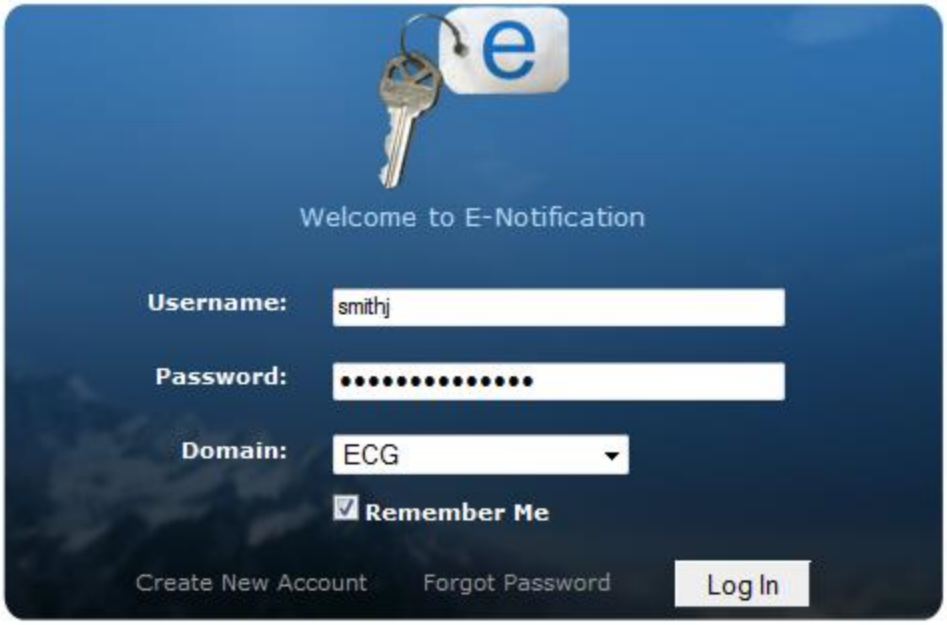
How can I see the messages that were sent to me?



Every user has a "My History" page under the Edit menu. This page allows a user to see when a message was sent, but it does not store what caused it to be sent (if the E-Report/E-XL/E-PB was triggered, or if an E-Larm changed from out-of-bounds high to in-bounds). If an E-Larm/E-Report/E-XL/E-PB of yours has been deleted, its name cannot be displayed on this page - instead the text "Deleted" will be shown.

3.2 General Users Pages

3.2.1 E-Notification Login



Account Login

To log into E-Notification, enter a username and password, select a domain, then click the Log In button. Depending on account verification setting configured under System Settings, users that have never logged in, but have a valid corporate domain account can log in using their domain credentials and a regular (non-administrative) account will automatically be created.

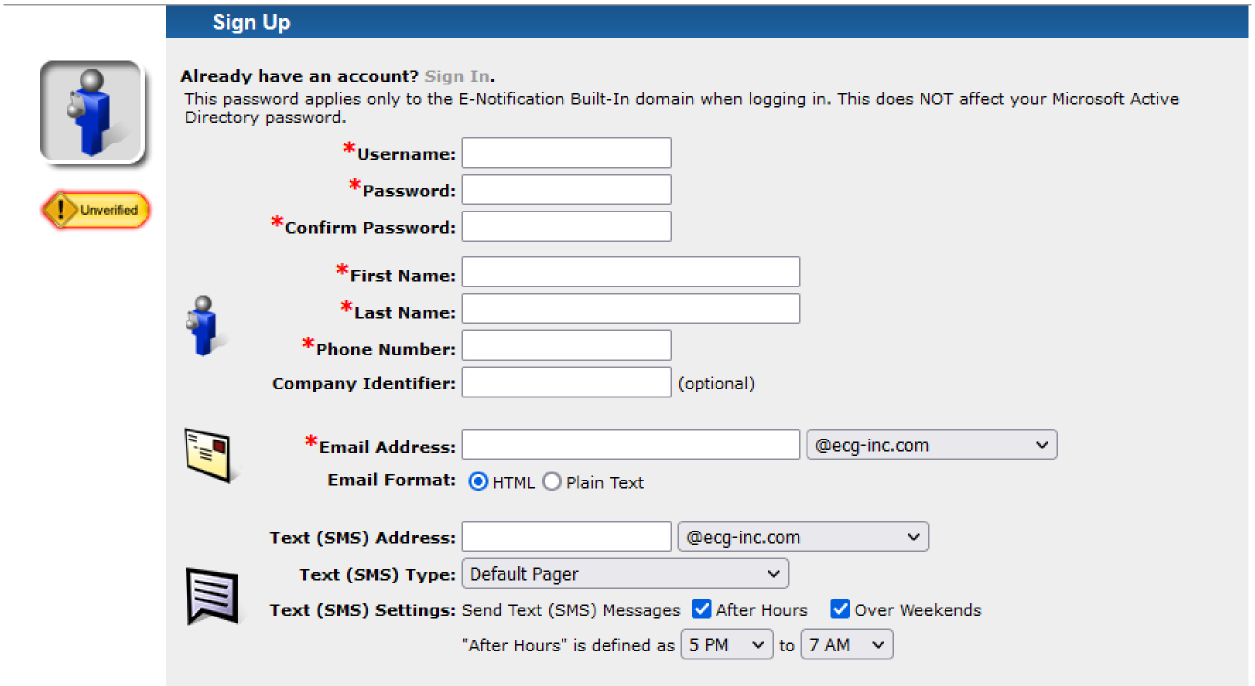
Create New Account

If the E-Notification administrator has not provided account credentials, a user may sign up for a new account by clicking the Create New Account link.

Forgot Password

If an existing user has forgotten his or her password, the user will be sent a new password by entering his or her username and clicking the "Forgot Password" link. Please note that this will NOT recover a corporate domain password. This recovers only E-Notification Built-In passwords that are unique to E-Notification.

3.2.2 Create New Account



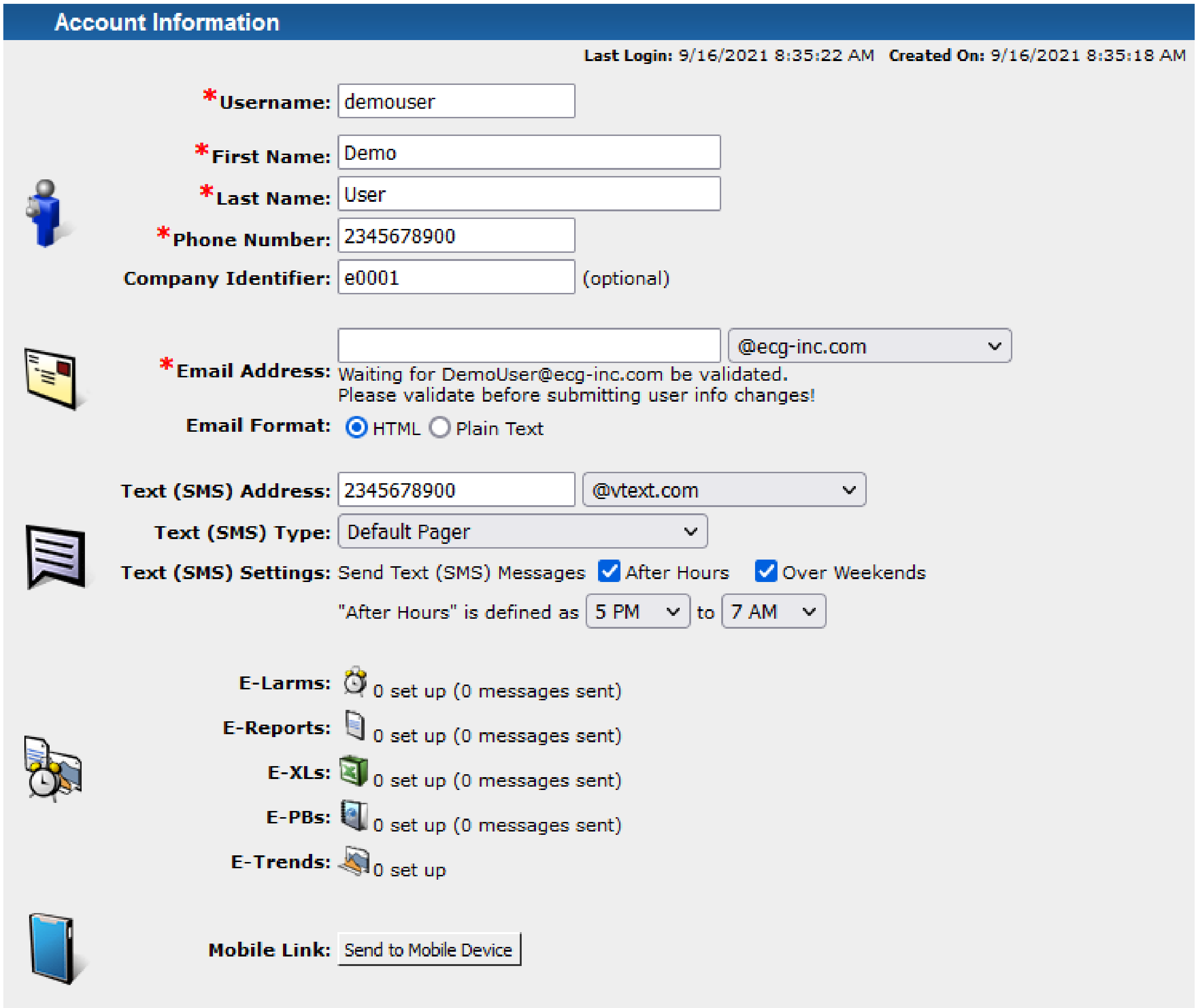
When creating a new account, first specify a unique username for the account. It is recommended to choose a familiar username so that it is not forgotten, such as your corporate login. Note that once created, the username associated with an account cannot be modified.

Users creating their own accounts must specify their password, and specify it again in the Confirm Password input. Please note that this does NOT refer to a domain password, but instead only to E-Notification Built-In passwords that are unique to E-Notification.

If a Complete Web Administrator is administratively signing up an account, the administrator will be given the "Send New Password to User?" option. If selected, the password will be sent to the new user. If "Generate Random Password and Send to User?" is selected, a random password is generated and e-mailed to the user. Verification procedures apply even to accounts that are created by an administrator.

Please refer to the Account Information section of this manual for details on completing the remaining portion of the account profile. Once this is completed, click the Continue button to finalize creation of the account.

3.2.3 My User Info / Account Information



Status

The account's status – enabled or disabled – is indicated by an icon at the top left of the page. Click the indicating icon to toggle the account status. A disabled account will not receive any notifications (E-Larms, E-Reports, E-XLs, E-PBs, etc.) but can still log into E-Notification.

First Name, Last Name, Phone Number, Company Identifier

Enter a First Name, Last Name, Phone Number, and Company Identifier (optional). The Company Identifier is not used by the E-Notification system but may be used by your E-Notification administrator for internal purposes.

E-mail Address

Depending on the configuration of the E-Notification system, the user may be prompted to select from a dropdown of domains (e.g. @companyname.com) when entering an e-mail and Text (SMS) address. If so, select the appropriate domain. If the desired domain is not included in the list, please contact the E-Notification system administrator so that he or she may add the desired domain to the system. If a dropdown containing domains is not present, enter the full e-mail address (e.g. myEmailAddress@companyname.com).

Note that changing an existing e-mail address requires verification (unless the E-Notification System is configured not to require this). New accounts or changed e-mail addresses must be verified before they will take effect. If a user has not validated the e-mail address, the text "Waiting for XXX@XXX to be validated." will be visible.

E-Mail Format

Select HTML or Plain Text formatting. Plain text messages contain little to no special formatting. HTML messages are aesthetically pleasing – containing inline images, color-coding, hyperlinks, etc.

Text (SMS) Address

If you would like to receive messages via Text (SMS), specify a ten-digit Text (SMS) number or address (without spaces or dashes). If a dropdown containing domains is present, select a domain; otherwise provide the domain as part of the address. If the desired domain is not present in the dropdown, contact the E-Notification administrator for more information.

Text (SMS) Type

Select an Text (SMS) type. Contact your E-Notification Administrator for details on choosing an appropriate type. Use of the default selection is recommended.

Text (SMS) Settings – After Hours, Night Hour, Morning Hour

After Hours is defined as every day after the night hour until the next day at the morning hour.

Text (SMS) Settings – Over Weekends

Over Weekends is defined as Friday after the night hour until Monday at the morning hour.

Delete Account

Click the Delete Account button to delete the account. When prompted, the user must confirm deletion of the account, including (owned and subscribed) E-Larms, E-Reports, E-XLs, E-PBs, and E-Trends. Proceed with caution when deleting an account, as the action is irreversible and associated items are not recoverable.

Change Password

Click the Change Password button to change the password associated with the account. Please note that this does NOT refer to a domain password, but instead only to E-Notification Built-In passwords that are unique to E-Notification.

Cancel

Click the Cancel button to disregard changes made to the account since the last save.

Continue

Click the Continue button to save changes made to the account.

Login (Accessible only by Administrators viewing another account's settings)

To login as another user, click the Login button. Note that this will log the administrator out of their account and log them in impersonating the user in question. For the administrator to return to their account, they must click the "Return" icon next to the username at the top right of the page, then enter their password and domain to continue.

Security Settings (Editable only by Administrators)

Complete Web Administrator

Configuring an account to be a Complete Web Administrator provides him or her access to all areas of the E-Notification Web Site.

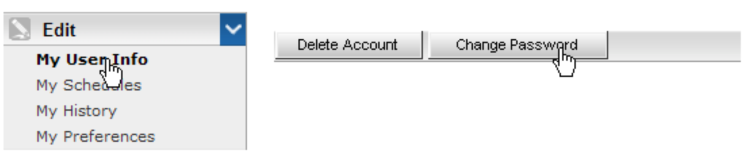
Location Administrator

An account can be set as a Location Administrator by selecting the checkbox under the Administrator column for that location. To include the account in the Tag Search page as a user that should be contacted to manage PI tags, select the checkbox in the Support column for that location. Select the E-Pulse Notification Method (e-mail and/or Text (SMS)) by selecting the checkboxes under the desired method(s). This indicates how a location administrator will receive messages from E-Pulse regarding the status of the location(s) in question. These notifications are sent when the location goes "down" and comes "up" (referring mainly to database connectivity issues).

Security Level

The drop down menu to the right of the text "Can access the following Location Security Level (and lower):" allows a user account's security level to be specified. This numerical value is compared against a location's security level when this account attempts to use, search, or view PI tags/PE Equations from this location. The only locations that will be accessible (and visible) are those with a security level at the same numerical value (or lower) as the account's security level. For shared E-Reports with points on locations not accessible, those points will not be visible nor sent to the subscriber unless its security level permits. Shared E-Larms using points on locations not accessible will not be shown to potential subscribers unless its security level permits.

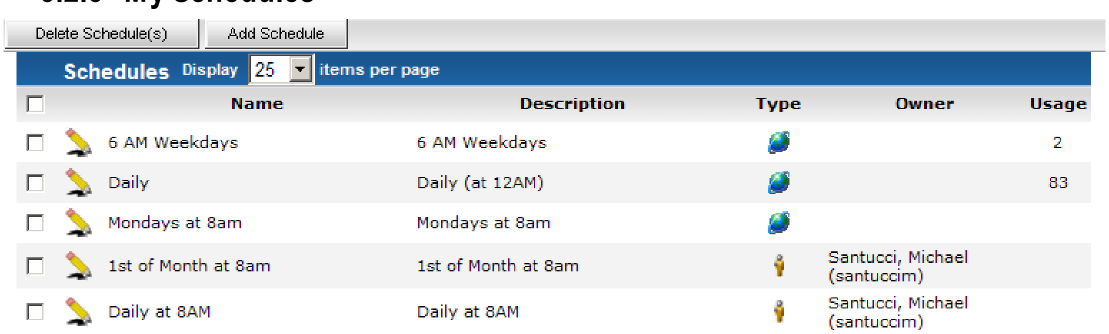
3.2.4 Change Password



A user changing his or her own password must provide the current password as well as a new password and confirmation of the new password. Please note that this does NOT refer to a domain password, but instead only to E-Notification Built-In passwords that are unique to E-Notification.

A Complete Web Administrator who is changing another user's password may choose to generate a random password and have it sent to the user via E-mail or he/she may specify the new password and choose to have the new password sent to the user.

3.2.5 My Schedules



This page allows any user the ability to view, add, edit, and delete his or her schedules. Complete Web Administrators may also add, edit, and delete global schedules from this page.

Click the Add Schedule button to create a new schedule. To delete one or more schedules, select the checkbox next to the desired item(s) and click the Delete Schedule(s) button. To edit an existing schedule, click the Edit icon next to the desired item.

Refer to the Schedule Configuration section of this manual for information on configuring a schedule.

Name

This is what the user will see on the Home Page beside E-Reports, E-XLs and E-PBs configured for this schedule. It should be 32 characters or less.

Description

This is what the user will see when editing an E-Report/E-XL/E-PB and choosing the schedule in the dropdown of available schedules.

Type

This column indicates the scope of the schedule – global or local. Global schedules are available to all users when configuring their E-Reports, E-XLs, E-PBs, etc. Local schedules are private and only available to the user who created them. This column contains icons indicating whether a schedule is global or local.

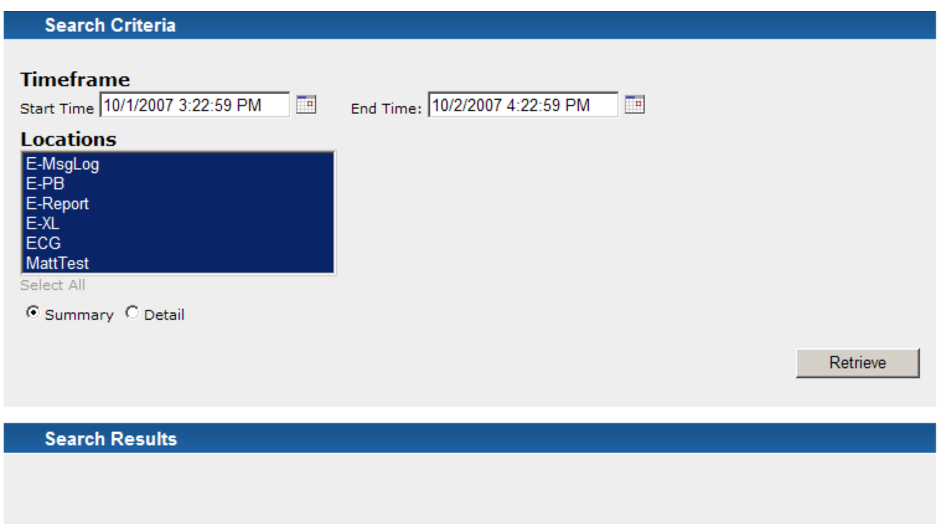
Owner

Global Schedules do not have an owner as they are public and available to all users. Local schedules are created, maintained, and used only by a specific user. This user is considered the Owner of his/her local schedules.

Usage

This is the total number of E-Reports, E-XLs, and E-PBs that are configured to use a particular schedule.

3.2.6 My History



This page allows a user to view a history of messages sent to their account. Enter search criteria and click the Retrieve button to retrieve results based on the search criteria provided.

Timeframe – Start Time and End Time

The user must select a timeframe from which to retrieve sent messages. The default start time is yesterday (24 hours ago) and the default end time is one hour in the future.

Locations

Select one or more locations from which to view history. To select multiple, hold the Ctrl key while selecting the locations.

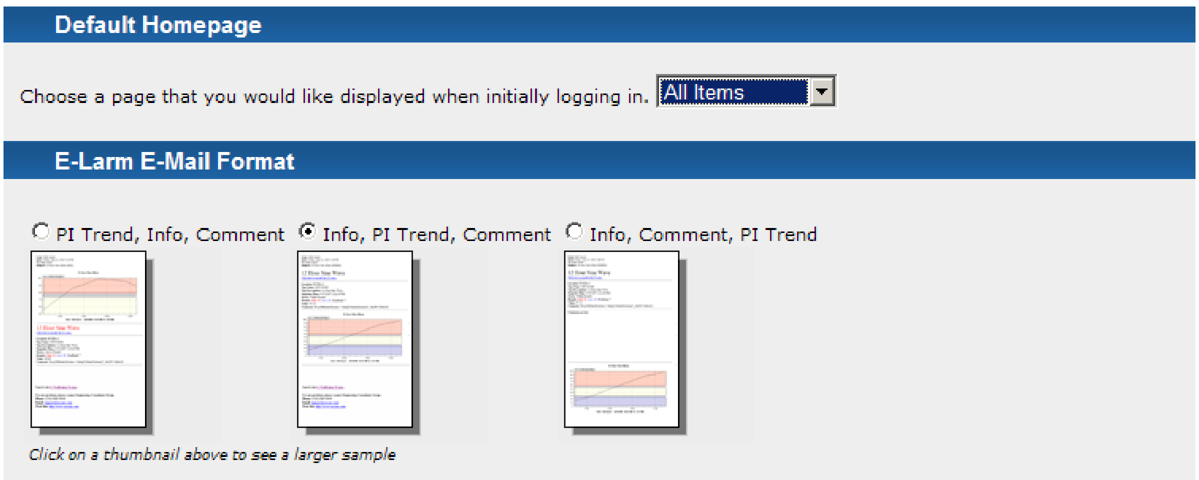
Summary

Select the Summary option to see a summary count of activity by location. Events are ordered first by location, then by date.

Detail

Select the Detail option to view activity for individual items (such as E-Larms, E-Reports, E-XLs, E-PBs, etc). Events are ordered by date and time. The Edit icon next to the account name will direct the user to the Account Information page. The Edit icon next to the E-Larm/E-Report/E-XL/E-PB description will direct the user to the configuration page for that item. If the description "Deleted" is shown, then the E-Larm/E-Report/E-XL/E-PB has been deleted.

3.2.7 My Preferences



Default Homepage

This allows the user to specify the page he or she would like displayed when logging in to the site.

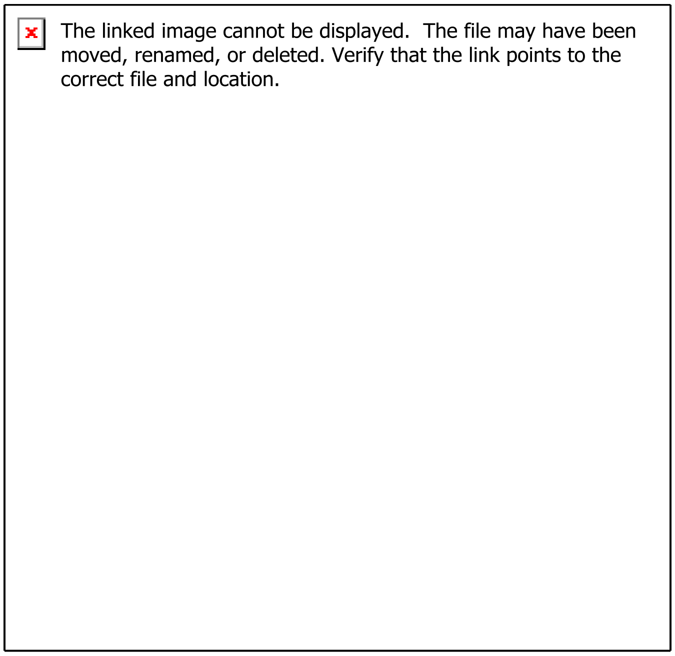
E-Larm E-Mail Format

This allows the user to specify the order in which items are placed in E-Larm e-mails. For example, a user may want the E-Larm trend to appear at the top of the e-mail versus the bottom of the e-mail.

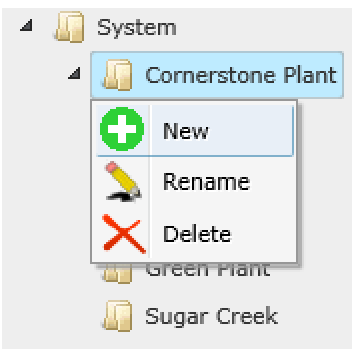
3.3 Main / Home Page

This page gives the user a summary view of his or her items, including E-Larms, E-Reports, E-XLs, E-PBs and E-Trends. Clicking the Add/Edit button with no items selected for any of the sections will bring the user to the Add page for that particular item. When a user selects one or many items for a particular section and clicks on the Toggle button, those items will toggle from enabled to disabled and vice-versa. When a user selects one or many items for a particular section, selects a Folder from the dropdown, and clicks on the Move button, those items will by moved to the Folder specified. Each section can be independently configured to show a different number of items at once by using the dropdown located in the header of the section. Page numbers are displayed when there are more items available.
By default, all configured E-Larms, E-Reports, E-XLs, and E-Trends are displayed. The top section of the home page provides additional search used to filter the list of items.

3.3.1 Navigation and Folders



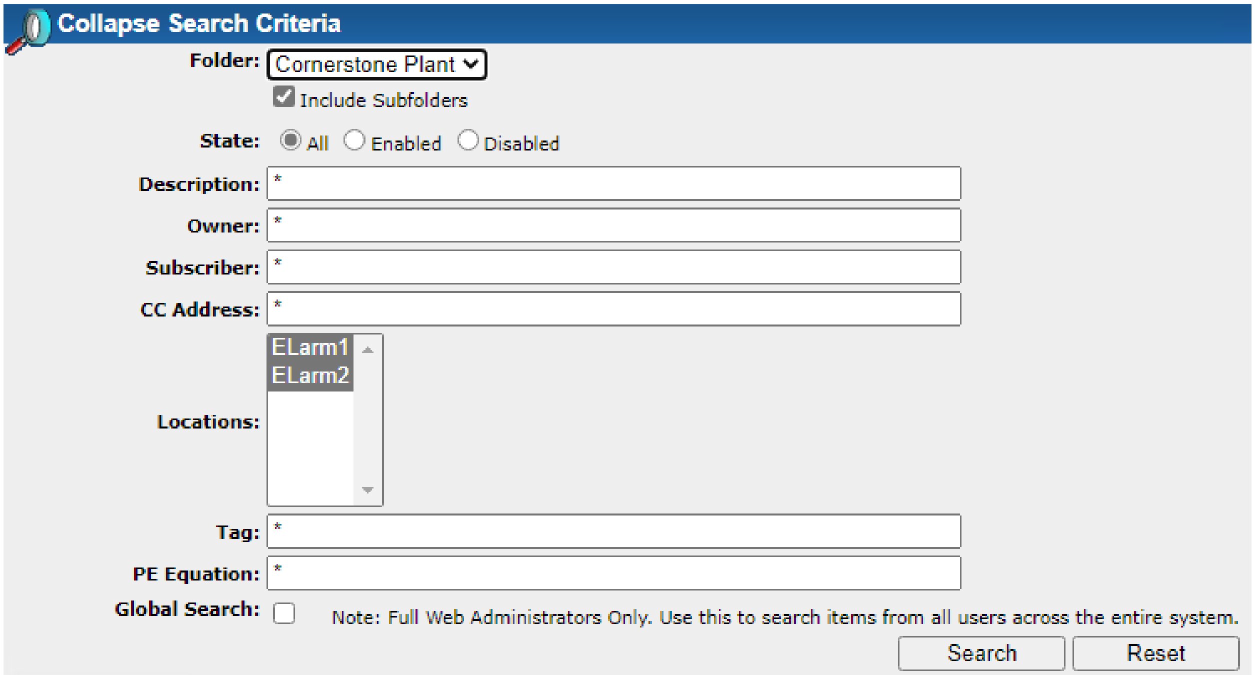
E-Notification items such as E-Larms, E-Reports, E-XLs, E-PBs, and E-Trends can be viewed and organized either by Type or by Folder. Click on "All" or on a specific type of item to view all items of that type regardless of folder. Alternatively, double click on a particular folder to view only those items housed within the folder. Use the Search Criteria described in section 3.3.2 to view only those items in the Folder or to include all items within Subfolders.



Folders are defined per user. Each user is given a System folder by default to house their E-Notification items.

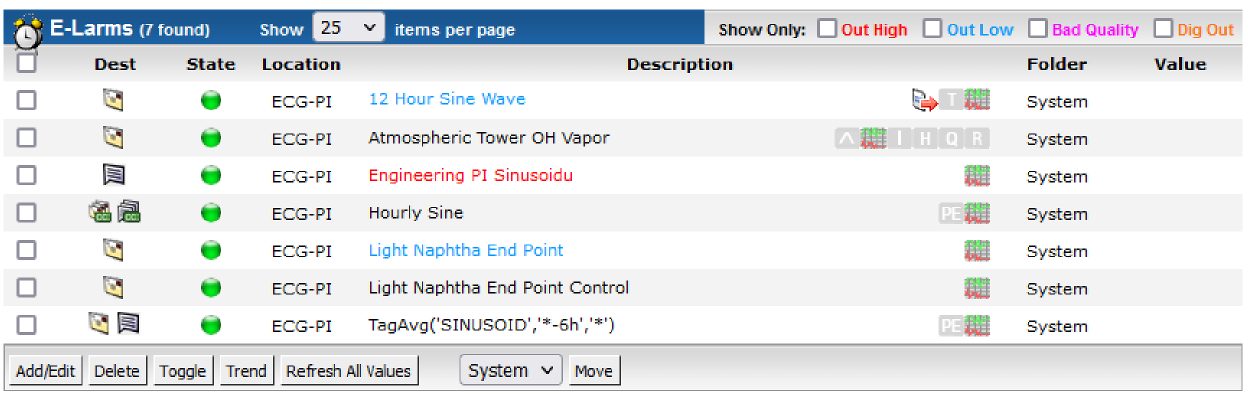
- To create a new folder, right-click on a parent folder, select "New", then enter a name for the new folder
- To rename a folder, right-click on a folder, select "Rename", then enter a new name for the folder.
- To delete a folder, right-click on a folder, select "Delete". Folders must be empty in order to be deleted.
- To move a folder, select it with a single click, then drag to a new destination folder.

3.3.2 Search Criteria



The Search Criteia section allows users to look for specific PI Tags and/or PE Equations in E-Larms and E-Reports. Site Administrators have the added option of the Global Search which allows them to search through all accounts.

3.3.3 E-Larms



Use the checkboxes under the first column to Edit, Delete, Toggle, or Trend one or more E-Larm. The checkbox in the header allows the user to select all or none of the items shown. Click any column header to sort by that column; click again to sort in the opposite order.

Show Only

Users may choose to view only items in certain states. Use the checkboxes in the header to show only items desired (Out High, Out Low, etc).

- Out High: Represented by the color Red, Out High means that the PI tag/calculation associated with the E-Larm is reading above the high value configured by the use.
- Out Low: Represented by the color Blue, Out Low means that the E-Larm is reading below the low value configured by the user.
- Bad Quality: Represented by the color Magenta, Bad Quality means that the PI tag/calculation associated with the E-Larm is outputting a bad value.

- Dig Out: Represented by the color Orange, Dig Out means that the E-Larm is a digital tag; the user has chosen a "home" state; and the current value is not equal to that home state

Dest (Destination)

This column is used to show the destination of the message. If no destination icon is present, the E-Larm is not configured to send a message, but may be configured to trigger a report.

Send to an e-mail address.
Send to an e-mail address and carbon-copy (CC) to other e-mail address(es).
Send to Text (SMS) address.
Send to Text (SMS) address and carbon-copy (CC) to other Text (SMS) address(es).

State

This column contains icons indicating whether the item is enabled or disabled.

Enabled
Disabled

Location

This column identifies the location (E-Larm Application Abbreviation) hosting the PI Tag or PE Equation being monitored. If the location is colored magenta, the location is experiencing communication difficulties.

Description

This column displays the subject content for the E-Larm. The description is color-coded according to the legend at the top of the menu. If the description is italicized, then the E-Larm is currently in the "ignore" timeframe. The description of a disabled E-Larm will be grayed out.

E-Larm is set to attach a trend to the message.
E-Larm is set to report only when the state is going up (Directional).
E-Larm is set to report only when the state is going down (Directional).
E-Larm is set to average the tag over a user-specified amount of time.
E-Larm is set to monitor quality.
E-Larm is set to use the Ignore Delay timer.
E-Larm is set to use the Hold State timer.
E-Larm is monitoring a PE Equation.
E-Larm is set to resend alerts (renotify) at user-specified intervals while the value is not in the normal range..
E-Larm is set to trigger one or more E-Report/E-XL/E-PB.
E-Larm is shared so others may subscribe to it.
E-Larm is subscribed (someone else has control over the limits).

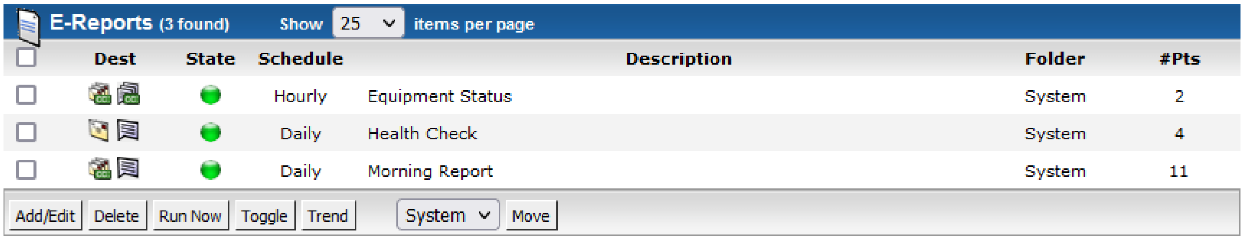
Folder

This column displays the folder where the E-Larm is housed.

Value

Click the "Refresh All Values" button to get values for all E-Larms in the list.

3.3.4 E-Reports



Use the checkboxes under the first column to Edit, Delete, Toggle, or Trend one or more E-Reports. The checkbox in the header allows the user to select all or none of the items shown. Click any column header to sort by that column; click again to sort in the opposite order.

Dest (Destination)

This column is used to show the destination of the message.

Send to an e-mail address.
Send to an e-mail address and carbon-copy (CC) to other e-mail address(es).
Send to Text (SMS) address.
Send to Text (SMS) address and carbon-copy (CC) to other Text (SMS) address(es).

State

This column contains icons indicating whether the item is enabled or disabled.
Enabled
Disabled

Schedule

This column indicates the schedule of when the E-Report will be sent.

Description

This column indicates the subject content for the E-Report.
The icon indicates that the E-Report is set to attach a trend to the message.
The icon indicates that the user is sharing the E-Report.
The icon indicates that the user is subscribing to an E-Report that someone else configured.

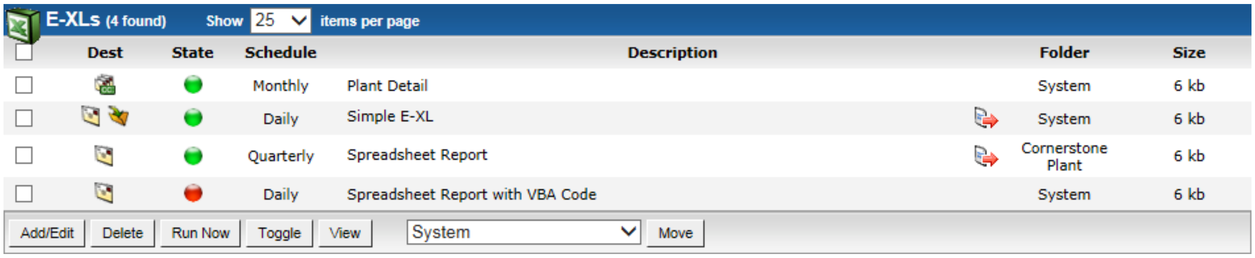
Folder

This column displays the folder where the E-Report is housed.

#Pts

This column indicates the number of PI tags and/or PE Equations monitored in the E-Report.

3.3.5 E-XLs



E-XLs (4 found) Show 25 items per page

	Dest	State	Schedule	Description		Folder	Size
			Monthly	Plant Detail		System	6 kb
			Daily	Simple E-XL		System	6 kb
			Quarterly	Spreadsheet Report		Cornerstone Plant	6 kb
			Daily	Spreadsheet Report with VBA Code		System	6 kb

Add/Edit | Delete | Run Now | Toggle | View | System | Move

Use the checkboxes under the first column to Edit, Delete, Run, Toggle, or View one or more E-XL. The checkbox in the header allows the user to select all or none of the items shown. Click any column header to sort by that column; click again to sort in the opposite order. Clicking the View button while an E-XL is checked will show the user the output from the last time the E-XL was processed.

Dest (Destination)

This column is used to show the destination of the message.

Send to an e-mail address.
Send to an e-mail address and carbon-copy (CC) to other e-mail address(es).
Send to Text (SMS) address.
Send to FTP.

State

This column contains icons indicating whether the item is enabled or disabled.
Enabled
Disabled

Schedule

This column indicates the schedule of when the item will be sent.

Description

This column indicates the subject content for the E-XL.
The icon indicates that the user is sharing the E-XL.
The icon indicates that the user is subscribing to an E-XL that someone else configured.

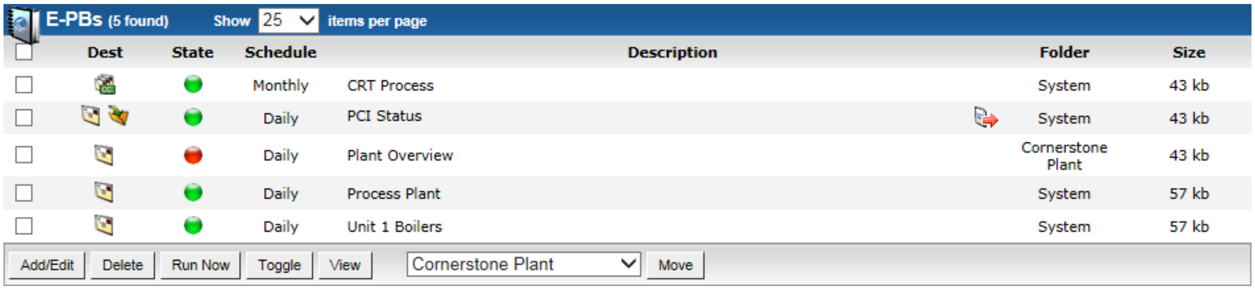
Folder

This column displays the folder where the E-XL is housed.

Size

This column contains the size of the uploaded Microsoft Excel file.

3.3.6 E-PBs



E-PBs (5 found) Show 25 items per page

	Dest	State	Schedule	Description		Folder	Size
			Monthly	CRT Process		System	43 kb
			Daily	PCI Status		System	43 kb
			Daily	Plant Overview		Cornerstone Plant	43 kb
			Daily	Process Plant		System	57 kb
			Daily	Unit 1 Boilers		System	57 kb

Add/Edit | Delete | Run Now | Toggle | View | Cornerstone Plant | Move

Use the checkboxes under the first column to Edit, Delete, Run, Toggle, or View one or more E-PB. The checkbox in the header allows the user to select all or none of the items shown. Click any column header to sort by that column; click again to sort in the opposite order. Clicking the View button while an E-PB is checked will show the user the output from the last time the E-PB was processed.

Dest (Destination)

This column is used to show the destination of the message.

Send to an e-mail address.

Send to an e-mail address and carbon-copy (CC) to other e-mail address(es).

Send to Text (SMS) address.

Send to FTP.

State

This column contains icons indicating whether the item is enabled or disabled.

Enabled

Disabled

Schedule

This column indicates the schedule of when the item will be sent.

Description

This column indicates the subject content for the E-PB.

The icon indicates that the user is sharing the E-PB.

The icon indicates that the user is subscribing to an E-PB that someone else configured.

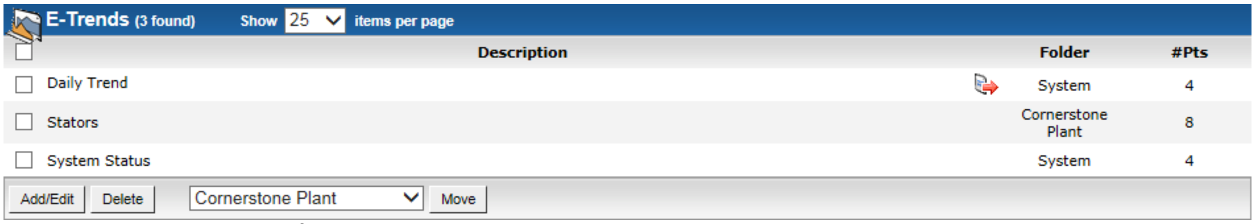
Folder

This column displays the folder where the E-PB is housed.

Size

This column contains the size of the uploaded PI ProcessBook file.

3.3.7 E-Trends



Use the checkboxes under the first column to Edit or Delete one or more E-Trends. The checkbox in the header allows the user to select all or none of the items shown. Click any column header to sort by that column; click again to sort in the opposite order.

Description

This column indicates the subject content for the E-Trend.

Folder

This column displays the folder where the E-Trend is housed.

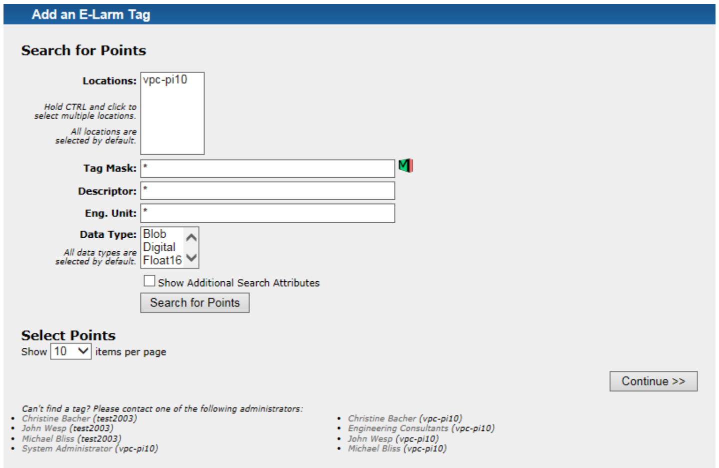
#Pts

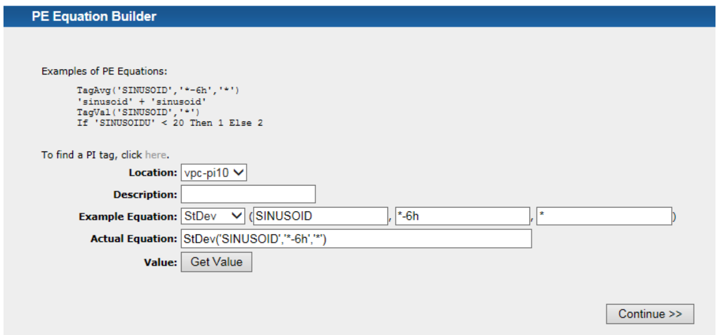
This column indicates the number of PI tags and/or PE Equations for the E-Trend.

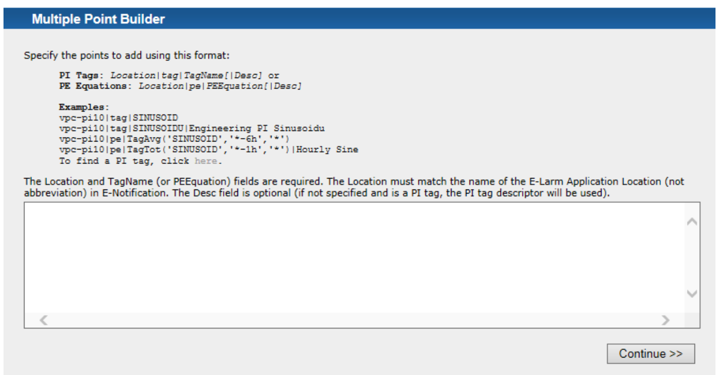
3.4 Setting Up E-Larms

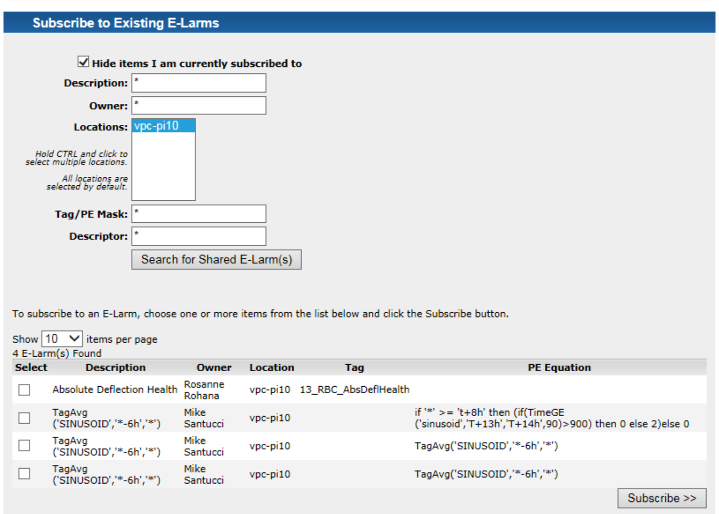
3.4.1 Adding an E-Larm

Navigate to the Home Page and, optionally, to a specific Folder. In the E-Larms section, click the “Add/Edit” button. E-Larms will be created in the “System” folder unless a Folder is first selected. There are four available options for Setting up E-Larms: Add an E-Larm Tag, Add a PE Equation E-Larm, add multiple E-Larms using the “Multiple Point Builder”, or Subscribe to an Existing E-Larm.


Add an E-Larm Tag
Search for Points
Locations:
vpc-pi10
Hold CTRL and click to select multiple locations.
All locations are selected by default.
Tag Mask:
*
Descriptor:
*
Eng. Unit:
*
Data Type:
Blob
Digital
Float16
All data types are selected by default.
Show Additional Search Attributes
Search for Points
Select Points
Show 10 items per page
Continue >>
Can't find a tag? Please contact one of the following administrators:
Christine Bacher (test2003)
John Wesp (test2003)
Michael Bliss (test2003)
System Administrator (vpc-pi10)
Christine Bacher (vpc-pi10)
Engineering Consultants (vpc-pi10)
John Wesp (vpc-pi10)
Michael Bliss (vpc-pi10)


PE Equation Builder
Examples of PE Equations:
TagAvg('SINUSOID','*-6h','*')
'sinusoid' + 'sinusoid'
TagVal('SINUSOID','*')
If 'SINUSOIDU' < 20 Then 1 Else 2
To find a PI tag, click here.
Location:
vpc-pi10
Description:
Example Equation:
StDev
(SINUSOID
,*-6h
,*
)
Actual Equation:
StDev('SINUSOID','*-6h','*')
Value:
Get Value
Continue >>


Multiple Point Builder
Specify the points to add using this format:
PI Tags: Location|tag|TagName[|Desc] or
PE Equations: Location|pe|PEEquation[|Desc]
Examples:
vpc-pi10|tag|SINUSOID
vpc-pi10|tag|SINUSOIDU|Engineering PI Sinusoidu
vpc-pi10|pe|TagAvg('SINUSOID','*-6h','*')
vpc-pi10|pe|TagTot('SINUSOID','*-1h','*')|Hourly Sine
To find a PI tag, click here.
The Location and TagName (or PEEquation) fields are required. The Location must match the name of the E-Larm Application Location (not abbreviation) in E-Notification. The Desc field is optional (if not specified and is a PI tag, the PI tag descriptor will be used).
Continue >>


Subscribe to Existing E-Larms
Hide items I am currently subscribed to
Description:
*
Owner:
*
Locations:
vpc-pi10
Hold CTRL and click to select multiple locations.
All locations are selected by default.
Tag/PE Mask:
*
Descriptor:
*
Search for Shared E-Larm(s)
To subscribe to an E-Larm, choose one or more items from the list below and click the Subscribe button.
Show 10 items per page
4 E-Larm(s) Found
Select
Description
Owner
Location
Tag
PE Equation
Absolute Deflection Health
Rosanne Rohana
vpc-pi10
13_RBC_AbsDeflHealth
TagAvg ('SINUSOID','*-6h','*')
Mike Santucci
vpc-pi10
if '*' >= 't+8h' then (if(TimeGE ('sinusoid','T+13h','T+14h',90)>900) then 0 else 2)else 0
TagAvg ('SINUSOID','*-6h','*')
Mike Santucci
vpc-pi10
TagAvg('SINUSOID','*-6h','*')
TagAvg ('SINUSOID','*-6h','*')
Mike Santucci
vpc-pi10
TagAvg('SINUSOID','*-6h','*')
Subscribe >>

Add an E-Larm Tag

This form allows the user to search for one or more tags. Tags may be filtered by location, tag name, descriptor, engineering unit, data type, as well as several other advanced attributes. Text-based inputs are masks, that is the "*" character is a wildcard. For example, to find a tag containing "_MW_" somewhere in the PI tag name and "Total" somewhere in the tag description, simply enter "*_MW_*" for the Tag Mask and "*Total*" for the Descriptor. Click the "Search for Points" button to display the list of tags meeting the specified criteria. Select one or more tags from the results and click the "Continue" button. One E-Larm will be created for each tag selected.

PE Equation Builder

This form allows the user to create a new E-Larm that monitors a PE Equation. Users must specify the location (PI System) against which the PE Equation should be evaluated. Make sure to specify a description for the PE Equation as this will be displayed on the Home Page. Users are given a very simple form to help in specifying the PE Equation, but the user is strongly recommended to contact his or her PI Administrator to view documentation pertaining to PE Equations. Click the "Continue" button. One E-Larm will be created using the method.

Multiple Point Builder

Use the Multiple Point Builder to quickly configure multiple E-Larms – including PI tags and PE Equations – by following a specific format. Each line represents one E-Larm and should contain the Location Name, Tag/PE, and optional Description. Click the "Continue" button to create an E-Larm for each line provided.

Subscribe To an Existing E-Larm

Users may subscribe to existing E-Larms that have been shared by their owner(s). Use the search filters to search for specific subscriptions. Search filters include: Description, Owner, Locations, Tag/PE Mask, and Tag Descriptor. Use the checkboxes on the left side of the results grid to select E-Larms to subscribe to and click the Subscribe button. This will create one E-Larm subscription for each item selected. The results can be reordered by clicking on the column header names. Clicking the header name a second time will reverse the sort order. Using the dropdown above the grid will control how many results to show per page. Note: this option is not available unless there are shared E-Larms available.

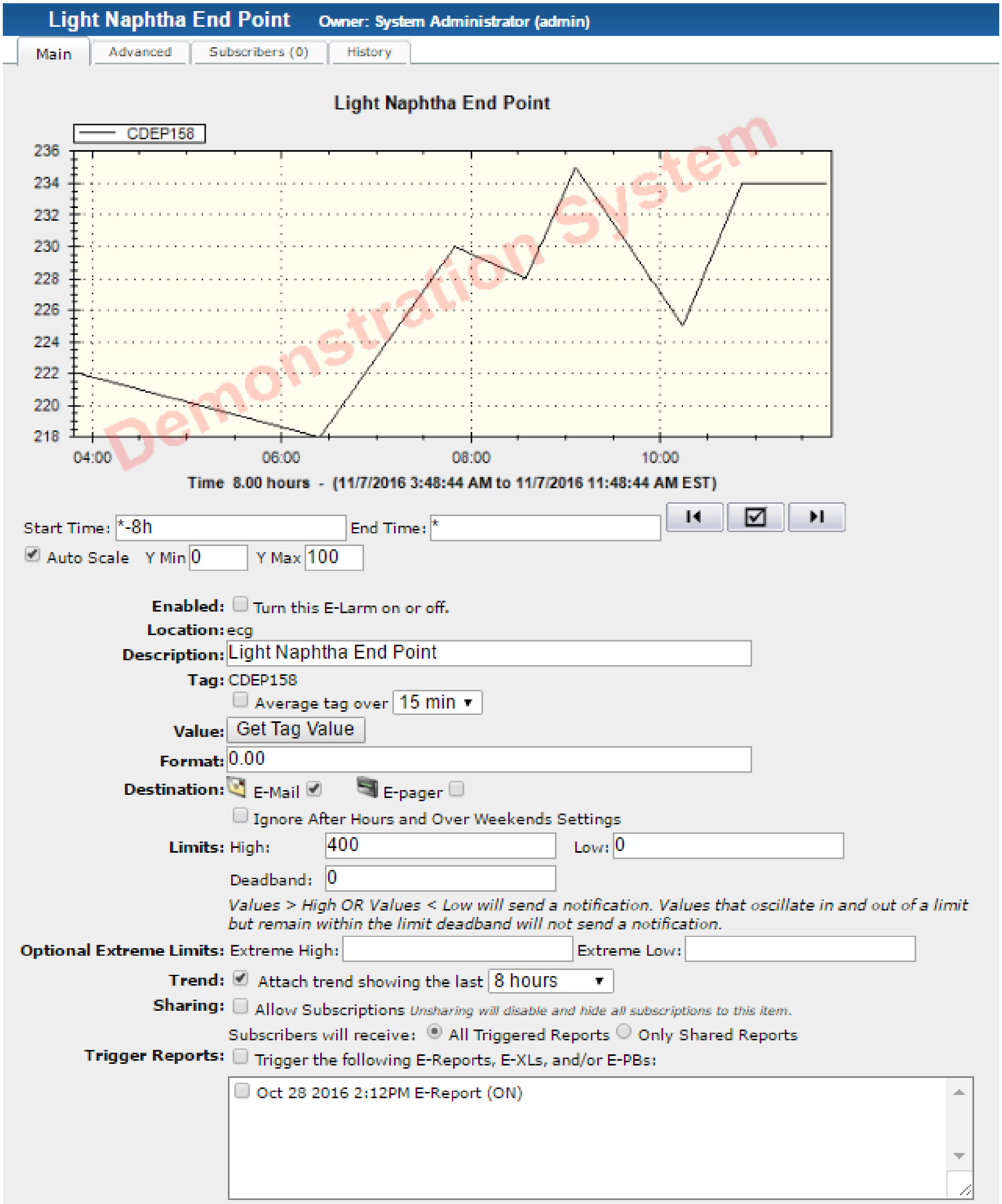
3.4.2 Configure E-Larm

After selecting points to create the E-Larm, the Configure E-Larm menu will be shown. Note that this menu will differ based on the tag type (analog / digital) being monitored. E-Larm settings default to the following: the E-Larm is enabled, destination is set to e-mail, range is set to High of 100 Low of 0 and Deadband of 0, and the description defaulted to the PI tag descriptor (or description if user specified). The user should change the settings as desired and click the Save button.

This form allows users to edit their E-Larm(s). Users may edit more than one at a time, but it is recommended that users not create or edit more than 10 at a time for best performance. Clicking the Save button will save the settings for the E-Larm(s). Clicking the Trend button will bring the user to a page showing the PI tag in a trend (the user will be able to add and delete PI tags to and from this trend, change the start time and end time, etc). Clicking the Delete button will delete the E-Larm. (If the user editing the E-Larm is the owner, all associated subscriptions will also be deleted.)

When editing a single E-Larm, it is possible to select a different tag or PE equation to monitor. Click the Change Tag button to do this. This page allows users the ability to change the tag reference for an existing E-Larm. The user may use the Tag Search or PE Equation Builder to change the E-Larm.

Main Tab



Light Naphtha End Point
Owner: System Administrator (admin)
Main
Advanced
Subscribers (0)
History
Light Naphtha End Point
CDEP158
236
234
232
230
228
226
224
222
220
218
04:00
06:00
08:00
10:00
Demonstration System
Time 8.00 hours - (11/7/2016 3:48:44 AM to 11/7/2016 11:48:44 AM EST)
Start Time: *-8h
End Time: *
Auto Scale Y Min 0 Y Max 100
Enabled: Turn this E-Larm on or off.
Location: ecg
Description: Light Naphtha End Point
Tag: CDEP158
Average tag over 15 min
Value: Get Tag Value
Format: 0.00
Destination: E-Mail E-pager
Ignore After Hours and Over Weekends Settings
Limits: High: 400 Low: 0
Deadband: 0
Values > High OR Values < Low will send a notification. Values that oscillate in and out of a limit but remain within the limit deadband will not send a notification.
Optional Extreme Limits: Extreme High: Extreme Low:
Trend: Attach trend showing the last 8 hours
Sharing: Allow Subscriptions Unsharing will disable and hide all subscriptions to this item.
Subscribers will receive: All Triggered Reports Only Shared Reports
Trigger Reports: Trigger the following E-Reports, E-XLs, and/or E-PBs:
Oct 28 2016 2:12PM E-Report (ON)

Trend

The trend at the top of the E-Larm configuration form will show PI tag/PE activity for the past eight hours. Vertical lines shown in the trend represent times when the E-Larm had a message sent to the user.

For analog points, the high bound for the E-Larm is shown as a horizontal red line while the low bound is shows as a horizontal blue line. The deadband area for the E-Larm is shown (unless it is set to 0) in gray.

For digital points, the triggering state may be set to All states or to a specific state.

The user can view different time periods by changing the Start Time and End Time and clicking the “refresh” button. The start time will automatically revert to the time set for the attached trend in the “Trend” section below.

Enabled

This checkbox specifies whether the E-Larm is on or off. The user will only receive messages when an E-Larm is enabled.

Description (Editable only by Owner)

Use this field to specify a description for the E-Larm in order to identify it later. This will become the subject of any messages sent. If the E-Larm triggers any E-Reports/E-XLs/E-PBs, the E-Larm description will be included in the E-Report/E-XL/E-PB message.

Tag (Editable only by Owner)

The PI tag monitored is displayed. Hover the mouse over the PI tag to view additional information including the Location (PI System), Data Type, Point Source, etc.

For analog PI tags, an additional option is provided to average the tag over a specified period of time. Select the checkbox to enable this feature and use the dropdown to select a length of time for which to average the PI tag. When using this option, the E-Larm will monitor the PE Equation in the form of: TagAvg(‘TheTagChosen’, ‘TimeSpecified’, ‘*’). The amount of time the user chooses is stored in PI Time format, such as ‘*-1m’ (1 min), ‘*-30m’ (30 min), etc.

To change the PI tag, click the “Change Tag” button at the bottom of the form.

PE Equation (Editable only by Owner)

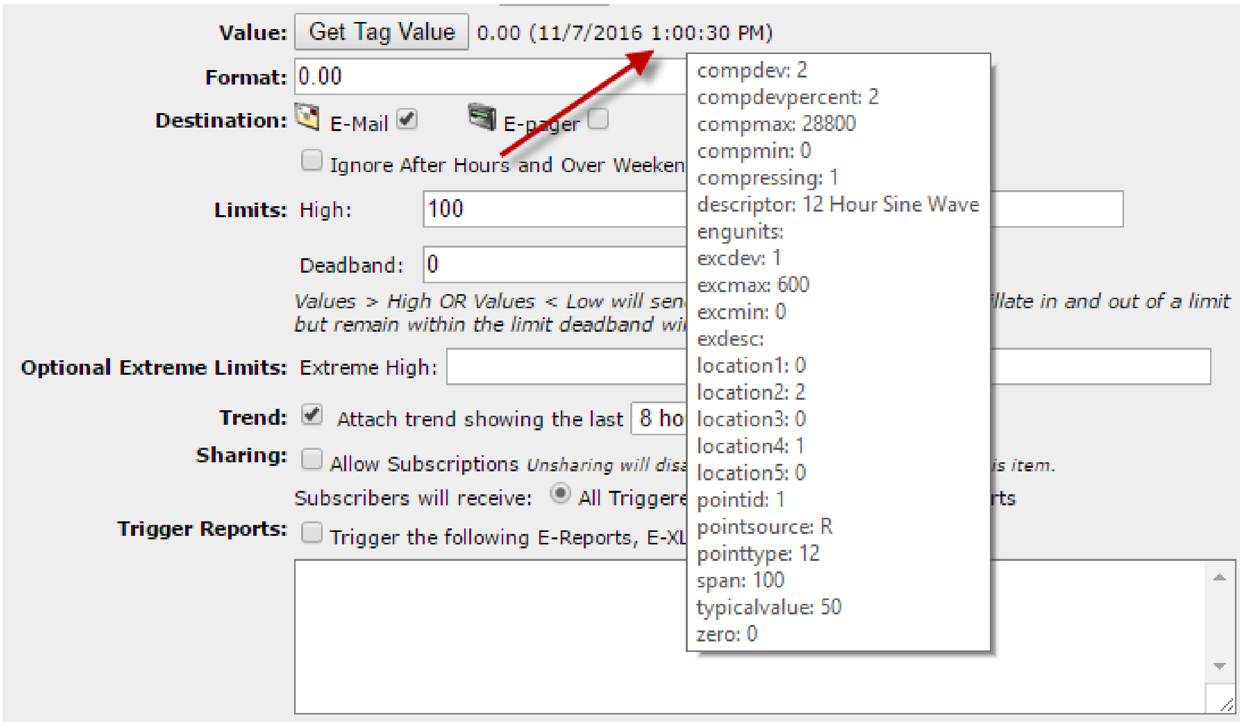
The PE Equation monitored is displayed and editable. For more information regarding PE Equations, refer to the PE Equation Examples provided in this manual. For more advanced topics regarding PE Equations, it is recommended the user contact his or her PI System Administrator to view OSIsoft documentation outlining PE Equation capabilities and options. In the event an invalid PE Equation is encountered, the user will receive an e-mail indicating a syntax or parsing error and the E-Larm will be automatically disabled.

E-Notification evaluates PE Equations using the “stInterval” method (sometimes referred to as evenly-spaced) via the PI-SDK with a timeframe of 15s. If that timeframe happens to have multiple states in it (high/low/etc as defined by the E-Larm limits), the user may receive more alerts than expected, as they may all be evaluated even if they were a result of interpolation vs real state changes. It is not recommended to use E-Larm averaging to solve the problem of a significantly noisy PI tag – that should be fixed at the PI tag attribute level via exception and compression settings for tag tuning.

Get Tag Value / Get PE Value

The value of the PI tag or PE Equation can be retrieved by clicking the Get Tag Value or Get PE Value button, respectively. For tag values, hover over the results to view tag attributes.

If the PE Equation contains a syntax error, then clicking the Get PE Value button will display “Error” instead of a value.



Format (Editable only by Owner, Analog Tags Only)

The format of the PI tag can be configured below the Value. The Value shown will follow the format specified in the input. For example, assume a value of 3.14159. Specifying a format of “0.00” will cause the value to be displayed as “3.14”. Specifying a format of “000.0” will cause the value to be displayed as “003.1”.

Destination

Using the checkboxes provided, the user may select the destination(s) of the E-Larm message, including E-mail and Text (SMS). An E-Larm can be configured without a destination only if the E-Larm is set to trigger another item (e.g.: E-Report, E-XL, etc.)

Ignore After Hours and Over Weekends Settings?

The user may choose to ignore the After Hours and Over Weekends Settings setup for his or her account for the E-Larm being configured. If checked, the E-Larm message will be received any time it is triggered.

Limits (Editable only by Owner, Analog Tags Only)

The three inputs: High, Low and Deadband are the inputs that define when an E-Larm monitoring an analog PI tag sends a message (monitoring bad quality also does). The user will receive an E-Larm message when the PI tag being monitored does any of the following:

- Goes from out-of-bounds high (the PI tag value is above the High value) to in-bounds (the PI tag value is below the High value minus the Deadband but above the Low value).
- Goes from out-of-bounds low (the PI tag value is below the Low value) to in-bounds (the PI tag value is above the Low value plus the Deadband but below the High value).
- Goes from out-of-bounds high (the PI tag value is above the High value) to out-of-bounds low (the PI tag value is below the Low value minus the Deadband).

- Goes from in-bounds (the PI tag value is between the Low value and the High value) to out-of-bounds high (the PI tag value is above the High value plus the Deadband).
- Goes from in-bounds (the PI tag value is between the Low value and the High value) to out-of-bounds low (the PI tag value is below the Low value minus the Deadband).

Please note: this assumes the user has the Directional option of "All" chosen. To view an example of this, read the section for Directional provided below.

Optional Extreme Limits (Editable only by Owner, Analog Tags Only)

Two additional limits can be applied to an E-Larm – Extreme High and Extreme Low. A user may specify these values to receive a single notification when either limit is reached.

Trend (Editable only by Owner)

The owner may choose to have a trend of the E-Larm included in the message when it is sent. The trend is only included in E-Mail messages. This option is enabled by default.

Sharing (Editable only by Owner)

The owner may choose to allow other users to be able to subscribe to this E-Larm by checking this checkbox.

Triggered Reports for Subscribers (Editable only by Owner)

When sharing an E-Larm that also triggers reports, an owner may designate that subscribers receive either “All Triggered Reports” or “Only Shared Reports”. With the former option, subscribers will receive all triggered reports whether they are shared or not. With the latter option, subscribers will receive only those reports that are shared by their owner. In both cases, the user does not need to subscribe to a triggered report in order to receive it.

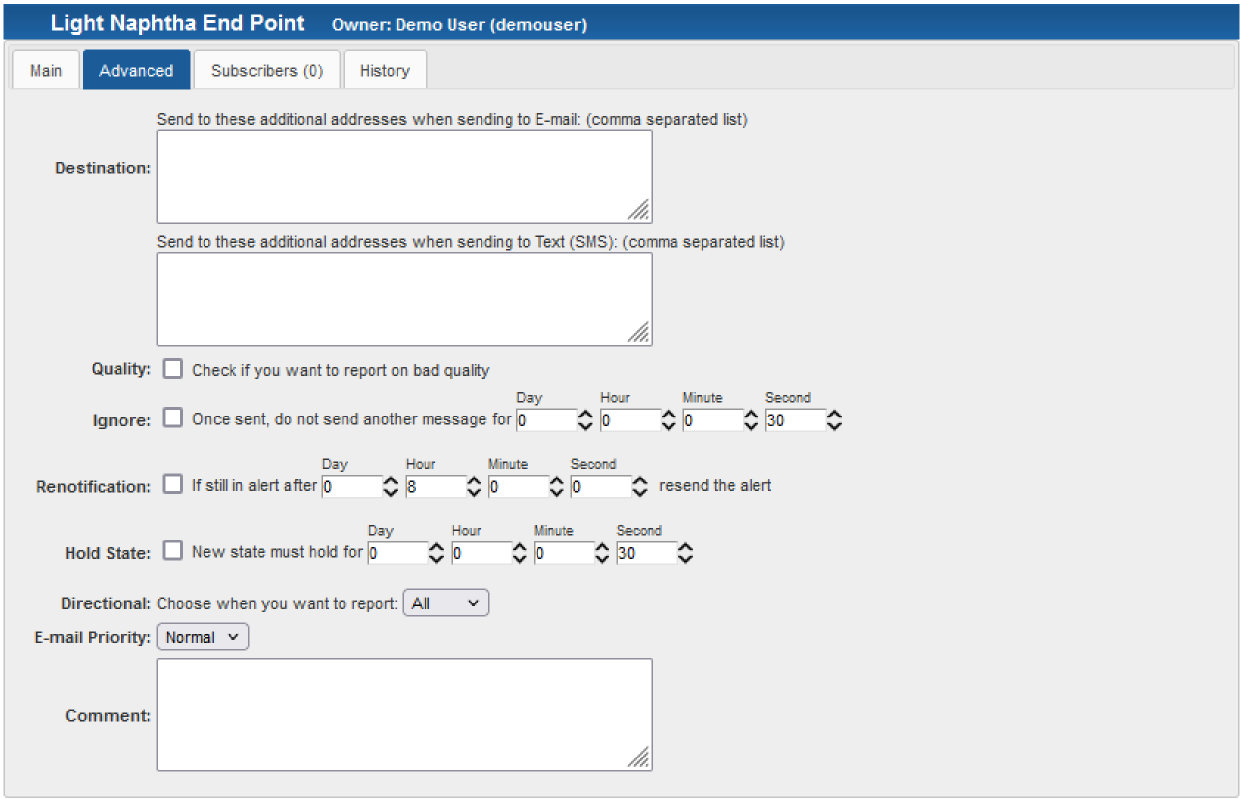
Trigger Reports (Editable only by Owner)

The owner may configure the E-Larm to “trigger” the processing of multiple E-Reports/E-XLs/E-PBs when the E-Larm is sending a message (if Destination is set to None, the E-Larm message will not be sent but the reports chosen to be triggered will still be triggered). The checkbox must be checked for the selected reports to be sent.

State (Editable only by Owner, Digital Tags Only)

The State input defines when an E-Larm monitoring a digital PI tag sends a message (monitoring bad quality also does). The user will receive an E-Larm message when the PI tag being monitored enters or exits the selected state.

Advanced Tab



Destination

The user may specify additional addresses to notify. The two available additional address types are CC (carbon-copy) e-mail addresses (are specified in the textbox below the text "Send to these additional addresses when sending to E-mail:"), and CC (carbon-copy) Text (SMS) addresses (are specified in the textbox below the text "Send to these additional addresses when sending to Text (SMS):"). NOTE: additional Text (SMS) addresses must be in valid e-mail address form such as 3304312345@epage.arch.com. The CC E-mail addresses will only be used when the Destination includes E-mail and the CC Text (SMS) addresses will only be used when the Destination includes Text (SMS).

Quality (Editable only by Owner)

The owner may configure the E-Larm to report on "bad quality". A point is considered bad quality when a non-numeric value (examples: I/O Timeout, Shutdown) is returned from PI. It is also considered bad quality when the point has not received a recent value from its interface. If the interface is not configured to use the points' exception max time and this checkbox is checked, the E-Larm may send erroneous messages. If this checkbox is selected, the user will receive a message when the tag being monitored enters bad quality. If the user does not have this checkbox checked and this occurs, the user will not be notified. This allows users to monitor critical points or interfaces in a more dependable manner.

Ignore (Editable only by Owner)

The owner may choose to specify a period of time after an E-Larm message is generated in which the E-Larm will not send another message (even if the E-Larm should change state multiple times). For example, assume the user selects the checkbox, chooses 30 min in the duration selector, and clicks Save. A minute later, the E-Larm sends a message. For the next 30 minutes, no matter how many messages the E-Larm should generate and send, none will be sent (although the state shown on user's Home Page will change accordingly). When the 30 minute period is reached, the

E-Larm may begin sending messages again (but the messages that were generated in the 30 minute period will not be sent). Note that if the E-Larm went from in-bounds to out-of-bounds low when it generated the message, and when the 30 minutes of time ended the E-Larm was in in-bounds (or any state other than out-of-bounds low), no message will be sent.

Hold State (Editable only by Owner)

The owner may choose to specify a period of time that an E-Larm must maintain the new state before a message is generated and sent. For example, assume the user selects the checkbox, chooses 1 min in the duration selector, and clicks Save. A minute later, the state changes from in-bounds to out-of-bounds high, but within 20 seconds, returns to in-bounds. No message is sent. Ten minutes later the state changes to out-of-bounds high again, and after a minute of staying in the out-of-bounds high state, a message is sent. The status of the E-Larm will be checked after the amount of time selected from the duration selector. If the E-Larm is still in a new state, a message will be sent. If it is no longer in a new state, a message will not be sent.
Note: When utilizing the Hold State for digital tags, it will only apply when the owner has chosen a "Home State". Hold State for digital tags will not be utilized when alarming on "All" states.

Directional (Editable only by Owner, Analog Tags Only)

The user can further configure when the E-Larm should send a message by selecting which direction to monitor in changing its "state": All, Up, or Down. Each option is explained in detail below:

- All: All changes between states will send a message.
- Up: Changes from out-of-bounds low to in-bounds, in-bounds to out-of-bounds high, and out-of-bounds low to out-of-bounds high will send a message.
- Down: Changes from in-bounds to out-of-bounds low, out-of-bounds high to in-bounds, and out-of-bounds high to out-of-bounds low will send a message.

E-mail Priority (Editable only by Owner)

The user can choose the importance (priority) of the e-mail message when this E-Larm sends an e-mail message to the user. The possible values are Normal (default), High and Low. Please note that some e-mail clients may display the e-mail priority/importance differently.

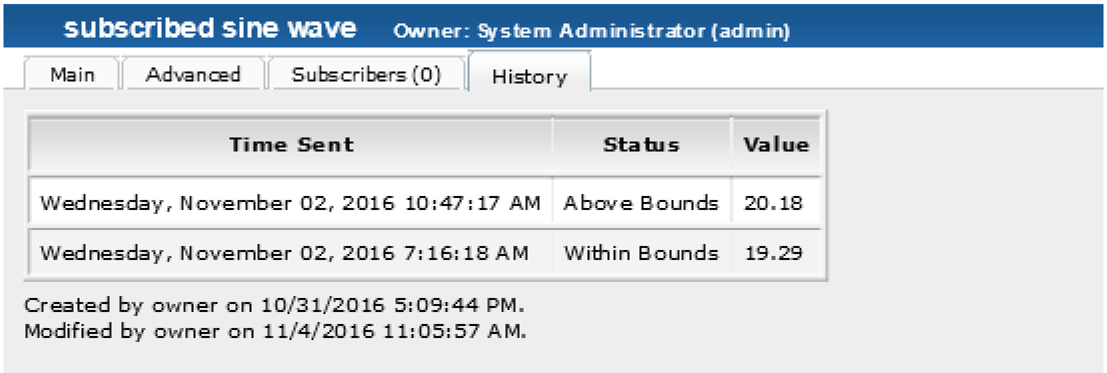
Change Tag (Editable only by Owner)

The user can change the PI tag/PE Equation being monitored by clicking the "Change Tag" button at the top of the form. If tag averaging is being used and another PI tag is chosen, the tag averaging will be applied to the new PI tag. If a PE Equation is chosen instead, tag averaging will be turned off. After choosing the new PI tag/PE Equation, the change will be communicated to the E-Larm Application that performs the monitoring.

Subscribers Tab

This tab displays a list of all users who have subscribed to this item.

History Tab



This tab includes the date, time, status, and value of the last ten messages sent for this item. The date and time the item/subscription was created and last modified is also provided.

3.4.3 Configure E-Larm - Analog Example

E-Larms monitoring analog PI tags/PE Equations will send messages (and/or "trigger" reports) to the configured destinations mainly when the current value changes from one state to another state (also may send messages or trigger reports due to "quality" described later in this section). The possible states are:

For Analog PI Tags (integer, float, etc.):

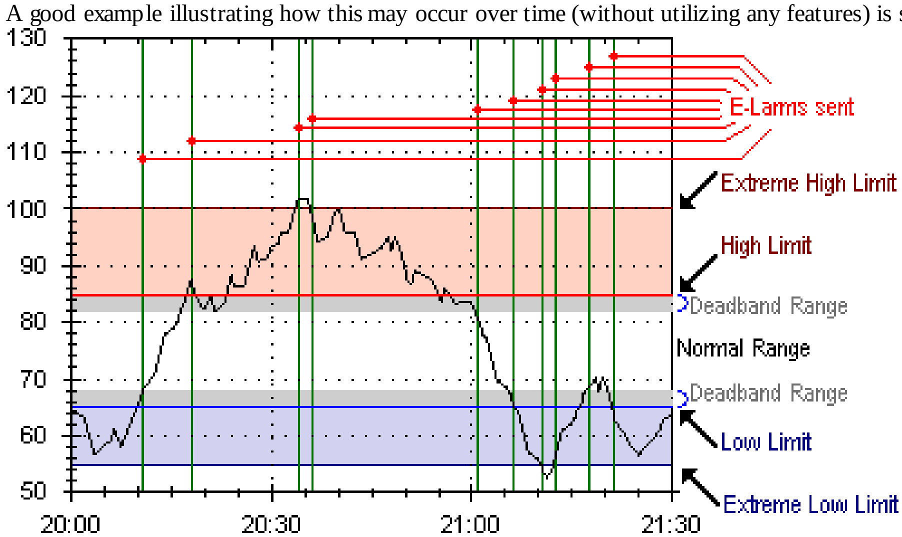
- Out-of-bounds high (value is above the High value)
- Out-of-bounds low (value is below the Low value)
- In-bounds (value is below the High value minus the Deadband but above the Low value plus the Deadband)

For Digital PI Tags:

- In-triggering state (value is on the Triggering State)
- Off-triggering state (value is on any State other than the Triggering State)
- Changed state (value moved from one state to another)

All examples illustrated in this section will be for an analog PI tag.

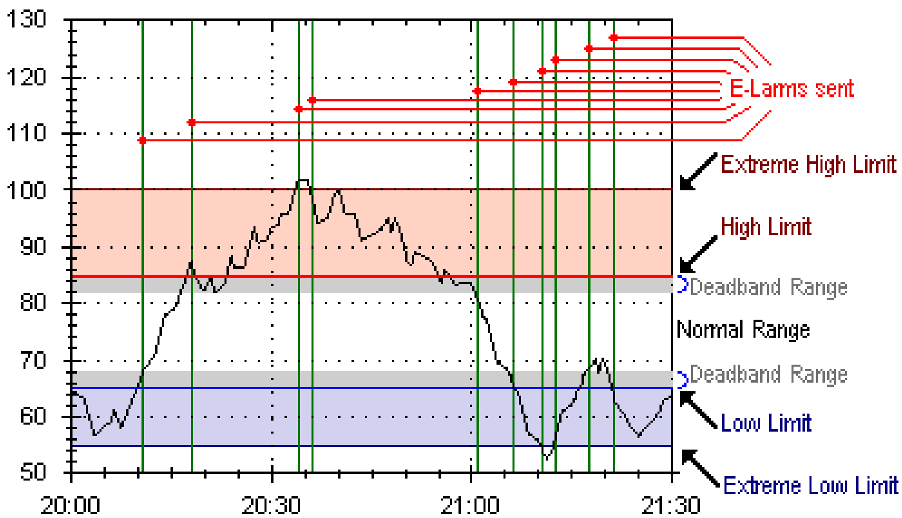
A good example illustrating how this may occur over time (without utilizing any features) is shown in the following graph:



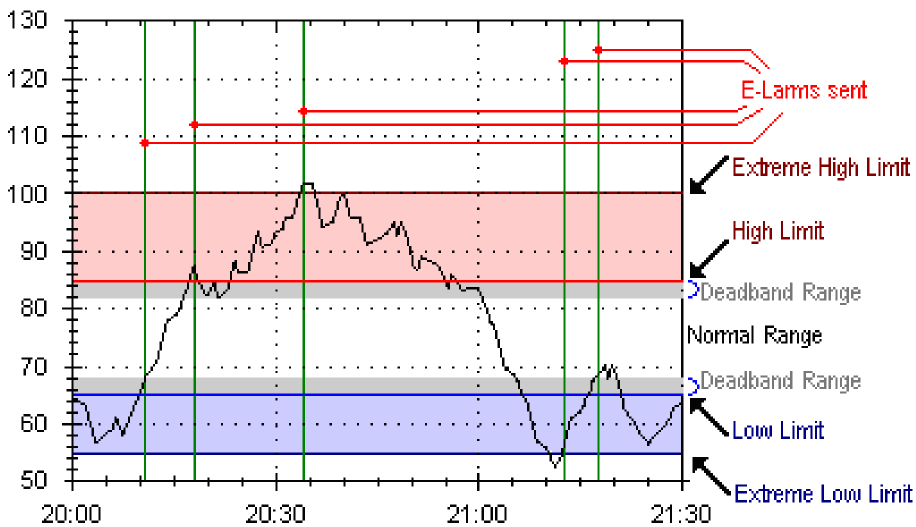
Directional

The Directional feature allows the user to specify exactly which state change to send a message on. NOTE: no matter what directional preferences the user specifies for the E-Larm, all Extreme High and Extreme Low E-Larms will be sent. The user can choose from the following options:

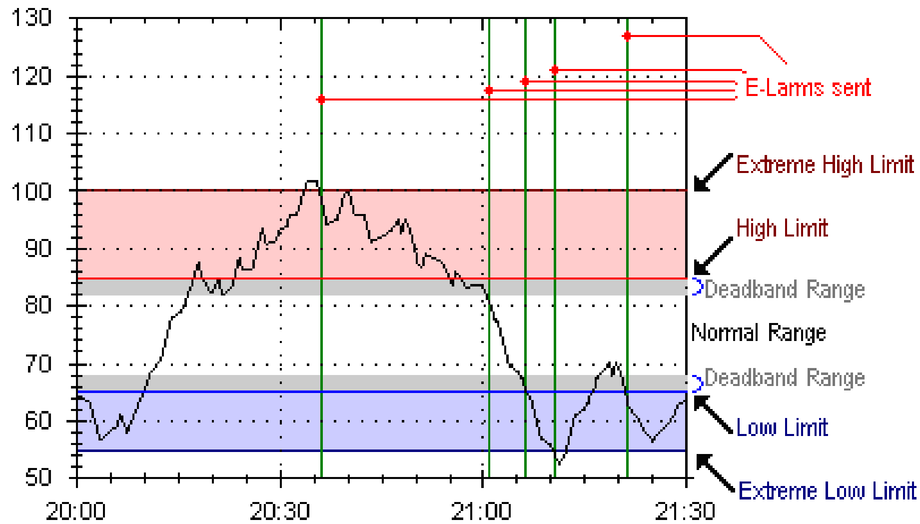
All: All changes between states.



Up: out-of-bounds low to in-bounds, in-bounds to out-of-bounds high, and out-of-bounds low to out-of-bounds high. Notice also that an E-Larm is sent when the data goes from out-of-bounds low to out-of-bounds extreme low.

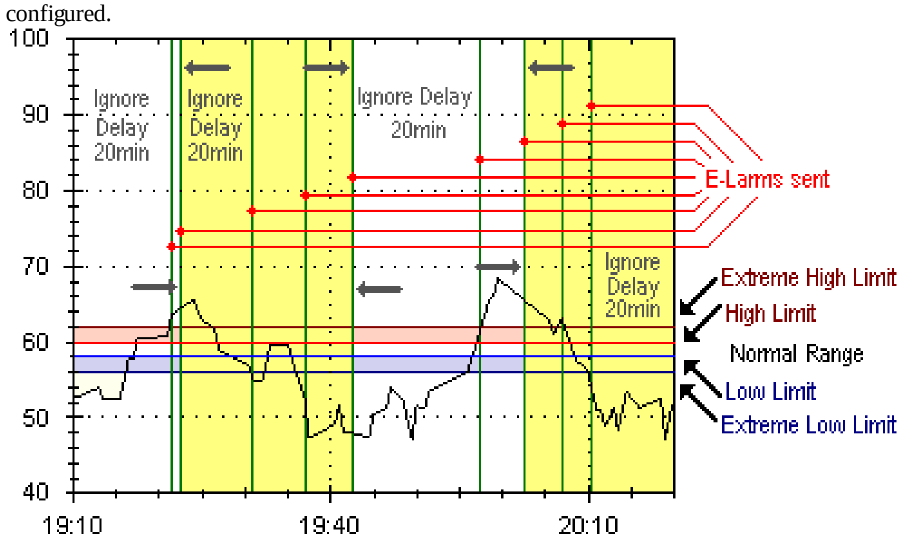


Down: in-bounds to out-of-bounds low, out-of-bounds high to in-bounds, and out-of-bounds high to out-of-bounds low. Notice also that an E-Larm is sent when the data goes from out-of-bounds high to out-of-bounds extreme high.

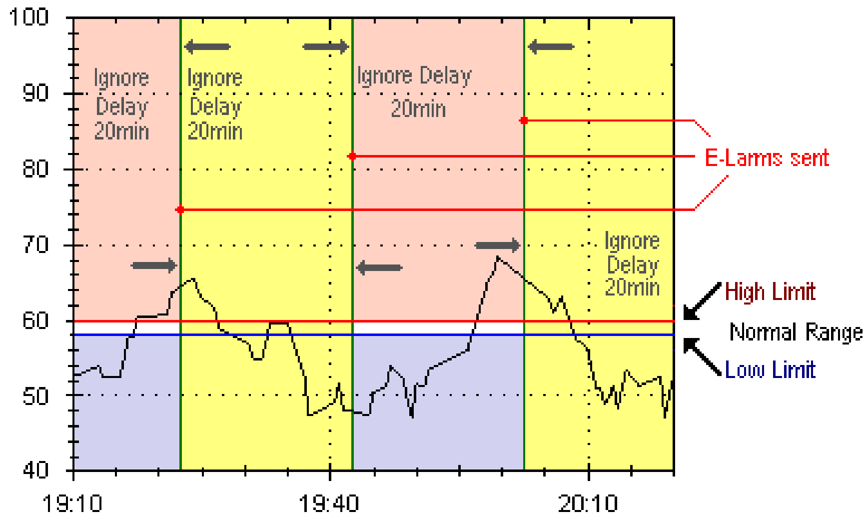


Ignore

The Ignore feature allows the user to specify a range of time over which any further messages being sent will NOT occur – this is the "ignore" time. This "ignore" time is activated when a message is sent (or report is triggered). When the "ignore" time has passed, the "state" that the value was in when the "ignore" time was activated will be used. For example, if the value was in the out-of-bounds low "state" when the "ignore" time was activated, and when the "ignore" time had passed, the value was in the in-bounds "state", a message would be sent (because the value is no longer in the out-of-bounds low "state"). Keep in mind this delay does not affect the sending of Extreme High or Low E-Larms as they will be sent – no matter if there is an ignore delay configured.

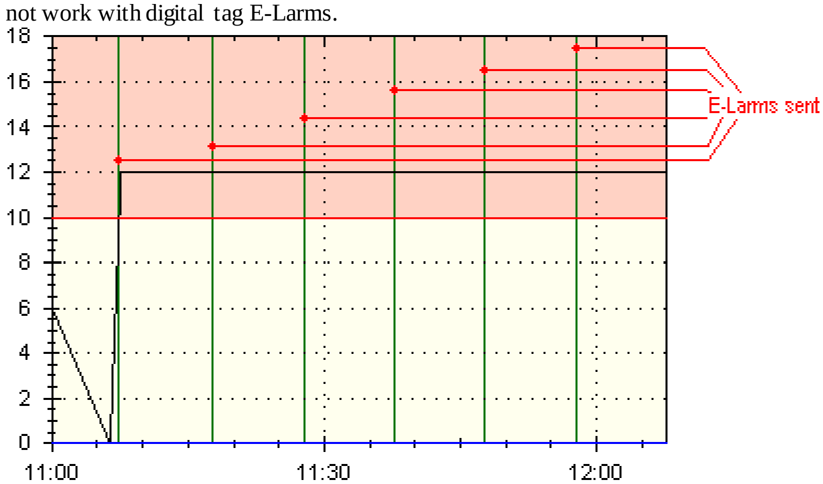


To further illustrate the scenario where the "state" the value was in before the "ignore" time is used after the "ignore" time has passed, refer to the following explanation and graph. The E-Larm goes from low to high (storing the "high" state), which activates the "ignore" time. Within the "ignore" time, the E-Larm goes to normal, low, back to normal, then back to low – but does not send the messages. It continues to remain in low and when the "ignore" time elapses, a message is sent. This message is sent because the stored "high" state differs from the current low state after the "ignore" time elapsed (it should be noted that if the user did not desire to receive the message in this scenario, the user could use the Directional value of "Up"). Compare this graph with the previous figure which includes Extreme High and Low Limits. These Extreme limit messages are unaffected by the Ignore rule.



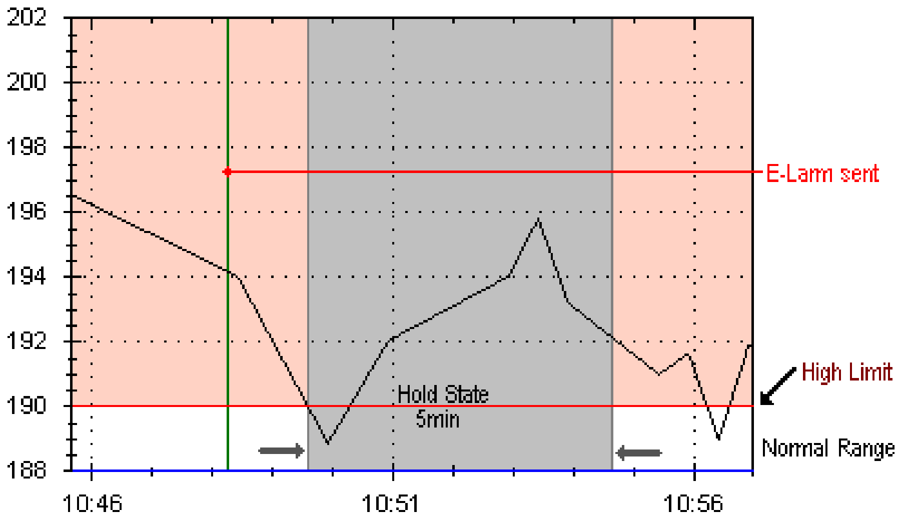
Renotification

The Renotification feature allows the user to be continually alerted (at specific intervals) that an E-Larm is out of bounds. For example: if the Renotification time was 10 minutes, and the value was in the out-of-bounds high "state", as long as the value stayed out-of-bounds high, an alert would be sent every hour starting from when the alert was first sent. Note: Renotification does not work with digital tag E-Larms.



Hold State

The Hold State feature allows the user to specify a range of time over which the new E-Larm state must remain before a message is generated and sent. For example, if the Hold State time was 5 minutes, and the value was in the out-of-bounds high "state", but changed to in-bounds only for 1 minute (after 1 minute it returned to out-of-bounds high), no message would have been sent. If, however, the state changed to in-bounds and remained in that state for over 5 minutes, a message would be sent after 5 minutes elapsed. NOTE: no matter what Hold State preferences the user specifies for the E-Larm, all Extreme High and Extreme Low E-Larms will be sent.

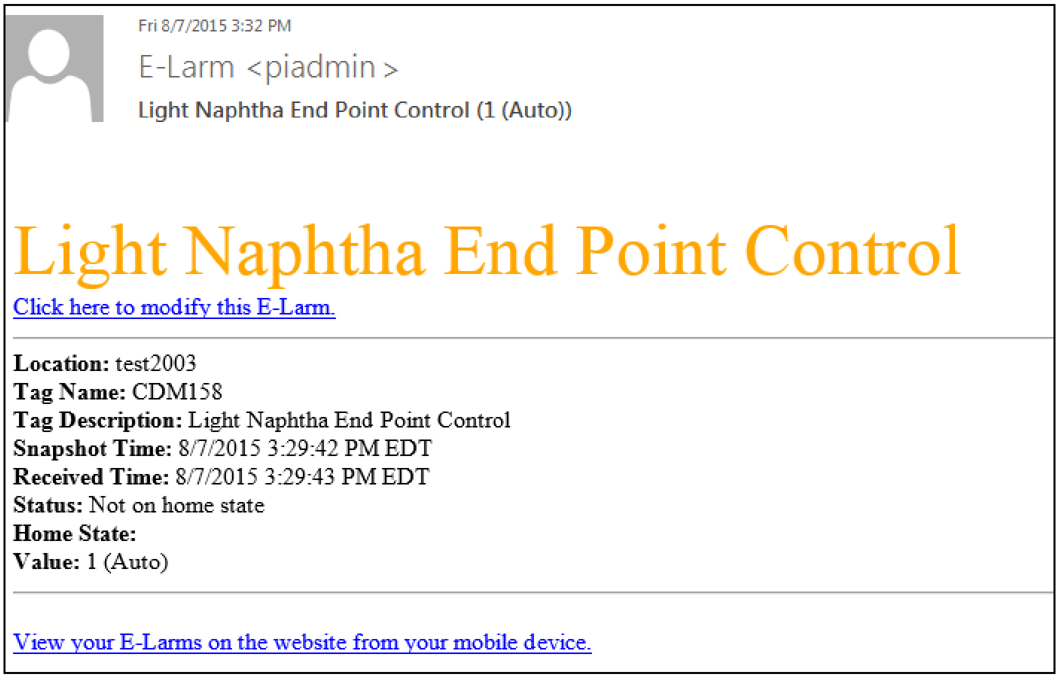


Quality

The Quality feature allows the user to monitor the “quality” of the PI tag/PE Equation. A message will be sent (or reports triggered) when the PI tag/PE Equation changes between good “quality” and bad “quality”. A PI tag/PE Equation is considered bad quality when a non-numeric value (examples: I/O Timeout, Shutdown) is returned to the PI snapshot. It is also considered bad quality when the PI tag/PE Equation has not received a recent value from its interface (a.k.a the value is “stale data”). If the PI interface providing data for the PI tag (or if using a PE Equation: any PI tag(s) being used in the PE Equation) is not configured properly to send data to the PI tag(s) within the PI tag(s)’ exception max time, then the PI tag/PE Equation may rapidly fluctuate between good and bad “quality”. Other issues involving the PI interface, PI Archive, and PI Snapshot may affect a PI tag/PE Equation being considered bad “quality”. NOTE: this mechanism is only recommended for users desiring to be notified when a tag may not have valid data and the users may receive a large amount of messages unless both the PI tag(s) and PI interface(s) are properly configured. When used effectively, quality monitoring allows PI System administrators to identify when critical PI tags (or PI interfaces) are not working correctly (but not in every scenario).

3.4.4 E-Larm Notification Example

This is an example of an email notification. Emails include information relevant to the alert including value, digital state (for digital tags), snapshot time (actual snapshot time from PI), received time (time the E-Larm was processed), execution time (for PE equations), status, low/high (for analog tags) or home state (for digitals) and hyperlinks to browse to the configured E-Larm.


Fri 8/7/2015 3:32 PM

E-Larm <piadmin >

Light Naphtha End Point Control (1 (Auto))

Light Naphtha End Point Control

Click here to modify this E-Larm.

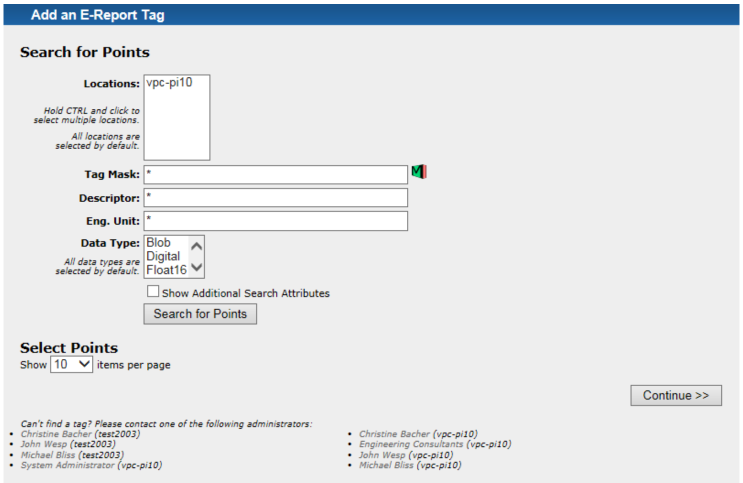
Location: test2003
Tag Name: CDM158
Tag Description: Light Naphtha End Point Control
Snapshot Time: 8/7/2015 3:29:42 PM EDT
Received Time: 8/7/2015 3:29:43 PM EDT
Status: Not on home state
Home State:
Value: 1 (Auto)

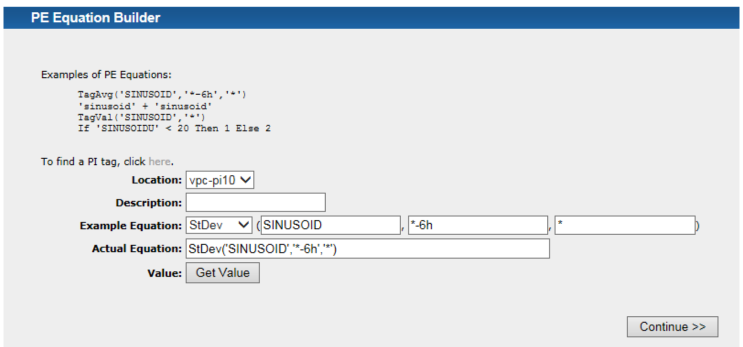
View your E-Larms on the website from your mobile device.

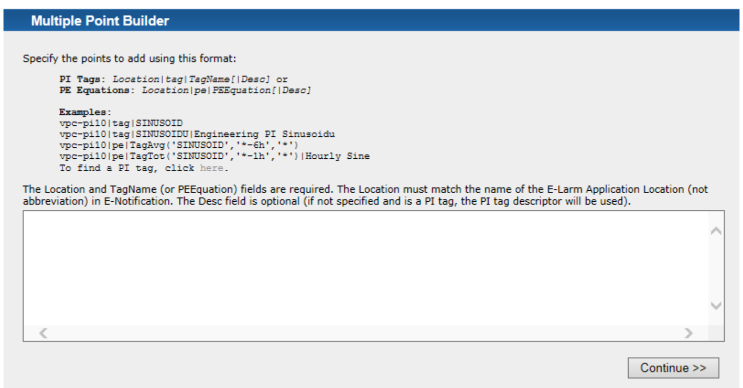
3.5 Setting up E-Reports

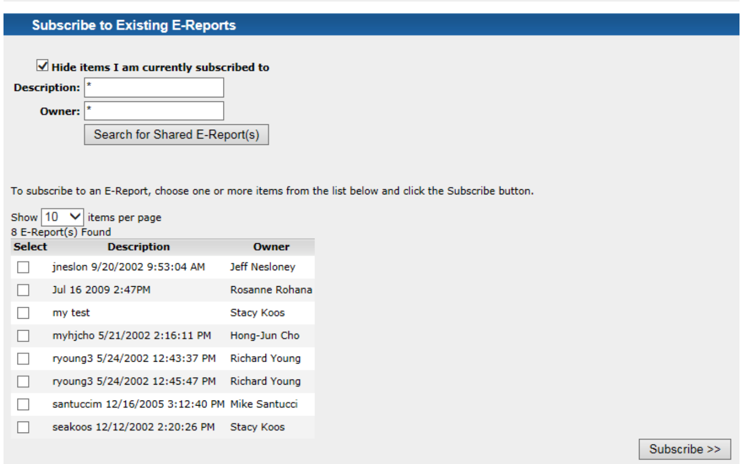
3.5.1 Adding an E-Report

Navigate to the Home Page and, optionally, to a specific Folder. In the E-Reports section, click the "Add/Edit" button. E-Reports will be created in the “System” folder unless a Folder is first selected. There are four available options for setting up E-Reports.


Add an E-Report Tag
Search for Points
Locations: vpc-pi10
Hold CTRL and click to select multiple locations.
All locations are selected by default.
Tag Mask: *
Descriptor: *
Eng. Unit: *
Data Type: Blob
Digital
Float16
All data types are selected by default.
Show Additional Search Attributes
Search for Points
Select Points
Show 10 items per page
Continue >>
Can't find a tag? Please contact one of the following administrators:
Christine Bacher (test2003)
John Wesp (test2003)
Michael Bliss (test2003)
System Administrator (vpc-pi10)
Christine Bacher (vpc-pi10)
Engineering Consultants (vpc-pi10)
John Wesp (vpc-pi10)
Michael Bliss (vpc-pi10)


PE Equation Builder
Examples of PE Equations:
TagAvg('SINUSOID','*-6h','*')
'sinusoid' + 'sinusoid'
TagVal('SINUSOID','*')
If 'SINUSOIDU' < 20 Then 1 Else 2
To find a PI tag, click here.
Location: vpc-pi10
Description:
Example Equation: StDev (SINUSOID , *-6h , *)
Actual Equation: StDev('SINUSOID','*-6h','*')
Value: Get Value
Continue >>


Multiple Point Builder
Specify the points to add using this format:
PI Tags: Location|tag|TagName[|Desc] or
PE Equations: Location|pe|PEEquation[|Desc]
Examples:
vpc-pi10|tag|SINUSOID
vpc-pi10|tag|SINUSOIDU|Engineering PI Sinusoidu
vpc-pi10|pe|TagAvg('SINUSOID','*-6h','*')
vpc-pi10|pe|TagTot('SINUSOID','*-1h','*')|Hourly Sine
To find a PI tag, click here.
The Location and TagName (or PEEquation) fields are required. The Location must match the name of the E-Larm Application Location (not abbreviation) in E-Notification. The Desc field is optional (if not specified and is a PI tag, the PI tag descriptor will be used).
Continue >>


Subscribe to Existing E-Reports
Hide items I am currently subscribed to
Description: *
Owner: *
Search for Shared E-Report(s)
To subscribe to an E-Report, choose one or more items from the list below and click the Subscribe button.
Show 10 items per page
8 E-Report(s) Found
Select Description Owner
jneslon 9/20/2002 9:53:04 AM Jeff Nesloney
Jul 16 2009 2:47PM Rosanne Rohana
my test Stacy Koos
myhjcho 5/21/2002 2:16:11 PM Hong-Jun Cho
ryoung3 5/24/2002 12:43:37 PM Richard Young
ryoung3 5/24/2002 12:45:47 PM Richard Young
santuccim 12/16/2005 3:12:40 PM Mike Santucci
seakoos 12/12/2002 2:20:26 PM Stacy Koos
Subscribe >>

Add a Point to a New E-Report

This menu allows the user to search for one or more PI tags. PI tags may be filtered by location, tag name, descriptor, engineering unit, data type, as well as several other advanced attributes. Text-based inputs are masks – that is the "*" character is a wildcard. For example, to find a PI tag containing "_MW_" somewhere in the name and "Total" somewhere in the PI tag description, simply enter "*_MW_*" for Tag Mask and "*Total*" for Descriptor. Click the "Search for Points" button to display the list of PI tags meeting the selected criteria. Select one or more PI tags from the results and click the "Continue" button. One E-Report will be created containing all selected PI tags.

Add a PE Equation to a New E-Report

This menu allows the user to create a new E-Report with its first item being a PE Equation. Users must specify the Location (E-Larm Application) against which the PE Equation should be evaluated. Make sure to specify a description for the PE Equation. Click the "Continue" button. One E-Report will be created using the method.

Add Multiple Points to a New E-Report

Use the Multiple Point Builder to quickly configure multiple points for an E-Report – including PI tags and PE Equations. Each line represents one PI Tag or PE Equation and should contain the Location Name, Tag or PE Equation, and optional Description. Click the "Continue" button to create an E-Report containing data for each line provided.

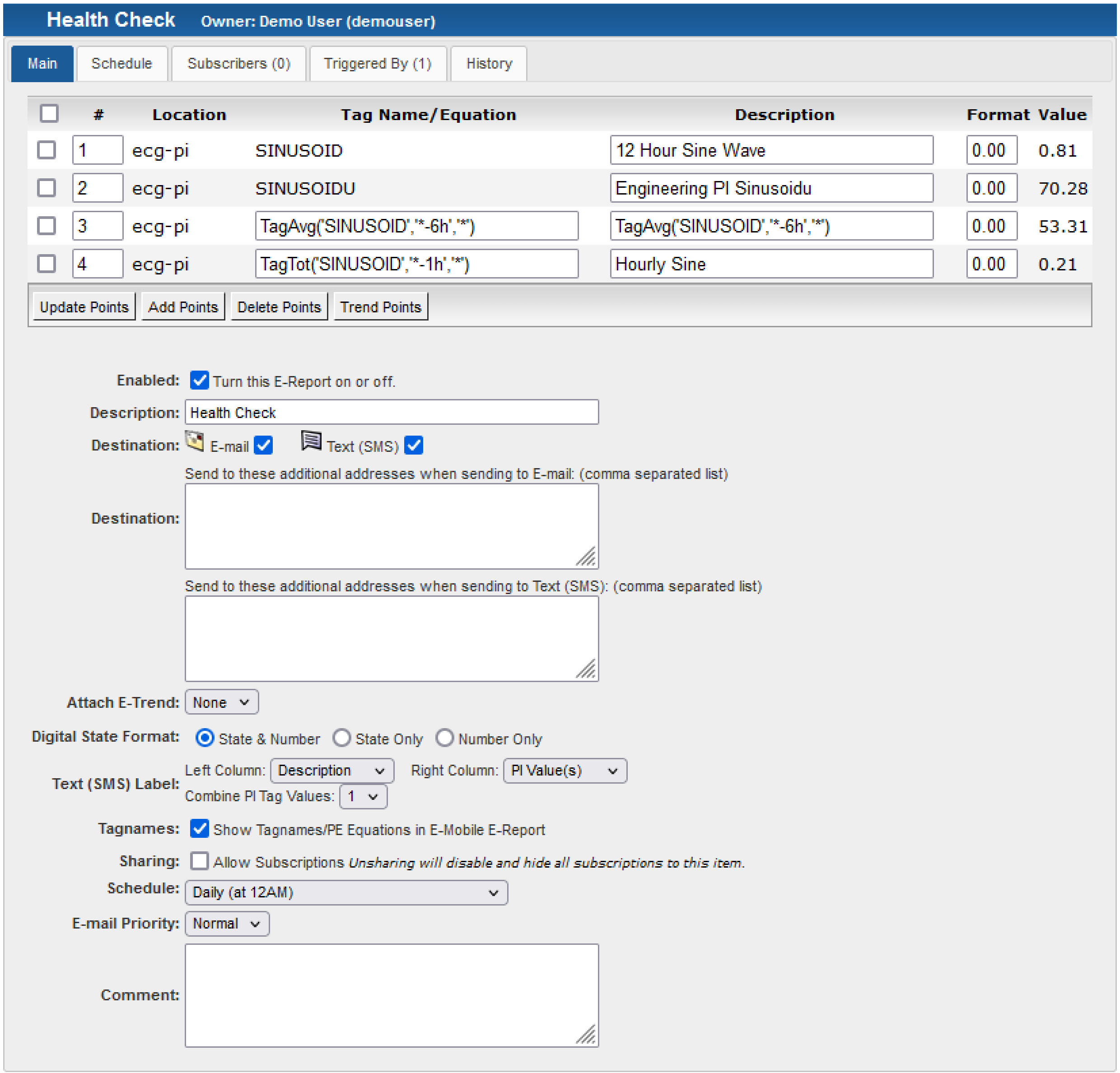
Subscribe to an Existing E-Report

Users may subscribe to existing E-Reports that have been shared by their owners. Use the search filter to search for specific subscriptions. The search can be filtered by Description only. Use the checkboxes on the left side of the results grid to select E-Reports to subscribe to and click the Subscribe button. This will create one E-Report subscription for each item selected. The results can be reordered by clicking on the column header names. Clicking the header name a second time will reverse the sort order. Using the dropdown above the grid will control how many results to show per page. Note that this option is not available unless there are shared E-Reports available.

3.5.2 Configure E-Report

If continuing from above, the Configure E-Report menu will now be shown. At this point, the E-Report has been created. E-Report settings default to the following: the E-Report is enabled, destination is set to e-mail, schedule is set to Daily, and description defaults to the user's username followed by the current date and time. The user should choose the settings desired and click the Save button.

This form allows users to edit one or more E-Reports. Clicking the Save button saves the settings. Clicking the Delete button will delete the E-Report(s) and all subscriptions.



Points Configuration

This form allows users to view and modify their E-Report points (PI tags and PE Equations). The form is displayed above the Configure E-Report form. Clicking the Update Points button will save all of the point ordering numbers, point descriptions and point formats. Clicking the Add Points button will bring the user to a form where he or she can either add points (PI tags) or add PE Equations. Clicking the Delete Points button (after selecting the desired point(s) by checking their respective checkboxes beside their descriptions) will remove the selected points (PI tags and PE Equations) from the E-Report. Clicking the Trend Points button will bring the user to a page displaying a trend of all selected (checked) points in the E-Report. Clicking the Values button will refresh the page with the current values for all points (PI tags and PE Equations).

The points (PI tags and PE Equations) are automatically sorted by Location (E-Larm Application). The user can choose how to order the points after being sorted by Location by filling in sequential numbers for each point (the input below the text "#" on the left of the menu). The Description input to the right of the Tag Name/Equation by default is the PI tag descriptor – or for PE Equations, the string the user specified when the PE Equation was added to the E-

Report. The checkbox to the left of the "#" input is used for deleting and trending points. The Format input to the right of the Description allows the user to set the numerical format for the point value – examples formats are: 0.00, 000.0, and 0.0000. This input is mainly used for setting the value's precision for individual points. If the value for the point is a string (such as for a digital tag), the specified format is not used.

E-Report Add Points

This page allows users the ability to add points (PI tags and/or PE Equations) to a new and/or existing E-Report. There are 3 options for adding points:

Add Multiple Points

This form allows users to manually add multiple points (PI tags and/or PE Equations) from multiple PI Systems quickly. Users must follow a specific format and fill in text for each point in a text box. For more information, refer to the 'Multiple Point Builder' section of this manual.

Add a Point

This form allows users to search for tags from multiple PI Systems. Users have various options for searching including search on the PI tag descriptor (by wildcard), tagname (by wildcard), engineering unit (by wildcard), data type (by dropdown list), and an option to order the PI tags returned by "most used" for monitoring in E-Notification.

Add a PE Equation

This form allows users to add a single PE Equation. Users are given a very simple form to help in specifying the PE Equation, but the user is strongly recommended to contact his or her PI Administrator to view documentation pertaining to PE Equations. For more information refer to the "PE Equation Builder" section of this manual.

Enabled

Near the top of the form is an option to choose to have the E-Report either On or Off (to the right of the text Enable). This allows a user to turn off the E-Report being edited without removing it. If the E-Report being edited is shared, this will only affect the current user's enabling/disabling of the E-Report

Description

This is a user-defined description of the PI tag or PE Equation.

Destination

The user may choose the destination of E-Report messages: E-mail, Text (SMS), or Both.

The user may also specify CC (carbon copy) e-mail addresses – which can be specified in the textbox below the text "Send to these additional addresses when sending to E-mail:". This setting is for each individual subscriber – what is set for the owner only applies to the owner's use of the E-Report (the same applies for any subscriber(s) of the E-Report).

Attach E-Trend

The user can choose to have an existing E-Trend "attached" to the E-Report message (only to e-mail). Simply select the name of the existing E-Trend from the dropdown list beside the text "Attach E-Trend" while configuring the E-Report and click Save for the change to take effect.

Digital State Format

When points included on the E-Report return a Digital State (vs. analog value), use this option to configure how the values appear with the notification. Options include State & Number, State Only, or Number Only.

Creating an E-Trend from an E-Report

While editing an E-Report, the user might wish to create an E-Trend of some or all of the points on the E-Report. To do this, check the desired points to trend and click the Trend Points button. Enter a desired description and modify the defaults as desired (Start Time defaults to "*-8h", End Time to "*", Auto Scale is checked, and Single Scale is selected). After configuring, click Save as E-Trend.

Text (SMS) Label

If the destination of the E-Report is set to Text (SMS), these inputs designate how the message will be built before it is sent to the user's Text (SMS). Each PI tag / PE Equation in an E-Report uses one line in the Text (SMS) – with a string on the left and a string on the right. The Left Column dropdown list allows the user to choose what will be presented on the left, and the Right Column dropdown list allows the user to choose what will be presented on the right.

Sharing

For groups of users that desire to use the same E-Report, the option of sharing E-Reports is available. If the E-Report is being created for the first time and the user creating it is a Complete Web Administrator, this user has the option to automatically subscribe other users to this E-Report when it is created. If the E-Report chosen is shared, the settings that are shared among subscribers and owner is the list of PI tags/PE Equations and the E-Report description. Individual users (subscribers and owner) are able to set the Format, Destination, Schedule, and E-mail Priority. If the E-Report is currently shared, the owner will not be able to delete the E-Report until the E-Report is un-shared. An option is available for subscribers to "duplicate" the E-Report so that the subscriber has a new E-Report created with the same information as the shared E-Report – but it is not shared (the subscription settings to the shared E-Report will be used for the new duplicate E-Report and the subscription will be removed).

Schedule

The user has a choice of several options for scheduling the E-Report including: No Schedule, Custom Schedule, and other pre-defined schedules. If the user chooses "Custom Schedule", the user must continue to the Schedule tab to configure the custom schedule.

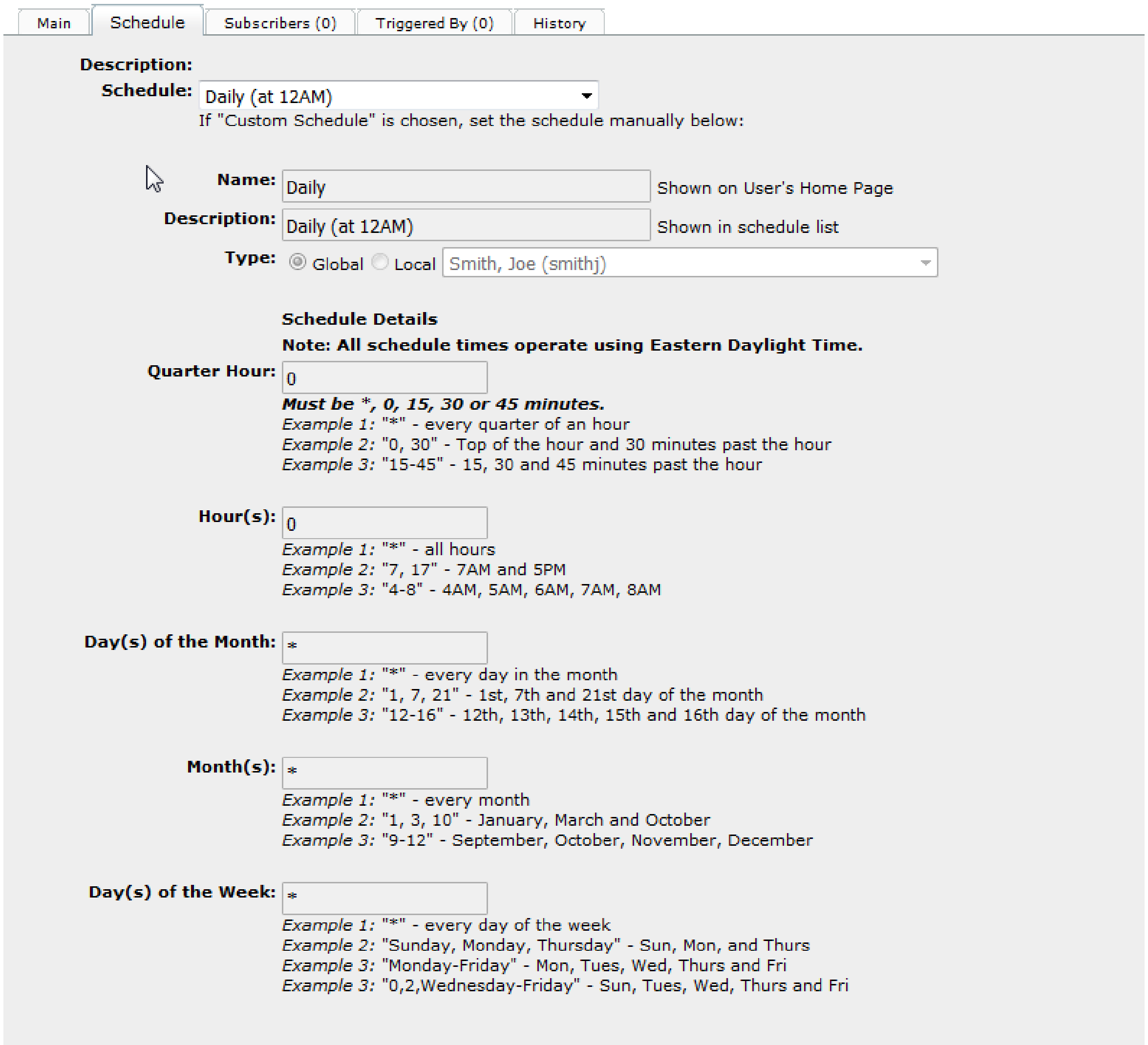
Email Priority

The user can choose the importance (priority) of the e-mail message when this item is sent as an e-mail message. The possible values are Normal (default), Low and High. Please note that some e-mail clients may display the e-mail priority/importance differently.

Comment

The user may include a comment to be appended to the E-Report when the item is sent.

Schedule Tab



The user can configure and schedule (from a list of pre-defined schedules) the E-Report on the Main tab, and set a custom schedule for the E-Report on the Schedule tab. For more information on configuring a custom schedule, refer to the "Schedule Configuration" section of this manual.

Subscribers Tab

This tab displays a list of all users who have subscribed to this item.

Triggered By Tab

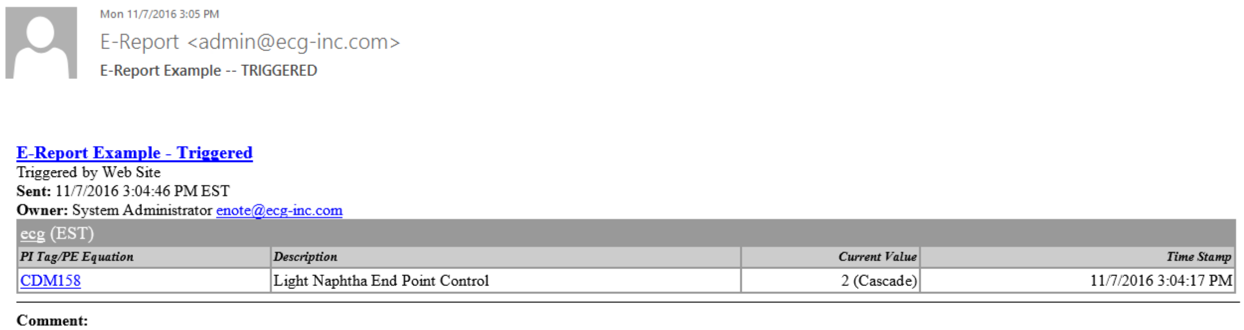
This tab includes a list of E-Larm and their owners that trigger the report in question.

History Tab

This tab includes the date and time of the last ten messages sent for this item. The date and time the item/subscription was created and last modified is also provided.

3.5.3 E-Report Example

This is an example of an E-Report. Reports include information relevant to the report tags including tag name/PE equation, description, the current value of the tag/PE equation, the owner of the report, the reason that the report was triggered, comments on the report, and hyperlinks to browse to the configured E-Report.



Mon 11/7/2016 3:05 PM

E-Report <admin@ecg-inc.com>

E-Report Example -- TRIGGERED

E-Report Example - Triggered

Triggered by Web Site

Sent: 11/7/2016 3:04:46 PM EST

Owner: System Administrator enote@ecg-inc.com

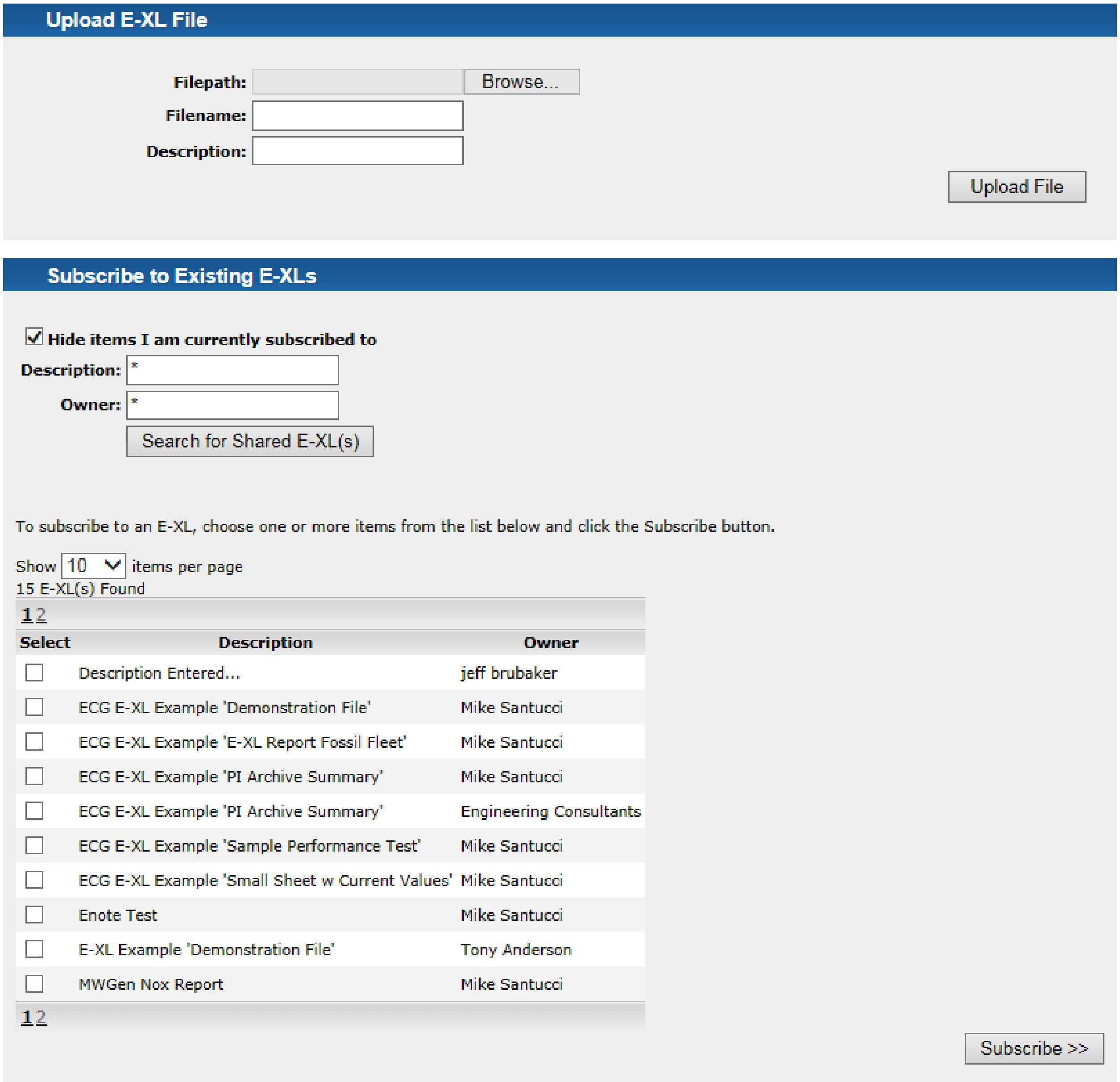
ecg (EST)			
PI Tag/PE Equation	*Description*	*Current Value*	*Time Stamp*
CDM158	Light Naphtha End Point Control	2 (Cascade)	11/7/2016 3:04:17 PM

Comment:

3.6 Setting up E-XLs

3.6.1 Adding an E-XL

Navigate to the Home Page and, optionally, to a specific Folder. In the E-XLs section, click the "Add/Edit" button. E-XLs will be created in the “System” folder unless a Folder is first selected.



Upload E-XL File

This section informs the user on how to create a new E-XL by uploading his or her own custom Excel file. Select a file by browsing to it. The filename input will be automatically completed and limited to eight (8) characters or less. The Filename can be changed, but cannot contain a file extension and must be eight (8) characters or less. For example, if the file is called "process.xls", the Filename input will be "process" and must not be changed to "process.xls". Give the E-XL an appropriate Description (limited to 255 characters, this will be displayed on the user's Home Page). Additionally, the maximum file size is 90MB. Click the "Upload File" button to create the new E-XL.

Subscribe to an Existing E-XL

Users may subscribe to existing E-XLs that have been shared by their owners. Use the search filter to search for specific subscriptions. The search can be filtered by Description only. Use the checkboxes on the left side of the results grid to select E-XLs to subscribe to and click the Subscribe button. This will create one E-XL subscription for each item selected. The results can be reordered by clicking on the column header names. Clicking the header name a second time will reverse the sort order. Using the dropdown above the grid will control how many results to show per page. Note that this option is not available unless there are shared E-XLs available.

3.6.2 Configure E-XL

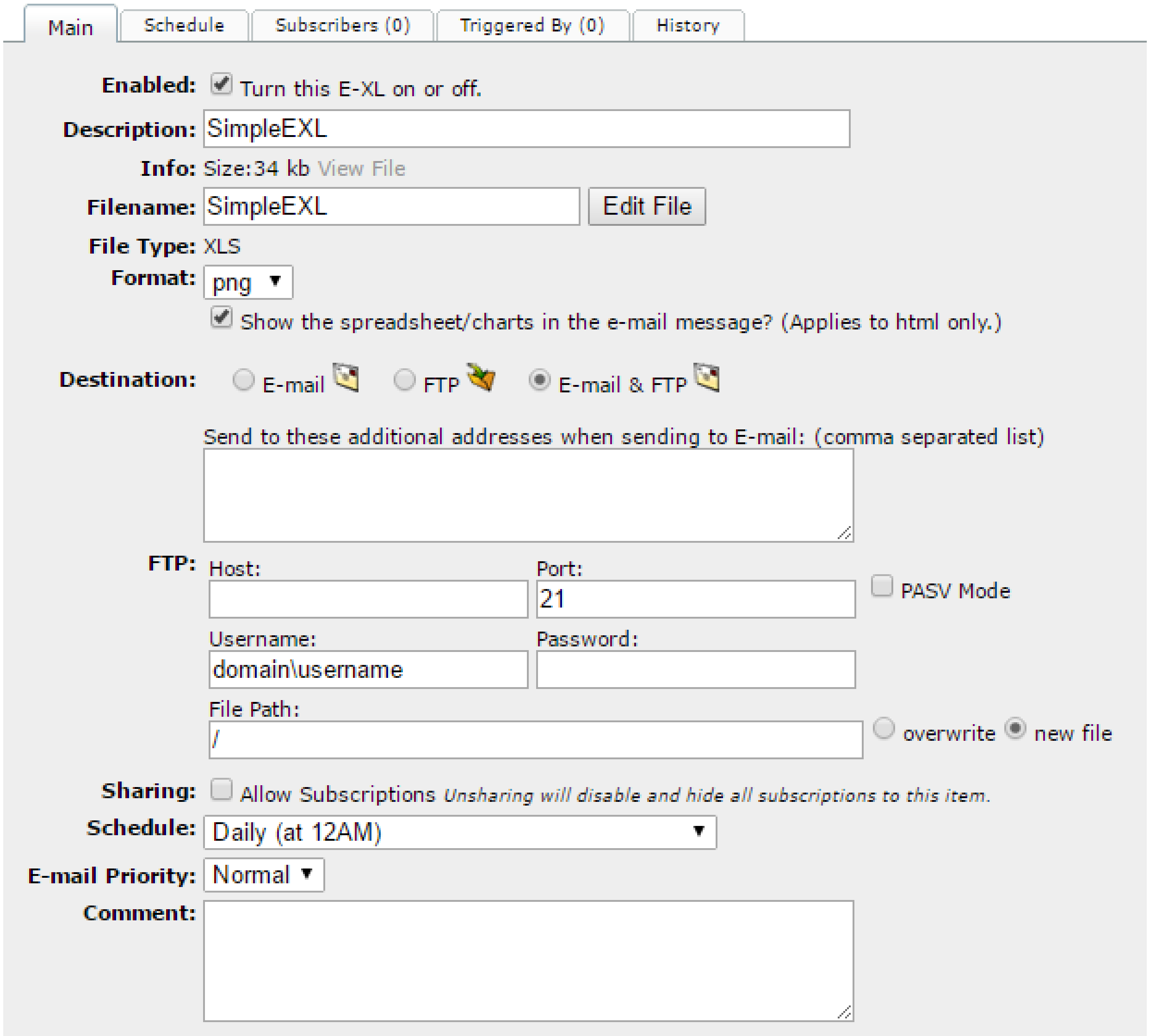
At this point the E-XL has already been created. If the user decides not to keep this E-XL then click the Delete button. Note that this form will substantially differ based on the type of E-XL being created. E-XL settings default to the following: the E-XL is enabled, destination is set to e-mail, and the schedule is set to Daily. The user should choose the desired settings and click the Save button.

This form allows users to edit their E-XL(s). Clicking the Save button will save the settings for the E-XL. Clicking the Delete button will delete the E-XL and all subscriptions (only available on the Configure tab when the E-XL is not shared).

Above the Menu

At the top of the form is an indication of who the E-XL owner is. .Also there is a Run Now button to trigger this item.

Main Tab



Enabled

A user (owner or subscriber) can choose to enable or disable an E-XL. If the E-XL is shared and the owner disables it, this will only affect the owner's use of the E-XL and not the subscribers'.

Description

The owner of an E-XL can edit the description of the E-XL. If the E-XL is configured to be sent to e-mail then the Description will used as the subject of the e-mail. Subscribers cannot edit the Description.

Info

This displays the size of the uploaded file. Next to the size, click the View File link to view a sample file containing output from the last time the E-XL was processed.

Filename

The owner of an E-XL can edit the Filename of the E-XL. The Filename must be eight (8) characters or less. The extension is not necessary. Subscribers cannot edit the Filename.

File Type

This indicator shows the file extension for the item.

Format

When E-XL processes an E-XL, the user can choose in which format E-XL will save the spreadsheet. The options are: xls (Microsoft Excel spreadsheet format), xlsx, xlsm, html (Hyper Text Markup Language), csv (comma-separated values), png (the Portable Networks Graphics image format), and jpg (the Joint Photographic Experts Group image format). HTML and XLS will keep formatting such as font settings, cell background colors, etc. while CSV will not. Image formats (png and jpg) will preserve the look of the files as a screenshot. If charts and/or images are setup in the spreadsheet, when it is e-mailed or Ftp'd, those pictures will also be sent. If XLS is chosen, the pictures are not actually necessary as they are contained in the XLS file. A checkbox below the Format dropdown list and beside the text "Show the spreadsheet/charts in the e-mail message? (Applies to html only.)" allows the user to choose if the spreadsheet and its pictures (if any) should be displayed as part of the e-mail message. Note that this option only works if the format chosen is HTML, the destination chosen is "E-mail" or "E-mail & FTP", and the user's e-mail client supports RFC 2110 (a MIME E-mail Encapsulation of Aggregate Documents) such as Microsoft Outlook (if the user's e-mail client does not support RFC 2110, the picture(s) will be appended as attachment(s)). Only the xls, xlsx, and xlsm format processes all worksheets within a workbook. The remaining formats process only the active worksheet of the Excel workbooks.

Destination

The user may choose the destination of E-XL messages: E-mail, FTP, or E-mail & FTP. If the user has SMS/MMS configured in the "Edit / My User Info" page then this option spears as another destination option.

The user may also specify CC (carbon-copy) e-mail addresses, which can be specified in the textbox below the text "Send to these additional addresses when sending to E-mail:".

FTP Functionality

If the Destination includes FTP, a set of inputs below the destination options will appear. The user should specify the FTP Host, Port (usually 21), Username ("anonymous" is recommended), Password (if "anonymous" is used for the user name, it is recommended to use the user's e-mail address as password), and File Path (if it is not known, use "/") is used for connecting. Check the checkbox beside "PASV mode" if the user wants to communicate with the FTP host in passive mode. The radio buttons beside "overwrite" and "new file" allow the user to specify if the E-XL output file should be overwritten every time, or should be saved as a new file every time.

Sharing

For groups of users that desire to use the same E-XL, the option of sharing E-XLs is available. If the E-XL chosen is shared, the only setting that is shared among the subscribers and the owner is the Excel file uploaded. If the E-XL is being created for the first time and the user creating it is a Complete Web Administrator, this user has the option to automatically subscribe other users to this E-XL when it is created. Individual users (subscribers and owner) are able to set the Format, Destination, Schedule, and E-mail Priority. An option is available for subscribers to "duplicate" the E-XL so that the subscriber has a new E-XL created with the same information as the shared E-XL – but it is not shared (the subscription settings to the shared E-XL will be used for the new duplicate E-XL and the subscription will be removed).

Schedule

The user has a choice of several options for scheduling the E-XL including: No Schedule, Custom Schedule, and other pre-defined schedules. If the user chooses "Custom Schedule", the user must continue to the Schedule tab to configure the custom schedule.

E-mail Priority

The user can choose the importance (priority) of the e-mail message when this item is sent as an e-mail message. The possible values are Normal (default), Low and High. Please note that some e-mail clients may display the e-mail priority/importance differently.

Comment

The user may include a comment to be appended to the E-XL when the item is sent.

Schedule Tab

The user can configure and schedule (from a list of pre-defined schedules) the E-XL on the Main tab, and set a custom schedule for the E-XL on the Schedule tab. For more information regarding configuring a custom schedule, refer to the "Schedule Configuration" section of this manual.

Subscribers Tab

This tab displays a list of all users who have subscribed to this item.

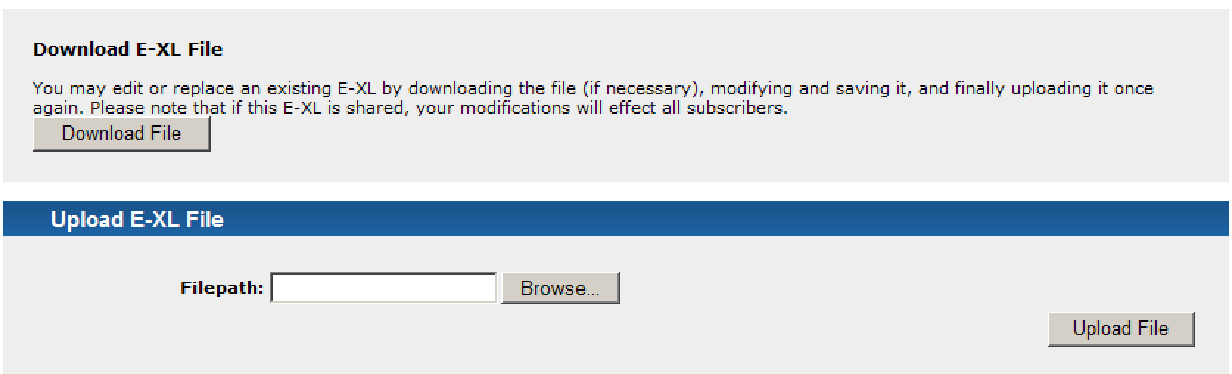
Triggered By Tab

This tab includes a list of E-Larms and their owners that trigger the report in question.

History Tab

This tab includes the date and time of the last ten messages sent for this item. The date and time the item/subscription was created and last modified is also provided.

3.6.3 Editing the E-XL File



To edit the actual E-XL file itself, click the Edit File button on the Configure E-XLs page. This form allows users to download and possibly upload a new Excel file to an existing E-XL.

Download E-XL File

Clicking the Download File button will open a window asking what to do with the file the user requested. The filename may appear different from what is expected – just make sure the file extension is xls when saving it. After it is downloaded/opened, the file may be modified as necessary.

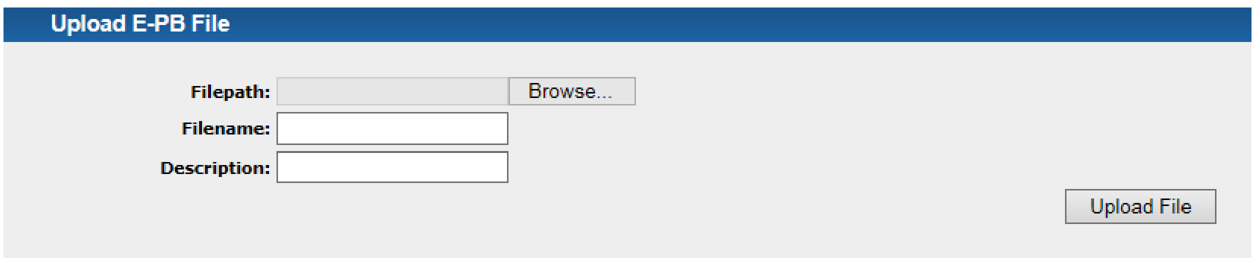
Upload E-XL File

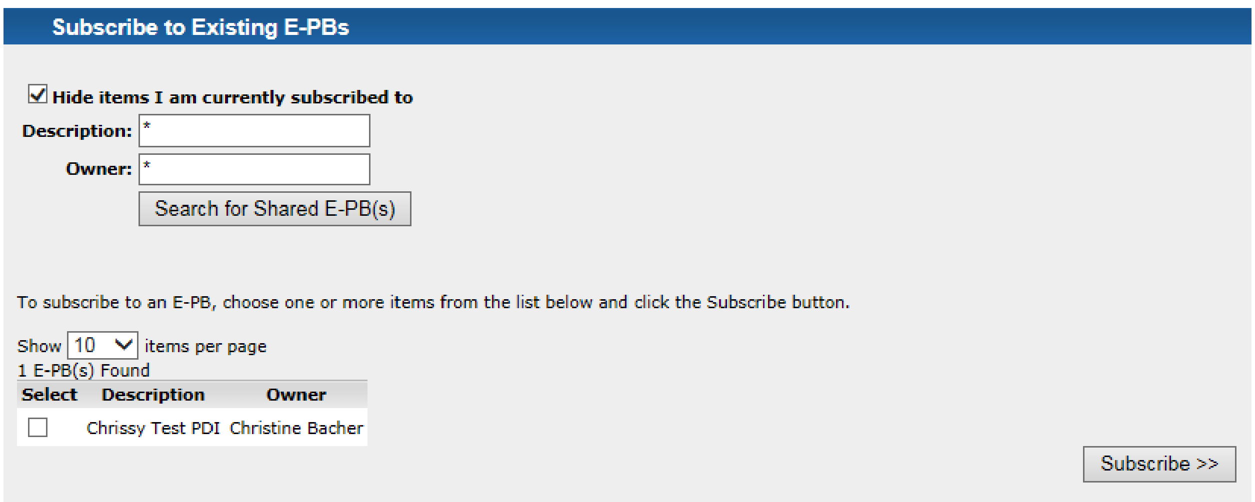
If after downloading/opening the Excel file the user wants to upload it (after saving), it is recommended to save the Excel file locally. Next click the Browse button. A window will appear which will allow navigation through the file structure of the local computer. The user should select the Excel file to upload then click Upload File. It will be stored to the E-XL, and the user will be redirected back to the Configure E-XL form.

3.7 Setting up E-PBs

3.7.1 Adding an E-PB

Navigate to the Home page and, optionally, to a specific Folder. In the E-PBs section, click the "Add/Edit" button. E-PBs will be created in the "System" folder unless a Folder is first selected. There are two available options for Setting up E-PBs.





Upload E-PB File

This menu allows the user to create a new E-PB. Select a file by browsing to it (click the Browse button to traverse the file structure on the local computer). The Filename input will be automatically completed and limited to eight characters. The Filename can be modified, but must not contain the file extension. For example, if the file is called "process.pdi", the Filename will be listed as "process" and must not be changed to "process.pdi". Additionally, the maximum file size is 90MB. Click the "Upload File" button to create a new E-PB.

Subscribe to an Existing E-PB

Users may subscribe to existing E-PBs that have been shared by their owners. Use the search filter to search for specific subscriptions. The search can be filtered by Description only. Use the checkboxes on the left side of the results grid to select E-PBs to subscribe to and click the Subscribe button. This will create one E-PB subscription for each item selected. The results can be reordered by clicking on the column header names. Clicking the header name a second time will reverse the sort order. Using the dropdown above the grid will control how many results to show per page. Note that this option is not available unless there are shared E-PBs available.

3.7.2 Configure E-PB

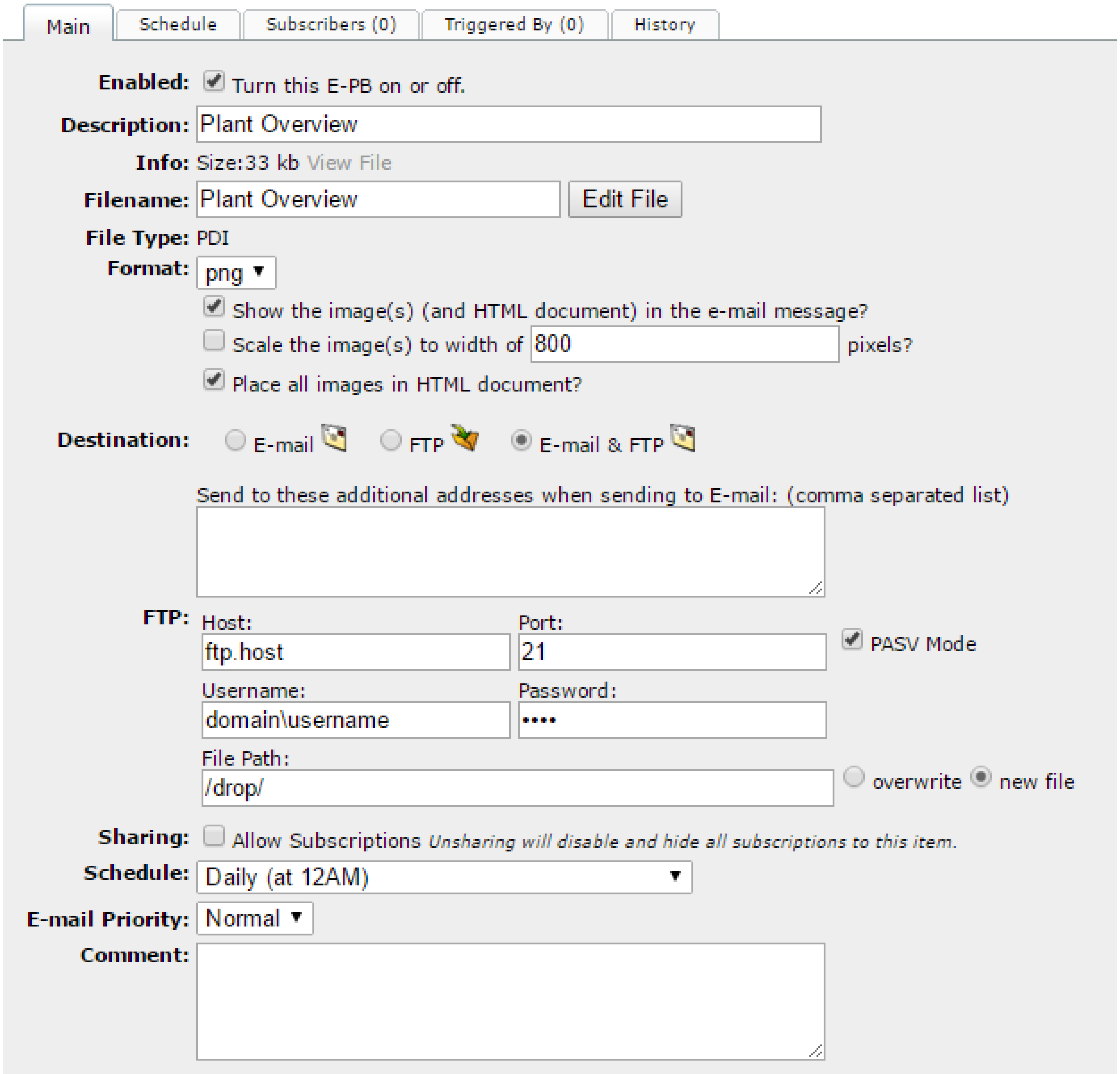
At this point the E-PB has already been created. If the user decides to not keep this E-PB then click the Delete button. Note that this form will substantially differ based on the type of E-PB file being created. E-PB settings default to the following: the E-PB is enabled, destination is set to e-mail, and the schedule is set to Daily. The user should choose the desired settings and click the Save button.

This form allows users to edit their E-PB(s). More than one E-PB may be edited at once. Clicking the Save button will save the settings for the E-PB. Clicking the Delete button will delete the E-PB and all subscriptions (only available on the Configure tab when the E-PB is not shared).

Above the Menu

At the top of the form is an indication of who the E-PB owner is. Also there is a Run Now button to trigger this item.

Main Tab



Enabled

A user (owner or subscriber) can choose to enable or disable an E-PB. If the E-PB is shared and the owner disables it, this will only affect the owner's use of the E-PB and not the subscribers'.

Description

The owner of an E-PB can edit the description of the E-PB. If the E-PB is configured to be sent to e-mail then the Description will become the subject of the e-mail. Subscribers cannot edit the Description.

Info

This displays the size of the uploaded file. Next to the size, click the View File link to view a sample file containing output from the last time the E-PB was processed.

Filename

The owner of an E-PB can edit the Filename of the E-PB. The Filename must be eight (8) characters or less. The extension is not necessary. This Filename (plus '.pdi' or '.piw') will be used if and when the owner downloads the file. Subscribers cannot edit the Filename.

File Type

Two file types can be used to generate an E-PB. The first is a display file saved as a ProcessBook Display and has a file extension of PDI. The second is a ProcessBook Workbook file that contains the desired display(s) inside and has a file extension of PIW. For workbook files, a display entry name (read below "PIW Displays") must also be given to reference the display inside the workbook file.

PIW Displays

The user can specify multiple Display entries inside the ProcessBook Workbook file that E-PB will save. If all Display entries are desired, use "*". Otherwise, specify the desired Display entries separated by commas.

Format

The output type of E-PB is configurable and includes png (the Portable Network Graphics image format), jpg (the Joint Photographic Experts Group image format), and pdi (OSIsoft's ProcessBook Display format). When it is e-mailed or FTP'd, the image file(s) will be sent. A checkbox below the Format dropdown list and beside the text "Show the image(s) (and HTML document) in the e-mail message?" allows the user to choose if the image(s) should be displayed as part of the e-mail message. Note that this option only works if the format chosen is displayed automatically by the end user's e-mail client, the destination chosen is "E-mail" or "E-mail & FTP", and the user's e-mail client supports RFC 2110 (a MIME E-mail Encapsulation of Aggregate Documents) such as Microsoft Outlook (if the user's e-mail client does not support RFC 2110, the picture(s) will be appended as attachment(s)).

Destination

The user may choose the destination of E-PB messages: E-mail, FTP, or E-mail & FTP. If the user has a SMS/MMS configured in the "Edit / My User Info" page then this option appears as another destination option. For more information regarding FTP functionality, refer to the following section.

The user may also specify CC (carbon copy) e-mail addresses, which can be specified in the textbox below the text "Send to these additional addresses when sending to Email.

FTP Functionality

If the Destination includes FTP, a set of inputs below the destination options will appear. The user should specify the FTP Host, Port (usually 21), Username ("anonymous" is recommended), Password (if "anonymous" is used for the user name, it is recommended to use the user's e-mail address as password), and File Path (if it is not known, use "/") is used for connecting. Check the checkbox beside "Use Proxy" if the FTP host is behind a proxy. Check the checkbox beside "PASV mode" if the user wants to communicate with the FTP host in passive mode. The radio buttons beside "overwrite" and "new file" allow the user to specify if the E-PB output file should be overwritten every time, or should be saved as a new file every time.

Sharing

The option of sharing E-PBs is available for groups of users that desire to use the same E-PB. If the E-PB chosen is shared then the settings that are shared among subscribers and owner is only the PDI/PIW file uploaded. If the E-PB is being created for the first time and the user creating it is a Complete Web Administrator, this user has the option to select multiple users and automatically subscribe them to this E-PB when it is created. Individual users (subscribers and owner) are able to set the Format, Destination, Schedule, and E-mail Priority. An option is available for subscribers to "duplicate" the E-PB so that the subscriber has a new E-PB created with the same information as the shared E-PB – but the duplicate E-PB is not shared (the subscription settings to the shared E-PB will be used for the new duplicate E-PB and the subscription will be removed).

Schedule

The user has a choice of several options for scheduling the E-PB including: No Schedule, Custom Schedule, and other pre-defined schedules. If the user chooses "Custom Schedule", the user must select the Schedule tab to configure the Custom Schedule.

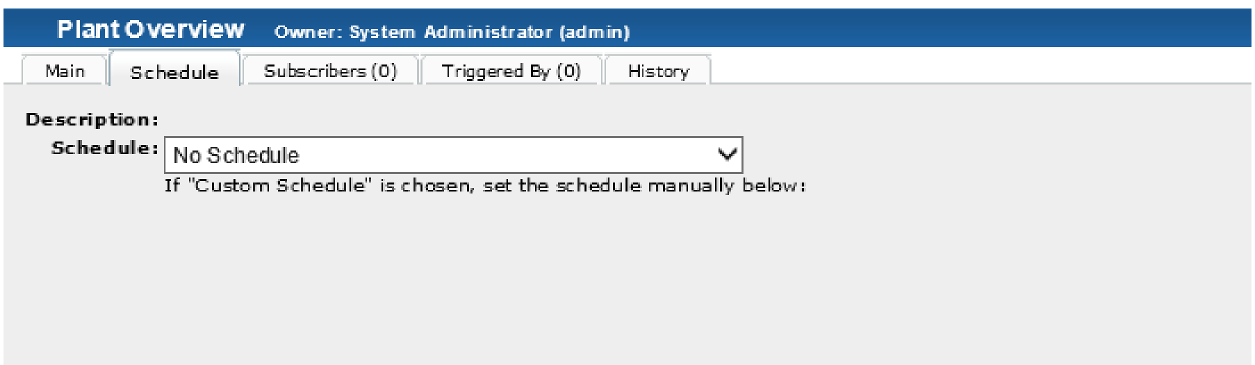
E-mail Priority

The user can choose the importance (priority) of the e-mail message when this item is sent as an e-mail message. The possible values are Normal (default), Low and High. Please note that some e-mail clients may display the e-mail priority/importance differently.

Comment

The user may include a comment to be appended to the E-PB when the item is sent.

Schedule Tab



The user can configure and schedule (from a list of pre-defined schedules) the E-PB on the Main tab, and set a custom schedule for the E-PB on the Schedule tab. For more information regarding configuring a custom schedule, refer to the "Schedule Configuration" section of this manual.

Subscribers Tab

This tab displays a list of all users who have subscribed to this item.

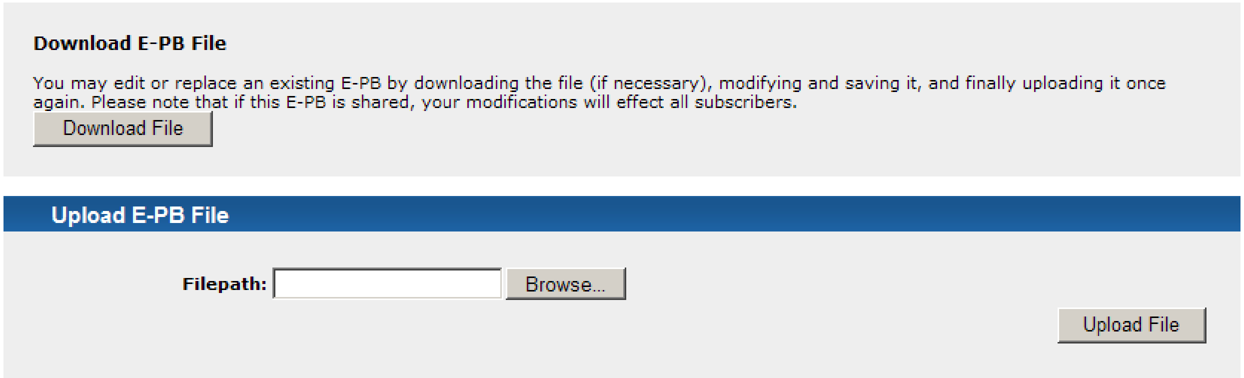
Triggered By Tab

This tab includes a list of E-Larms and their owners that trigger the report in question.

History Tab

This tab includes the date and time of the last ten messages sent for this item. The date and time the item/subscription was created and last modified is also provided.

3.7.3 Editing the E-PB File



To edit the actual E-PB file itself, click the Edit File button on the Configure E-PBs page. This form allows users to download and possibly upload a new file to an existing E-PB.

Download E-PB File

Clicking the Download File button will open a window asking what to do with the file the user requested. The filename may appear different from what is expected – just make sure the file extension is pdi or piw when saving it. After it is downloaded/opened, the file may be modified as necessary.

Upload E-PB File

If after downloading/opening the ProcessBook file the user wants to upload it (after saving), it is recommended to save the ProcessBook file locally. Next click the Browse button. A window will appear which will allow navigation through the file structure of the local computer. The user should select the ProcessBook file to upload then click Upload File. It will be stored to the E-PB, and the user will be redirected back to the Configure E-PB form.

3.8 Setting up E-Trends

3.8.1 Adding an E-Trend

Navigate to the Home page and, optionally, to a specific Folder. In the E-Trends section, click the "Add/Edit" button. E-Trends will be created in the "System" folder unless a Folder is first selected.

3.8.2 Add Points to E-Trend

This page allows users to add points (PI tags and/or PE Equations) to a new/existing E-Trend. There are four options for adding points.

Add an E-Trend Tag

Search for Points

Locations: vpc-pi10

Hold CTRL and click to select multiple locations.

All locations are selected by default.

Tag Mask: *

Descriptor: *

Eng. Unit: *

Data Type: Blob / Digital / Float16

All data types are selected by default.

Show Additional Search Attributes

Search for Points

Select Points

Show 10 items per page

Continue >>

Can't find a tag? Please contact one of the following administrators:

- *Christine Bacher (test2003)*
- *John Wesp (test2003)*
- *Michael Bliss (test2003)*
- *System Administrator (vpc-pi10)*
- *Christine Bacher (vpc-pi10)*
- *Engineering Consultants (vpc-pi10)*
- *John Wesp (vpc-pi10)*
- *Michael Bliss (vpc-pi10)*

PE Equation Builder

Examples of PE Equations:

```
TagAvg('SINUSOID','*-6h','*')
'sinusoid' + 'sinusoid'
TagVal('SINUSOID','*')
If 'SINUSOIDU' < 20 Then 1 Else 2
```

To find a PI tag, click here.

Location: vpc-pi10

Description:

Example Equation: StDev (SINUSOID, *-6h, *)

Actual Equation: StDev('SINUSOID','*-6h','*')

Value: Get Value

Continue >>

Multiple Point Builder

Specify the points to add using this format:

```
PI Tags: Location|tag|TagName[|Desc] or
PE Equations: Location|pe|PEEquation[|Desc]

Examples:
vpc-pi10|tag|SINUSOID
vpc-pi10|tag|SINUSOIDU|Engineering PI Sinusoidu
vpc-pi10|pe|TagAvg('SINUSOID','*-6h','*')
vpc-pi10|pe|TagTot('SINUSOID','*-1h','*')|Hourly Sine
To find a PI tag, click here.
```

The Location and TagName (or PEEquation) fields are required. The Location must match the name of the E-Larm Application Location (not abbreviation) in E-Notification. The Desc field is optional (if not specified and is a PI tag, the PI tag descriptor will be used).

Continue >>

Subscribe to Existing E-Trends

Hide items I am currently subscribed to

Description: *

Owner: *

Search for Shared E-Trend(s)

To subscribe to an E-Trend, choose one or more items from the list below and click the Subscribe button.

Show 10 items per page

18 E-Trend(s) Found

1 2

Select	Description	Owner
☐	10 am on the first friday of the month	Mike Santucci
☐	brubakerj 1/3/2005 3:03:31 PM	jeff brubaker
☐	caesarm 10/14/2002 4:34:37 PM	matt caesar
☐	caesarm 10/18/2002 9:48:23 AM	matt caesar
☐	caesarm 10/18/2002 9:49:45 AM	matt caesar
☐	caesarm 10/18/2002 9:50:41 AM	matt caesar
☐	Desk Chriscaesarm 10/21/2002 3:08:51 PM	matt caesar
☐	my test report	Mike Santucci
☐	rohanar 4/1/2008 9:40:35 AM	Rosanne Rohana
☐	santuccim 12/12/2002 2:20:26 PM	Mike Santucci

1 2

Subscribe >>

Add Tags

Using the standard Tag Search interface (see the Tag Search section of this manual), users may add one or more PI tags to an E-Trend.

Add a PE Equation

This form allows users to add a single PE Equation. Users are given a very simple form to help in specifying the PE Equation, but the user is strongly recommended to contact his or her PI Administrator to view documentation pertaining to PE Equations. Refer to the "PE Equation Builder" section of this manual for more information.

Multiple Point Builder

This form allows users to add multiple points (PI tags and/or PE Equations) from multiple PI Systems quickly. Users must follow a specific format and fill in text for each point in a text box.

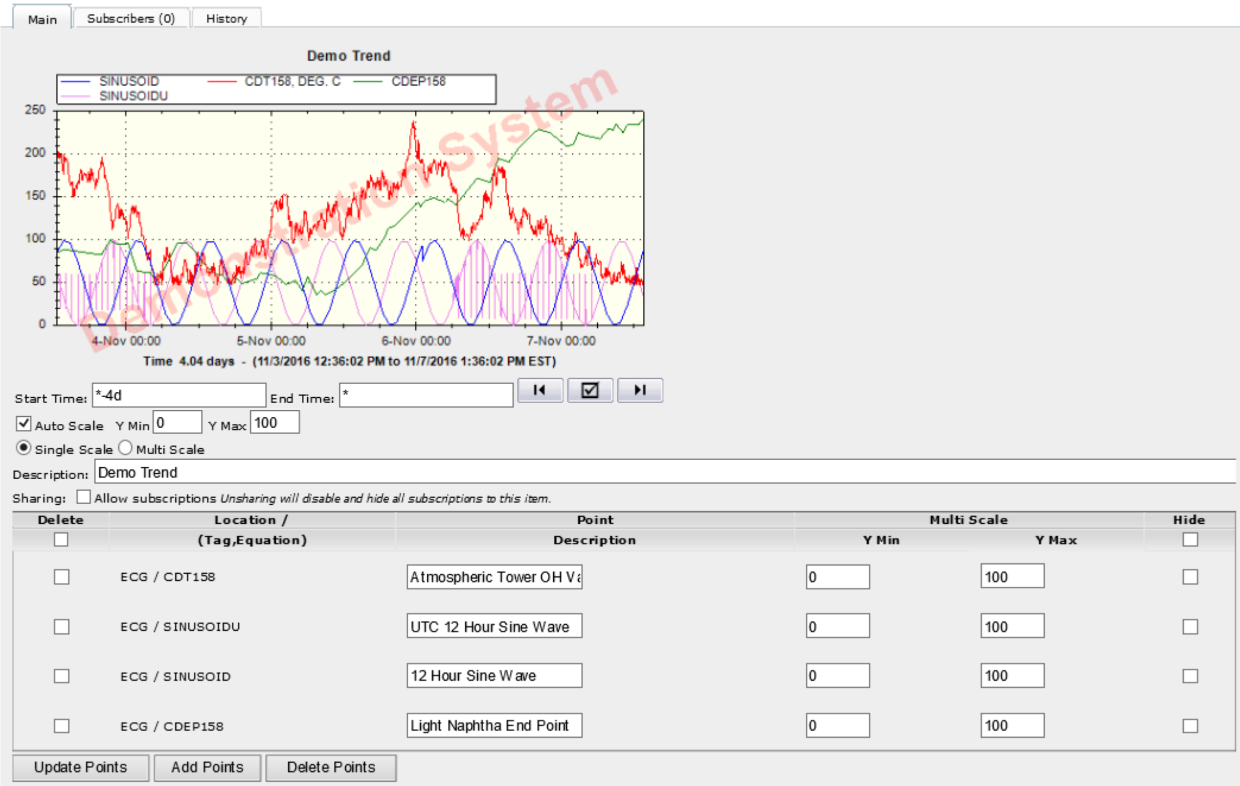
Subscribe to an Existing E-Trend

Users may subscribe to existing E-Trends that have been shared by their owners. Use the search filter to search for specific subscriptions. The search can be filtered by Description only. Use the checkboxes on the left side of the results grid to select E-Trends to subscribe to and click the Subscribe button. This will create one E-Trend subscription for each item selected. The results can be reordered by clicking on the column header names. Clicking the header name a second time will reverse the sort order. Using the dropdown above the grid will control how many results to show per page. Note that this option is not available unless there are shared E-Trends available.

3.8.3 Configure E-Trend

This form allows users to view their E-Trend and navigate forward and backward in time.
A legend is provided to distinguish each PI tag on the E-Trend. Click the Save button to save the settings for the E-Trend. Click the Delete button to delete the E-Trend (and all subscriptions). The E-Trend must be un-shared for it to have the option of being deleted.

Main Tab



E-Trend Point Configuration

This form allows users to view and modify their E-Trend points (PI tags and/or PE Equations). Clicking the Update Points button will save all of the point information. Clicking the Add Points button will bring the user to a form where he or she can either add PI tags or PE Equations. Clicking the Delete Points (after selecting the desired points by checking the respective checkboxes to the left of their descriptions) will delete the points (PI tags and/or PE Equations) selected.

The points (PI tags and/or PE Equations) are automatically sorted by location (E-Larm Application short name). The Point Description input to the right of the tag name or PE Equation by default is the PI tag descriptor, or for PE Equations, the string the user specified when the PE Equation was added to the E-Trend. The checkbox to the left of the "Location / (Tag, Equation)" input is used for deleting points. A Y Min and Y Max can be configured for each point (PI tag and/or PE Equation). These settings will only apply when the Multi Scale option is selected.

Sharing

The option of sharing E-Trends is available for groups of users that desire to use the same E-Trend. An option is available for subscribers to "duplicate" the E-Trend, so that the subscriber has a new E-Trend created with the same information as the shared E-Trend, but the duplicate E-Trend is not shared (the subscription settings to the shared E-Trend will be used for the new duplicate E-Trend and the subscription will be removed).

Start Time and End Time

The owner can set the Start Time (in PI format) and End Time (in PI format) that the E-Trend will use when being displayed.

Scale

The owner can set which scale the E-Trend should use when displaying all of its points (Single Scale or Multi Scale).

Auto Scale

Display all of the points on the same scale, and ensure that all points' values will be displayed. This option is helpful if some and/or all of the points in the E-Trend may radically change value.

Single Scale

This displays all of the points on one scale with the scale's minimum and maximum set by the user in the Y Min and Y Max input (above where the user sets the Scale) unless Auto Scale is checked which overrides the Y Min and Y Max. This option is useful when the points for the E-Trend continue at the same value for long periods of time and the user can easily identify all of the points. By default, this option is selected.

Multi Scale

This displays all of the points in independent scales, with each scale's minimum and maximum set by the user. The E-Trend may seem to be too "busy" if all of the values change very regularly between their respective Y Mins and YMaxes. This option is useful if some of the points' values are several magnitudes smaller than other points' values. The Y Min and Y Max for each point can be configured in the E-Trend Point Configuration form.

Y Min and Y Max

The owner can set the global minimum and maximum Y scale values that the E-Trend will use ONLY when the Scale is set to "Single Scale".

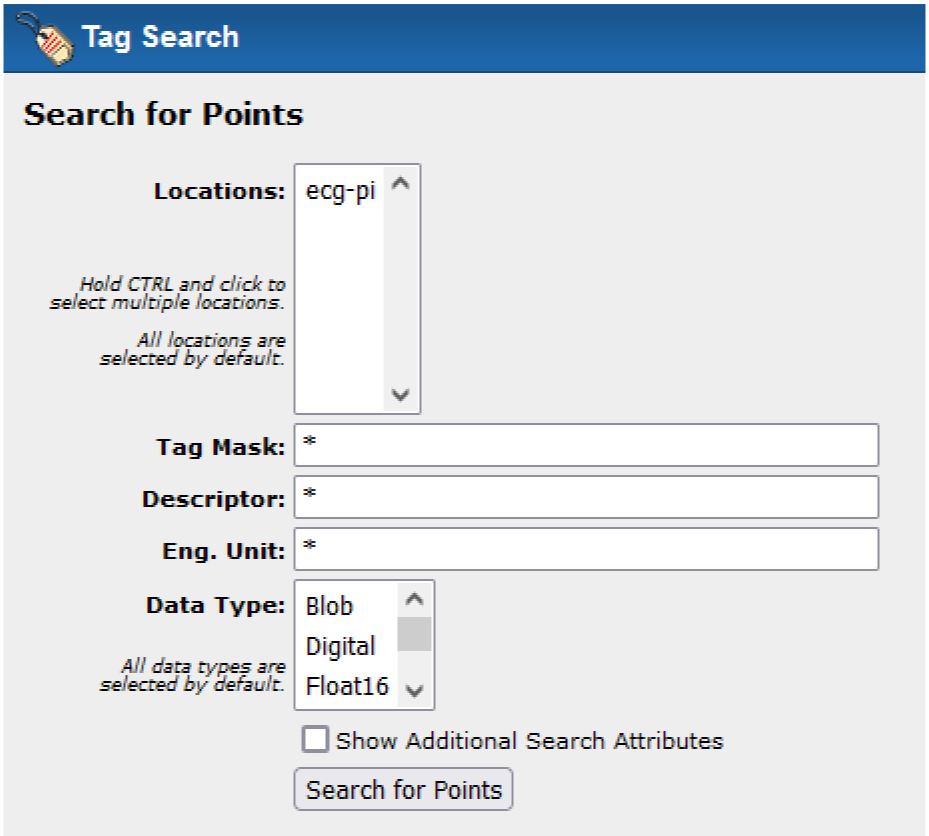
Subscribers Tab

Displays a list of users subscribed to this item.

History Tab

The date and time the item/subscription was created and last modified is provided.

3.9 Tag Search



This dialog allows the user to find and select PI tags by specifying search criteria. The Tag Search dialog is available to use independently and is found under the Tools menu. It is also available when configuring E-Larms, E-Reports, and E-Trends.

The user must choose at least one Location (to choose multiple, hold down the Ctrl key and click the different available Locations). All locations are selected by default. The remaining fields are not required but may be useful is locating the desired PI tag(s). One or more Data Types may be selected. All data types are selected by default. All other inputs are considered masks and honor the wildcard character "*".

For example: "*" represents any string. "*A" represents all records ending with an "A" (case-insensitive). "A*" represents all records starting with an "A" (case-insensitive).
"*A*" represents all records that contain the character "A" (case-insensitive). Any string can be used to replace "A" in the above examples.

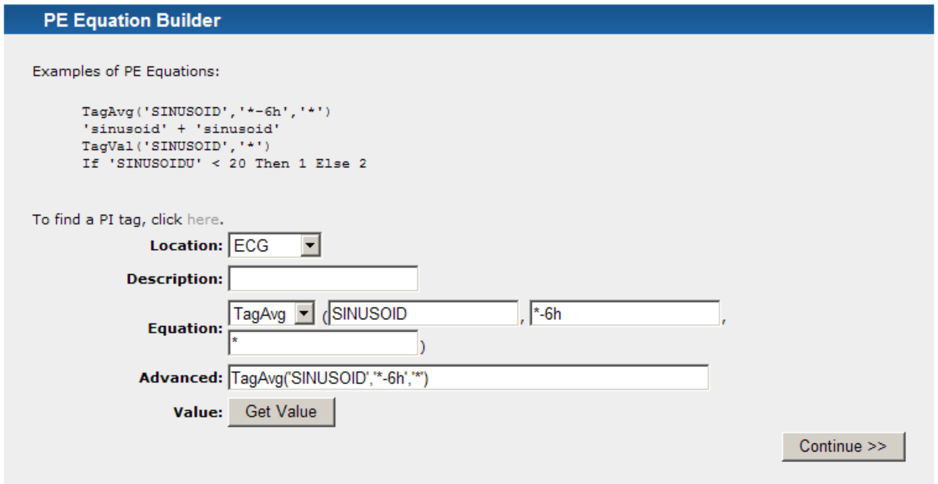
Select the checkbox next to "Show Additional Search Attributes" to search for and view additional PI tag attributes such as Point Source and Typical Value.

Click the "Search for Points" button to retrieve results based on the specified search criteria. Sort the results by clicking the header of any column. Click the header again to reverse the sort order.

When configuring E-Larms, E-Reports, or E-Trends, the results will include a checkbox for each item returned. Select at least one checkbox and click the Continue button.

If the user does not find the PI tag(s) desired, change the search criteria and click the "Search for Points" button again. If the desired PI tag does not exist, contact a PI Administrator for the Location (E-Larm Application/PI System) in question. Administrators listed below the search results with links to send e-mails to them.

3.10 PE Equation Builder



This page presents a user-friendly method of creating common types of PE Equations.
The user must choose a location (E-Larm Application/PI System) on which the PE Equation will evaluate. The Description will be the text description used for E-Larm, E-Report, or E-Trend similar to the PI tag description that is by default for the PI tag descriptor field.

The Equation inputs allows the user to choose from a short list of PE Equation functions, manually specify the PI tagname, start time, and end time. When the user makes any changes to these inputs, the Advanced input – the actual PE Equation – is automatically updated to reflect the changes. Alternatively, the user can manually specify the PE Equation in the Advanced input.

Click the Get Value button to test the PE Equation. The result is displayed next to the button. An error message will appear instead of the value if, for any reason, the PE Equation cannot be evaluated. In the event an invalid PE Equation is encountered, the user will receive an e-mail indicating a syntax error and the E-Larm will be automatically disabled. Please refer to the OSIsoft PI Data Archive Manual for more information regarding PE Equations.

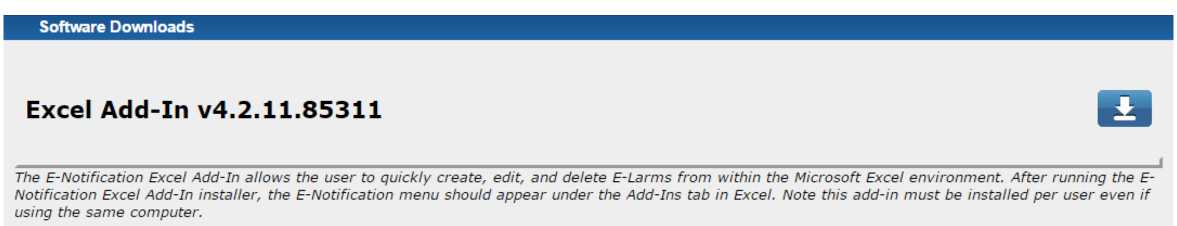
Click the "Continue" button to use the PE Equation in an E-Larm/E-Report/E-Trend.

Troubleshooting PE Equations

It is highly recommended to try the following troubleshooting techniques when a PE Equation returns an error:

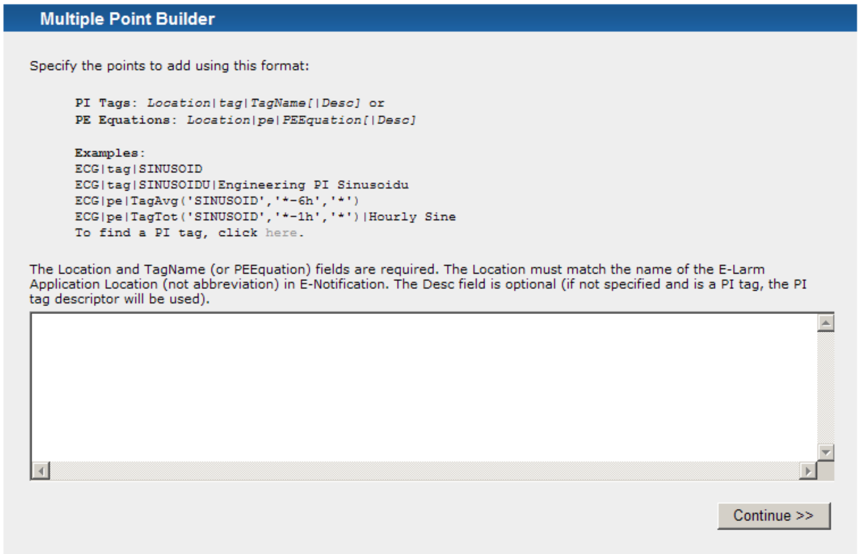
- Use the full PE Equation expression syntax instead of partial syntax. For example: when using TagVal(), make sure to use the second argument – time (TagVal('SINUSOID','*'). In some scenarios, such as the PI tag being used has large amounts of archive data, TagVal() will fail unless the time argument is specified.
- Break the equation down by expression and test each expression to identify the problematic expression. In many scenarios PE Equations become complex and involve many expressions. When an error is returned, it is often difficult to find the problem. Using the PE Equation Builder and its "Get Value" button, test each expression individually to see which part returns the error.

3.11 Software Downloads

- 

-
- From this page the user can download any software or add-ins that are available for the E-Notification system. Each entry contains the software/add-in name, version number, description, and download link. Clicking the download icon to the right of the software/add-in name will automatically download the appropriate installer.

3.12 Multiple Point Builder



This dialog allows the user to add multiple points (PI tags and/or PE Equations) to E-Larms, E-Reports and E-Trends at one time.

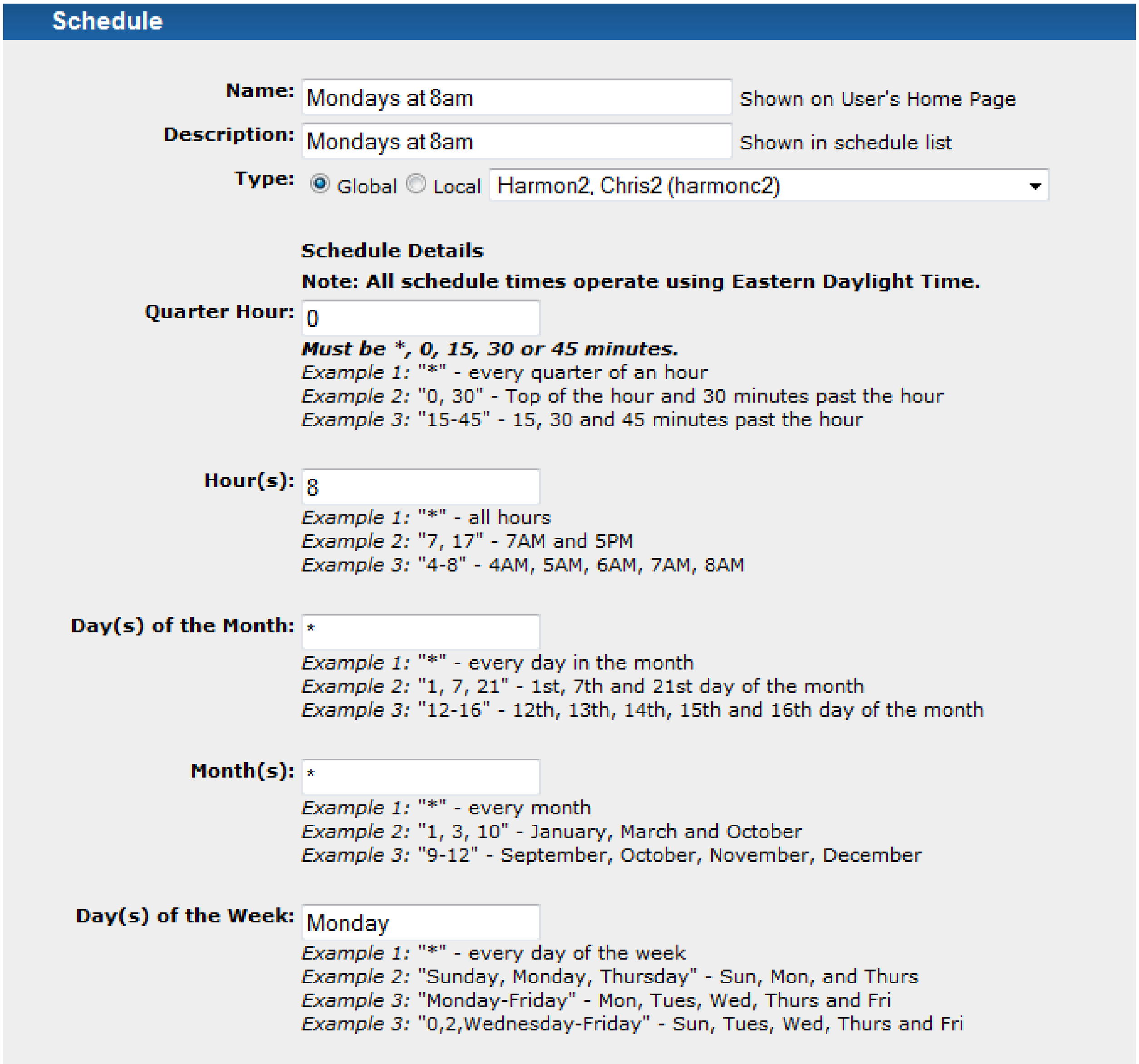
The user is provided a text box that will accept several lines of text. For each line of text, the user can specify a point – either a PI tag or a PE Equation. Each line must adhere to a specific format:

For PI Tags: Location|tag|TagName[|Desc]
For PE Equations: Location|pe|PEEquation[|Desc]

- Location represents the name of the E-Larm Application Location (PI System) stored in E-Notification. If the user would go to create a new E-Report or E-Larm, and is given the "Search for Points" search form, the Locations list contains the names of the locations for E-Notification.
- TagName represents the name of the PI tag to add. The name must correspond to a PI tag on the server specified by the Location.
- PEEquation represents the PE Equation to utilize. The location specified in Location is the E-Larm Application (PI System) against which the PE Equation is evaluated.
- Desc is optional and represents the point description that will be stored for the point. For E-Reports, this will be stored with the point. For E-Larms, this will be stored as the E-Larm description. If Desc is not specified for a PI tag, the PI tag descriptor will be used and if the PI tag descriptor is empty, the PI tag name (up to 50 characters) will be used. If Desc is not specified for a PE Equation, the PE Equation itself (up to 50 characters) will be used.

Click the Continue button to use the multiple points specified in an E-Larm/E-Report/E-Trend. If any of the data specified per line does not evaluate (such as if it was not specified in the correct format or the PI tag name was not found for the Location specified), the point for that line will not be used.

3.13 Schedule Configuration



The user has a choice of several options for scheduling including: No Schedule, Custom Schedule, and other pre-defined schedules. If the user chooses "Custom Schedule", several more options appear allowing the user to set the desired custom schedule. All schedule times operator using the time zone where the E-Notification application server resides.

To configure a schedule, complete the following fields: Quarter Hour, Hour(s), Day(s) of the Month, Month(s), and Day(s) of the Week.

When a user sets up a custom schedule, he or she has the option to "Save Schedule". If the user desires this, the user must check the checkbox to the left of the text "Save Schedule" and fill in the Name, Description and Type (only available to Complete Web Administrators).

Schedule Reference

Name

A short name for the schedule – shown on the users' Home Page

Description

Description for the schedule – shown in the Schedule list

Quarter Hour

* = every 15 minutes, 0 = top of the hour, 15 = 15 minutes past the hour, 30 = 30 minutes past the hour, 45 = 45 minutes past the hour

Hour(s)

0 = 12AM, 1 = 1AM, 2 = 2AM, 3 = 3AM, 4 = 4AM
5 = 5AM, 6 = 6AM, 7 = 7AM, 8 = 8AM, 9 = 9AM
10 = 10AM, 11 = 11AM, 12 = 12PM, 13 = 1PM, 14 = 2PM
15 = 3PM, 16 = 4PM, 17 = 5PM, 18 = 6PM, 19 = 7PM
20 = 8PM, 21 = 9PM, 22 = 10PM, 23 = 11PM

Day(s) of the Month

1 = 1st day of the month, 2 = 2nd day of the month ... 30 = 30th day of the month, 31 = 31st day of the month

Month(s)

1 = January, 2 = February, 3 = March, 4 = April, 5 = May
6 = June, 7 = July, 8 = August, 9 = September, 10 = October
11 = November, 12 = December

Day(s) of the Week

0 = Sunday, 1 = Monday, 2 = Tuesday, 3 = Wednesday, 4 = Thursday
5 = Friday, 6 = Saturday

Specifying Multiple Values in a Field

There are two methods to specifying multiple items in a field: a comma-separated list (e.g. 1,3,4,6), and ranges (e.g. 10-15). These two methods may even be combined (e.g. 1,3,9,15-22).

Examples

Every weekday (Mon, Tues, Wed, Thu, Fri) at 7AM and 5PM
Hour(s) = 7,17
Day(s) of the Month = *
Month(s) = *
Day(s) of the Week = 1-5

Every Sun, Mon, Tues every hour between 10PM and 4AM
Hour(s) = 22,23,0-4
Day(s) of the Month = *
Month(s) = *
Day(s) of the Week = 0-2

Every day on every other hour

Hour(s) = 0,2,4,6,8,10,12,14,16,18,20,22
Day(s) of the Month = *
Month(s) = *
Day(s) of the Week = *

Every day on every other hour
Hour(s) = 0,2,4,6,8,10,12,14,16,18,20,22
Day(s) of the Month = *
Month(s) = *
Day(s) of the Week = *

The first Monday of every month at 12AM
Hour(s) = 0
Day(s) of the Month = 1-7
Month(s) = *
Day(s) of the Week = 1

The second Sunday of every month at 4AM
Hour(s) = 4
Day(s) of the Month = 8-14
Month(s) = *
Day(s) of the Week = 0

Scheduling Under an Hour

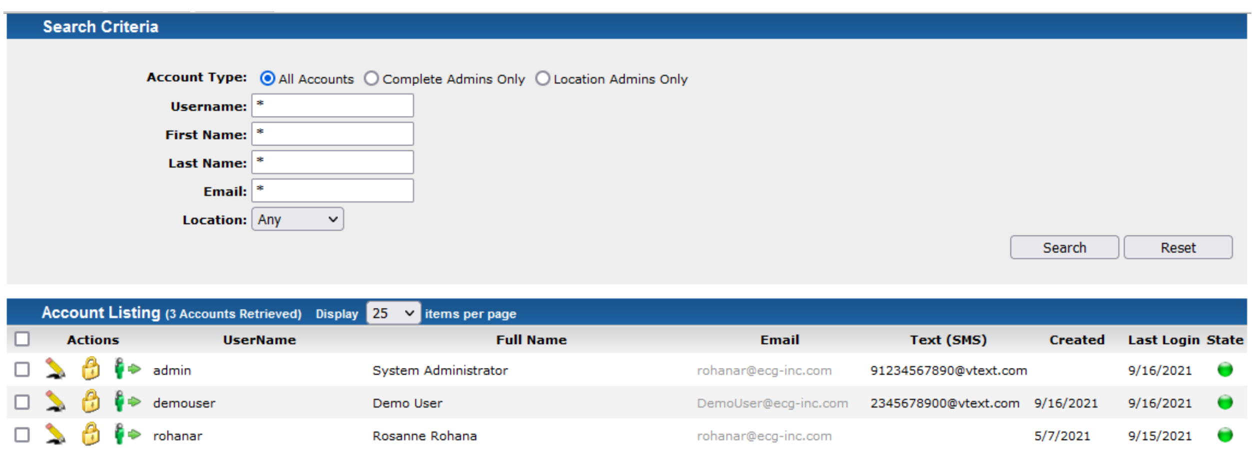
As an alternative to this scheduling mechanism, a user can setup a PE Equation E-Larm that allows for scheduling reports down to a minute basis. For more information, refer to the FAQ section of this manual for a section entitled “How to Trigger Reports Under an Hour”.

Editing Custom Schedules

To edit a schedule, choose Edit / My Schedules from the left navigation menu. Click the Edit icon for the schedule that needs editing and proceed with the edits. Remember to click the Save button to apply changes. Only Complete Web Administrators may edit global schedules.

3.14 Administration

3.14.1 View Accounts



This page provides Complete Web Administrators a list of all accounts in the E-Notification system. Location Administrators are provided with a list of only those accounts with E-Larms set up to monitor tags at the location(s) they administer.

The page can be configured to show a specific number of accounts per page by using the dropdown located in the header of the accounts list (the default is 25 items per page). Page numbers are displayed when there are more items available. Click the page numbers to be directed to the next set of viewable accounts. Click any column header to sort by that column; click again to sort in the opposite order.

Search Criteria

The list of accounts provided is searchable by a number of different criteria. Any text-based search criterion, such as Last Name, is a masked search. For example, to find accounts with a last name of “West”, simply enter “West”. However, to find accounts having last names beginning with “West”, enter “West*”. Results might include accounts with last names of “Weston” or “Westing”. Click the Search button to retrieve results or click the Reset button to set all search criteria back to the previous search values. To find accounts that have E-Larms, E-PBs, E-XL, etc., assigned to them, select the appropriate location from the Locations drop down list.

Features

-  Edit User: Administrators can view and edit an individual account by clicking the Edit User icon next to the desired account.
-  Change Password: Complete Web Administrators can change the password for an individual account by clicking the Change Password icon next to the desired account.
-  Login: Complete Web Administrators can login to a single account by clicking the Login icon next to the desired account.

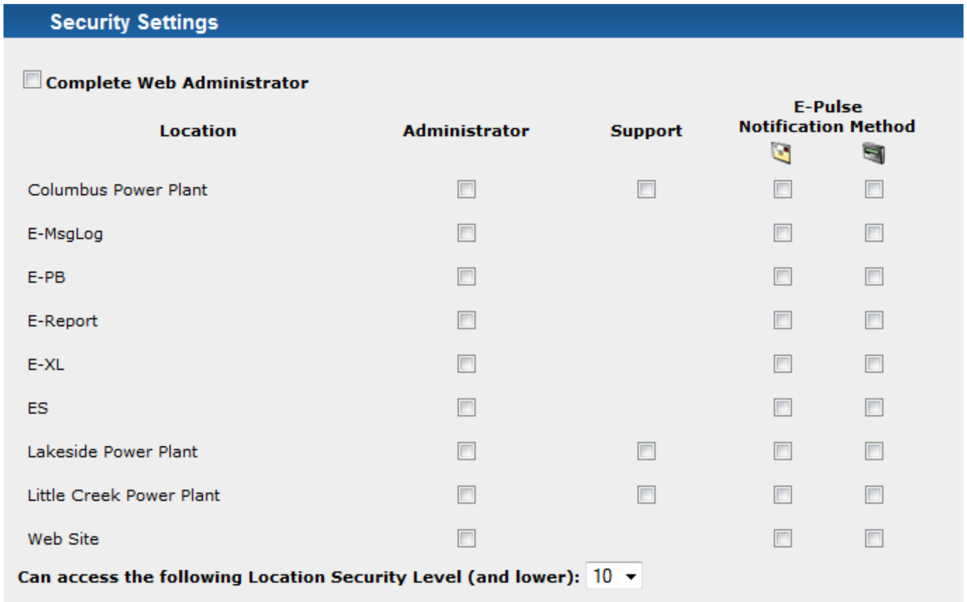
- Delete Accounts: Complete Web Administrators can delete accounts by selecting the checkbox(es) of the account(s) they wish to delete, then clicking the Delete Account(s) button. Deleting an account will delete its account information, E-Larms, E-Reports, E-XLs, E-PBs, and E-Trends.
- Toggle Status: Accounts can be disabled or enabled by selecting the checkboxes of the desired accounts and clicking the Toggle Status button.
- New Account: Create a new account by clicking the New Account button. Note that even accounts created by administrators will undergo the same verification process as those created by regular users.

State

The State column indicates if an account is enabled or disabled. It also identifies when an account is waiting to have its e-mail address change verified (designated by an e-mail icon), and when an account has just been created and is waiting to be verified (designated by a stick figure icon). These two icons are clickable – and if an administrator clicks either of them, they will manually override the verification mechanism and set their account changes as active. Normally when users verify their accounts by clicking the link in the verification e-mails sent to them, another e-mail is sent notifying them that they are verified. Using this manual verification, no e-mail is sent to the user.

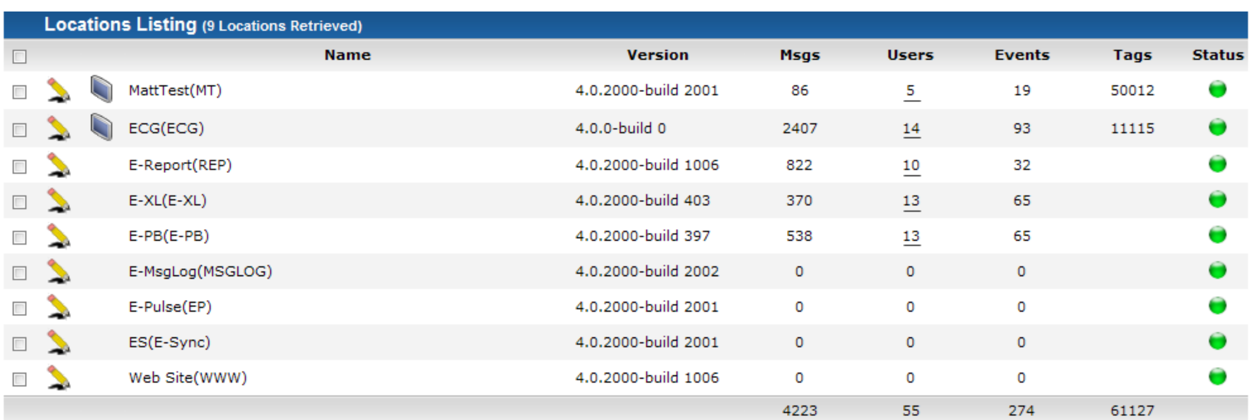
Security Settings

Users with the Complete Web Administrator role are able to assign various security privileges to other users via the Edit User link explained above. These security privileges are summarized in the “Security Settings” section of the account information.



- Complete Web Administrator
  - Has access to creating, approving, editing, and impersonating user accounts.
  - Has access to changing system settings and location information.
- Administrator
  - When this box is checked, the user has permission to sign up other users for alarms/reports for that particular location.
- Support (E-Larm Locations)
  - Every user that has this box checked will have his/her name show up in the Tag Search section for E-Larm, E-Report, and E-Trend by the text "*Can't find a tag? Please contact one of the following administrators*"
- E-Pulse Notification Method
  - When this box is checked, the user will be on the list to receive an e-mail and/or text message when the chosen location(s) have lost communication with the E-Notification database for the specified period of time (configured in the E-Pulse location settings).

3.14.2 View Locations



Locations Listing (9 Locations Retrieved)

Name	Version	Msgs	Users	Events	Tags	Status
MattTest(MT)	4.0.2000-build 2001	86	5	19	50012	
ECG(ECG)	4.0.0-build 0	2407	14	93	11115	
E-Report(REP)	4.0.2000-build 1006	822	10	32		
E-XL(E-XL)	4.0.2000-build 403	370	13	65		
E-PB(E-PB)	4.0.2000-build 397	538	13	65		
E-MsgLog(MSGLOG)	4.0.2000-build 2002	0	0	0		
E-Pulse(EP)	4.0.2000-build 2001	0	0	0		
ES(E-Sync)	4.0.2000-build 2001	0	0	0		
Web Site(WWW)	4.0.2000-build 1006	0	0	0		
		4223	55	274	61127	

This page allows administrators to view the majority of the activity of E-Notification, organized by location. Administrators can view the version number, the total number of messages (ever) sent, the number of current users, the number of events, the number of PI tags (only if the application type is E-Larm), and the Status of the location. The number of users and the number of events (which is the number of E-Larms/E-Reports/E-XLs/E-PBs) is only applicable if the application type is E-Larm, E-Report, E-XL or E-PB. For all other application types, these fields will be blank. To see all Users included for the corresponding application type (if available), click the number displayed in the corresponding "Users" column.

Click any column header to sort by that column. Click again to reverse the order.

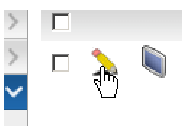
Click the Edit icon on a single location to view and/or edit properties for that location.
Click the Monitor icon on a single location view monitors on that location.
To toggle the status of one or more locations from enabled to disabled and vice versa, select the associated checkbox(s) and click the Toggle Status button.

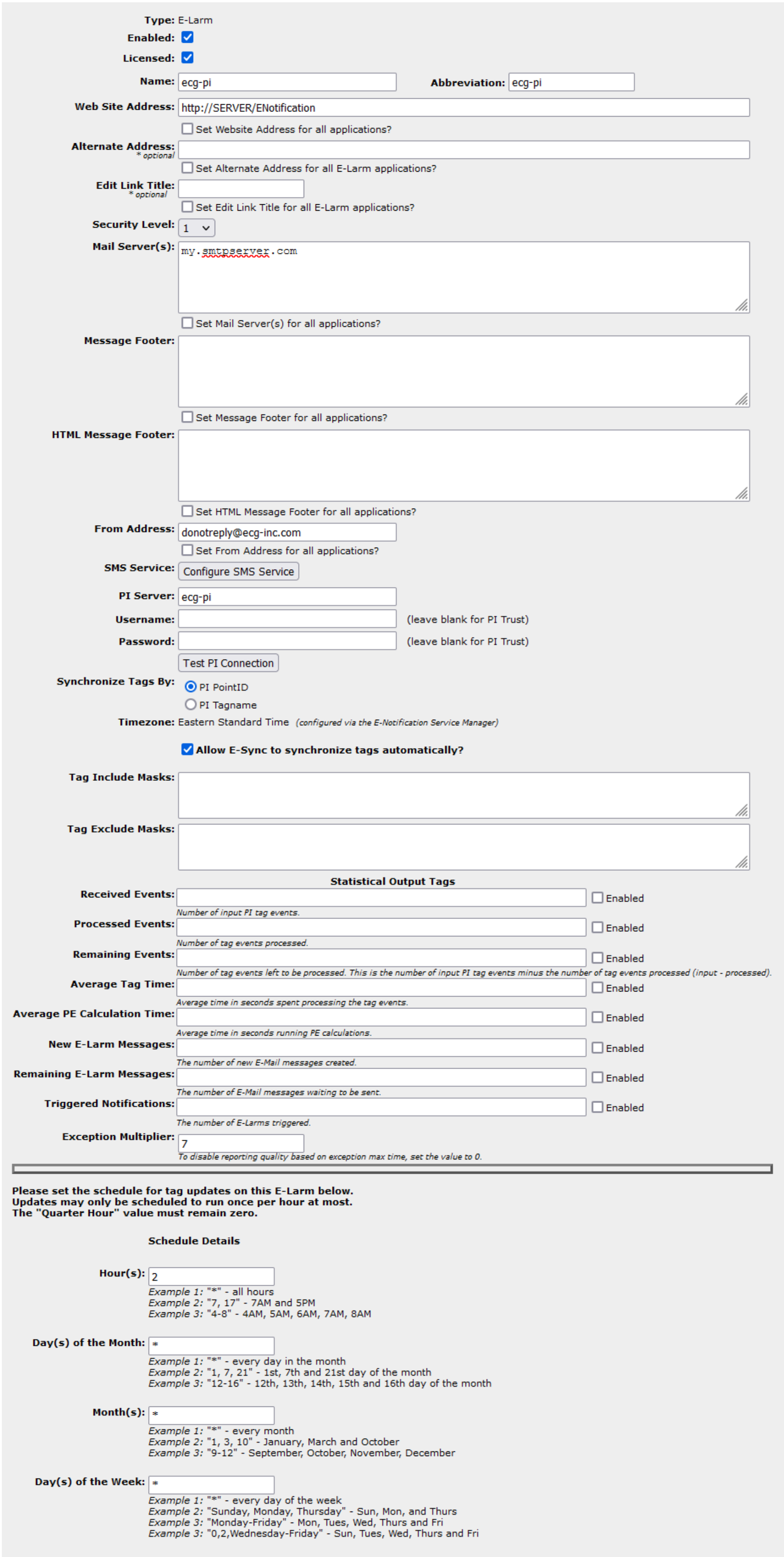
Features

Sync Tags: If many PI tags have recently been modified, added to, or deleted from a PI System, an administrator may want to synchronize those changes with E-Notification immediately. To manually force such synchronization, check the checkbox beside one or more E-Larm locations and click the Sync Tags button.

Delete Locations: After checking one or more checkboxes for location(s) and clicking the Delete Location(s) button, the administrator will be prompted to confirm the deletion. Take care when deleting a location as it cannot be re-added and its data cannot be recovered. When deleting a location, all associated points (PI tags/PE Equations) and E-Larms will be deleted from the E-Notification system and all references to those locations' points in E-Reports will be removed. Any E-XLs or E-PBs that communicate with any of those locations will continue to communicate as their data comes directly from the PI System(s) and not E-Notification.

3.14.3 Edit Location





Type: E-Larm
Enabled: ☑
Licensed: ☑
Name: ecg-pi   Abbreviation: ecg-pi
Web Site Address: http://SERVER/ENotification
☐ Set Website Address for all applications?
Alternate Address: (* optional)
☐ Set Alternate Address for all E-Larm applications?
Edit Link Title: (* optional)
☐ Set Edit Link Title for all E-Larm applications?
Security Level: 1
Mail Server(s): my.smtpserver.com
☐ Set Mail Server(s) for all applications?
Message Footer:
☐ Set Message Footer for all applications?
HTML Message Footer:
☐ Set HTML Message Footer for all applications?
From Address: donotreply@ecg-inc.com
☐ Set From Address for all applications?
SMS Service: Configure SMS Service
PI Server: ecg-pi
Username: (leave blank for PI Trust)
Password: (leave blank for PI Trust)
Test PI Connection
Synchronize Tags By: ◉ PI PointID ○ PI Tagname
Timezone: Eastern Standard Time *(configured via the E-Notification Service Manager)*
☑ **Allow E-Sync to synchronize tags automatically?**
Tag Include Masks:
Tag Exclude Masks:

Statistical Output Tags

Received Events: ☐ Enabled
Number of input PI tag events.
Processed Events: ☐ Enabled
Number of tag events processed.
Remaining Events: ☐ Enabled
Number of tag events left to be processed. This is the number of input PI tag events minus the number of tag events processed (input - processed).
Average Tag Time: ☐ Enabled
Average time in seconds spent processing the tag events.
Average PE Calculation Time: ☐ Enabled
Average time in seconds running PE calculations.
New E-Larm Messages: ☐ Enabled
The number of new E-Mail messages created.
Remaining E-Larm Messages: ☐ Enabled
The number of E-Mail messages waiting to be sent.
Triggered Notifications: ☐ Enabled
The number of E-Larms triggered.
Exception Multiplier: 7
To disable reporting quality based on exception max time, set the value to 0.

Please set the schedule for tag updates on this E-Larm below.
Updates may only be scheduled to run once per hour at most.
The "Quarter Hour" value must remain zero.

Schedule Details

Hour(s): 2
Example 1: "*" - all hours
Example 2: "7, 17" - 7AM and 5PM
Example 3: "4-8" - 4AM, 5AM, 6AM, 7AM, 8AM

Day(s) of the Month: *
Example 1: "*" - every day in the month
Example 2: "1, 7, 21" - 1st, 7th and 21st day of the month
Example 3: "12-16" - 12th, 13th, 14th, 15th and 16th day of the month

Month(s): *
Example 1: "*" - every month
Example 2: "1, 3, 10" - January, March and October
Example 3: "9-12" - September, October, November, December

Day(s) of the Week: *
Example 1: "*" - every day of the week
Example 2: "Sunday, Monday, Thursday" - Sun, Mon, and Thurs
Example 3: "Monday-Friday" - Mon, Tues, Wed, Thurs and Fri
Example 3: "0,2,Wednesday-Friday" - Sun, Tues, Wed, Thurs and Fri

This page allows administrators to edit the settings for a location, as well as to apply a handful of settings to all locations. Clicking the Save button will save the settings. Clicking the Delete button (only available if the administrator is a Complete Web Administrator) will delete the location's information, points, E-Larms, and will break all references for its points in E-Reports. Any E-XLs or E-PBs that communicate with this location will continue to communicate. Clicking the Monitor button (only available for E-Larm locations) will direct the administrator to the Monitor Location page.

Enable

Select this checkbox to enable a location or clear the checkbox to disable a location. Disabling an E-Larm location turns off monitoring on PI tags for this location – thereby disabling all E-Larms monitoring PI tags at this location. E-Reports that contain PI tags/PE Equations for this location will be visible, and E-XLs or E-PBs that communicate with tags on this location will still communicate. E-Sync will not update the list of tags for this location while the location is disabled.

Type

This displays the type of location: E-Larm, E-Report, E-XL, E-PB, Web Site, E-Pulse, E-MsgLog, or E-Sync. The Type cannot be modified.

Name

This is the name of the location. The name should not be modified on E-Larm locations without also modifying the E-Larm Application monitoring this location). This name is used throughout the majority of the E-Notification site.

Abbreviation

The abbreviation is used throughout the E-Notification site when a minimum number of characters is desired to display the location name.

Web Site Address

The web site address of E-Notification to be used when sending messages from this location (used for generating links in the messages to edit the E-Larm/E-Report/E-XL/E-PB).

Selecting the checkbox below this input will apply this information to all locations, not just the location currently being edited.

Alternate Address

This is an optional field. This allows the administrator to change the URL that is used in the e-mail message. This is useful if the administrator wants to direct users receiving e-mail messages to another web site (such as a corporate portal site). Note that this is only currently implemented for the E-Larm Application. For E-Larms, the value specified (for Alternate Address) will be used in place of the Web Site Address value with the following string "/e-larm.aspx?id=" and the ID of the E-Larm appended at the end (the ID of the E-Larm will still be appended to the Alternate Address).

Selecting the checkbox below this input will apply this information to all (E-Larm) locations, not just the location currently being edited.

Edit Link Title

This is an optional field. This allows the administrator to change the title (link text) that is linked to the URL used in the e-mail message to edit the E-Larm. This is useful when used in conjunction with the Alternate Address. The administrator can set the title and the link that will be used in place of the "Click here to edit this E-Larm." title and link. Note that this is currently only implemented for the E-Larm Application.

Selecting the checkbox below this input will apply this information to all (E-Larm) locations, not just the location currently being edited.

Security Level

This dropdown menu allows a location's security level to be specified. This numerical value is compared against an account's security level when the account attempts to use, search, or view PI tags/PE Equations from this location. Only users with a security level at the same numerical value (or higher) as the location's security level can access that location.

Mail Server(s)

Enter one or more mail server separated by commas to be used for the location when sending messages.

Selecting the checkbox below this input will apply this information to all locations, not just the location currently being edited.

Message Footer

Specify the footer to be included in messages sent from the location for users with their account configured to receive Plain Text messages.

Selecting the checkbox below this input will apply this information to all locations, not just the location currently being edited.

HTML Message Footer

Specify the footer to be included in messages sent from the location for users with their account configured to receive HTML messages.

Selecting the checkbox below this input will apply this information to all locations, not just the location currently being edited.

From Address

Specify the e-mail address to be displayed as the "From" address for all messages sent from this location.

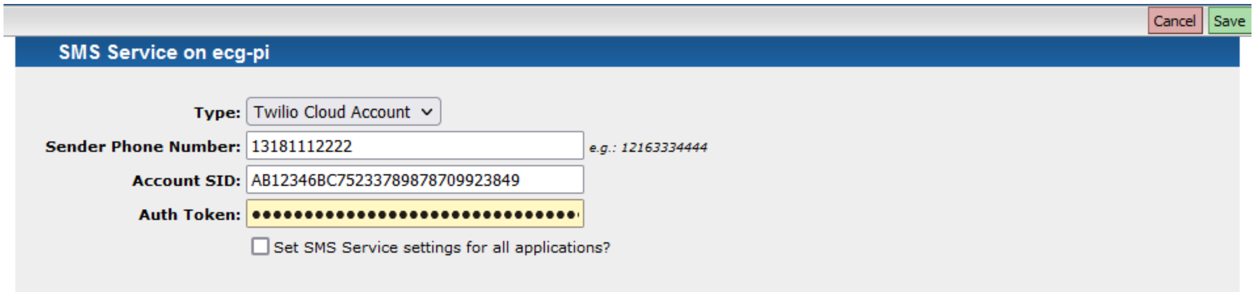
Selecting the checkbox below this input will apply this information to all locations, not just the location currently being edited.

SMS Service

Click on the "SMS Service" button to configure special SMS services for this (or all) locations.

Type: None
By default, E-Notification does NOT use any paid SMS services to send text messages. Instead, E-Notification uses SMS gateways provided by cellular providers to send text messages. For example, a Verizon user would indicate an MyNumber@vtext.com as a text number, where @vtext.com represents the SMS gateway. This is sufficient for most installations.

Type: Twilio Cloud Account
For installations where a paid Twilio Cloud Service account already exists, E-Notification can leverage this account. To configure E-Notification to use Twilio, various information must be gathered from the customer's Twilio Console, found at https://console.twilio.com, under Account → Manage Account → General Settings. Here, Account SID, and Auth Token can be found. The Sender Account Number must be a valid phone number provided by Twilio; this is typically configured under Develop → Phone Numbers → Manage → Active Numbers. The Sender Phone Number must contain only numeric characters and must include the country code.



PI Server, Username and Password, Test PI Connection (E-Larm Locations Only)

Each E-Larm location must be configured to communicate with a single PI System. The PI System input should be set to the PI System's complete computer name with domain and port if possible (servername.domain:port – e.g. ecg-pi01.ecg:5450). The Username and Password should be a valid PI System account username and password that have access to all PI tags in the PI System being monitored.

Synchronize Tags By PI PointID or PI Tagname

E-Notification uniquely identifies PI points by their PIPointID or by their tagname. When synchronizing by PI PointID, any tag information (including tagname, descriptor, etc.) other than the PI PointID can be changed in the PI Data Archive and those changes will automatically be reflected in E-Notification. This is most beneficial during times it is necessary to rename tags in the PI Data Archive. Alternatively, when synchronizing by PI Tagname, any tag information (including PI PointID, descriptor, etc.) other than the Tagname can be changed in the PI Data Archive and those changes will be automatically reflected in E-Notification. This is most beneficial when rebuilding or migrating PI Data Archives where the PI Tagnames would rename the same, but the PI PointIDs would change.

Allow E-Sync to Synchronize Tags Automatically? (E-Larm Locations Only)

If the location being edited is an E-Larm, this input will be visible. Select this checkbox to force E-Sync to synchronize the tags for this location when the application runs (recommended).

Tag Include Masks & Tag Exclude Masks (E-Larm Locations Only)

If the administrator desires only to have certain PI tags retrieved for this location, the administrator can specify PI tag masks separated by commas in the Tag Include Masks textbox. This represents tags to be included. In the Tag Exclude Masks textbox, specify PI tag masks separated by commas to exclude from the results found from the Tag Include Masks field.

Example

The PI System contains only the following tags:
SINUSOID, SINUSOIDU, CDT158, CDTM158, CDR158, SINE, SINE2, CDTQ, CDZ

If Tag Include Masks = SINE*,CDT*
If Tag Exclude Masks = *158

The resulting PI tags retrieved are: SINE, SINE2, CDTQ

PI Tag for Received Events (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the number of events received from PI that require processing.

PI Tag for Processed Events (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the number of events processed and checked for needed alarms.

PI Tag for Remaining Events (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the number of events remaining that required processing. It is the same as the difference from pi events received and events processed. This value should stay low, but may have occasional spikes during normal operation. If this value increases and remains high, the E-Larm application may not be keeping up with tag events in real-time and a delay may occur for some notifications. In this event, additional resources (e.g. CPU, RAM) must be added to the Application Server. Also, verify that network latency remains low.

PI Tag for Remaining Events (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the number of events remaining that required processing. This value should stay low, but may have occasional spikes during normal operation. If this value increases and remains high, the E-Larm application may not be keeping up with tag events in real-time and a delay may occur for some notifications. In this event, additional resources (e.g. CPU, RAM) must be added to the Application Server. Also, verify that network latency remains low.

PI Tag for Snapshot Time (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the amount of time in seconds that it takes to process a set of snapshot E-Larms. This includes only tags with snapshot values that have changed. On Application Servers with sufficient resources, this value is typically less than 1. Occasional spikes are acceptable and expected during periods of heavy use or server backups. If the value increases significantly and remains high, there may be a performance issue with the E-Notification Application Server and additional resources may be required.

PI Tag for PE Time (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. The values written will indicate the amount of time in seconds that it takes to process a set of PE Equation E-Larms. This value will vary significantly based on the PE equations configured on E-Larms notifications. It is recommended the value remain under 120 seconds. Periodic spikes are acceptable. However, if the value remains high, it is recommended the PE equations be examined and modified. Long-running PE equations can significantly impact E-Larm performance.

PI Tag for New Messages (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. This value is the number of new E-Larm messages created to be sent.

PI Tag for Remaining Messages (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. This value is the number of new E-Larm messages waiting to be sent.

PI Tag for Triggered Notifications (E-Larm Locations Only)

This is used for performance analysis of the E-Larm application. Enter the name of a PI tag that exists on the PI System to which performance data may be written. This value is the number of E-Larm notifications that have been triggered.

Exception Multiplier (E-Larm Locations Only)

The Exception Max Time is used to ensure that "fresh" data are coming in from the PI interfaces. Each PI tag has a property called the exception max time (EXCMAX). The interface responsible for populating the PI tag should be sending fresh data to the snapshot within this exception max time.

The Exception Multiplier is a value that is multiplied by each individual [E-Larm] PI tag's exception max time to create a time "buffer" for new snapshots to arrive. OSIsoft's default for a PI tag's exception max time is 10 minutes. The E-Larm Application Exception Multiplier default is 7. Using both defaults, if the snapshot has not been updated in 70 minutes, the individual E-Larm will be considered bad quality. If the E-Larm has been configured to report on bad quality, a message will be sent. It will return to good quality when the snapshot has been updated.

To disable reporting quality based on exception max time, set this value to 0.

3.14.4 Monitor Location (E-Larm Locations Only)

Monitor Location (ECG)

Location: ECG

Tag: ☐ Retrieve items NOT containing this text.

Description: ☐ Retrieve items NOT containing this text.

Search

E-Larm Search Results

10 items per page

1 2 3 4 5 6 7 8 9

Last Name, First Name	Username	PI Tag	Description
Administrator , Admin	admin	CDEP158	average over 5 minutes
Administrator , Admin	admin	CDT158	average tag over 15 minutes
Administrator , Admin	admin	ptcreatedtag	80/40 d= 10
Administrator , Admin	admin	SINUSOID	attach trend for last 2 days
Administrator , Admin	admin	SINUSOID_NN	directional down
Administrator , Admin	admin	SINUSOIDU	directional up
Administrator , Admin	admin	CDM158	Light Naphtha End Point Control
Administrator , Admin	admin	CDM158	Light Naphtha End Point Control
Administrator , Admin	admin	SINUSOID	12 Hour Sine Wave
Administrator , Admin	admin	SINUSOID_NN	12 Hour Sine Wave

1 2 3 4 5 6 7 8 9

E-Report Search Results

10 items per page

1 2 3

Last Name, First Name	Username	Description
Brandenstein , Thomas	brandensteint	Sinusoid Report
Denowski , Joel	denowskij	Joel's E-report
Helgeson , Caleb	helgesonc	Jul 30 2007 1:08PM
Helgeson , Caleb	helgesonc	Sep 27 2007 6:11PM
Helgeson , Caleb	helgesonc	Test E-Report
Caesar , Matt	Matt	Matt's Test
Rohana , Rosanne	rohanar	Jul 25 2007 9:22AM
Santucci , Michael	santuccim	Daily Process Check
Santucci , Michael	santuccim	Equipment Status
Santucci , Michael	santuccim	Health Check

1 2 3

Tag Search Results

10 items per page

1 2 3 4 5 6 7 8 9 10 ... Last

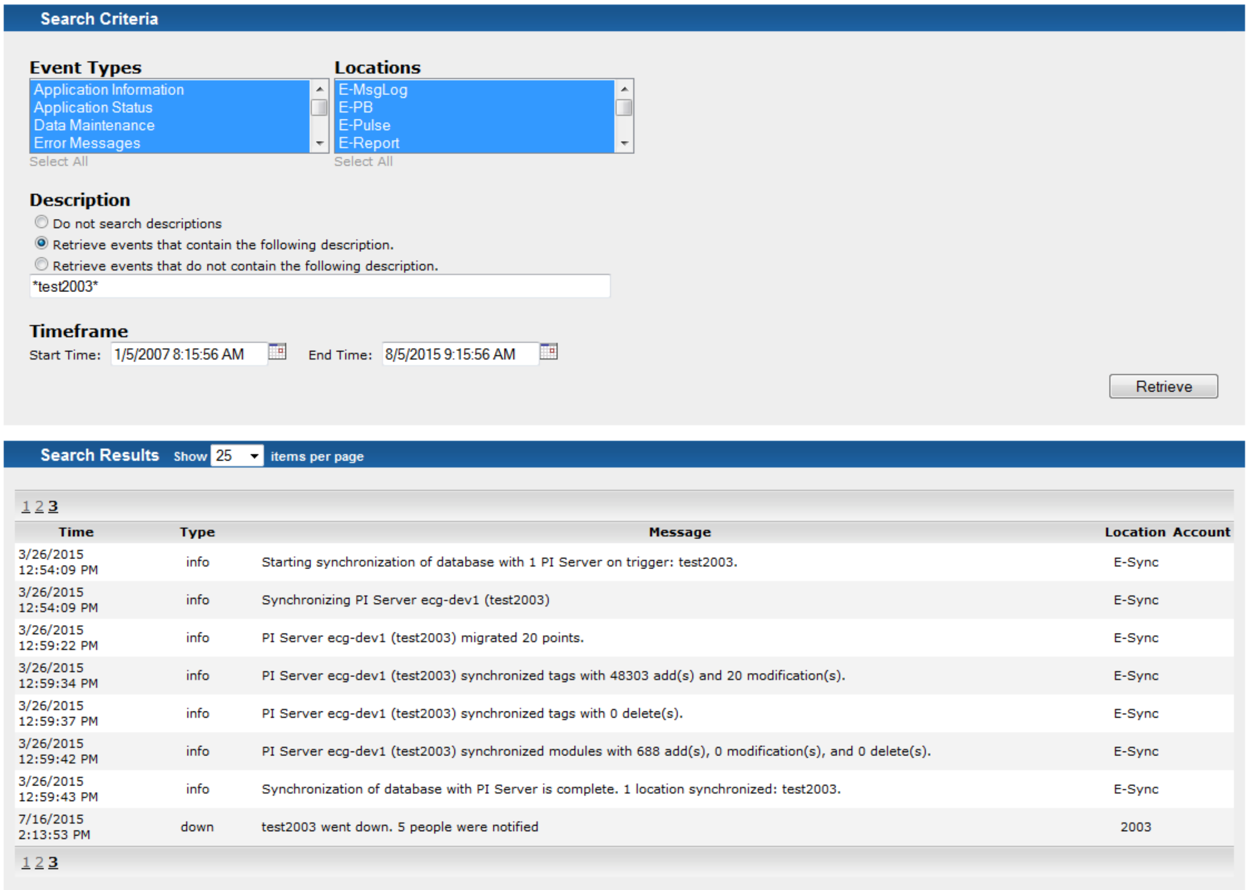
Tag	Description
093166bb-b45c-49b3-96b2-73b1282c7c39	PIUnitBatch storage point.PI Batch Database generated, do not delete or edit.
13_RBC_AbsDeflHealth	Absolute Deflection Health
13_RBC_AmpsPerInch	Amp Ratio
13_RBC_AmpsPerTonHealth	Roll Amps Per Ton Health
13_RBC_AvgDefl	Average Deflection
13_RBC_BowlAmpHealth	Bowl Amplitude Health
13_RBC_CurrentTest	Current Running Test
13_RBC_DPPerInch	Delta P Index
13_RBC_HealthIndex	Health Index
13_RBC_JHS1	Roll 1 JHS Gap

1 2 3 4 5 6 7 8 9 10 ... Last

This page allows administrators the ability to "monitor" E-Notification by location (applicable only to E-Larm locations).

Select a location to monitor from the drop down list. Enter a PI tag name mask to search for or leave it blank to retrieve all PI tags. Select the checkbox to search for items NOT containing that PI tag name mask. Enter a description mask to search for or leave it blank to retrieve all descriptions. Select the checkbox to search for items NOT containing that description mask. Click the Search button to view results.

3.14.5 View Logs



This page allows administrators to view logs of the E-Notification System. Enter search criteria and click the Retrieve button to retrieve results based on the desired search criteria.

Event Types

The administrator must choose the type(s) of events to display. The default when the web page is first viewed is "Message Sent". To select multiple Event Types, hold the Ctrl key while selecting the types.

Locations

The administrator must choose the E-Notification Location(s) from which to display events. All Locations are selected by default when the page is first viewed. To select multiple Locations hold the Ctrl key while selecting the locations. For location administrators, only the locations they are configured to administer are available.

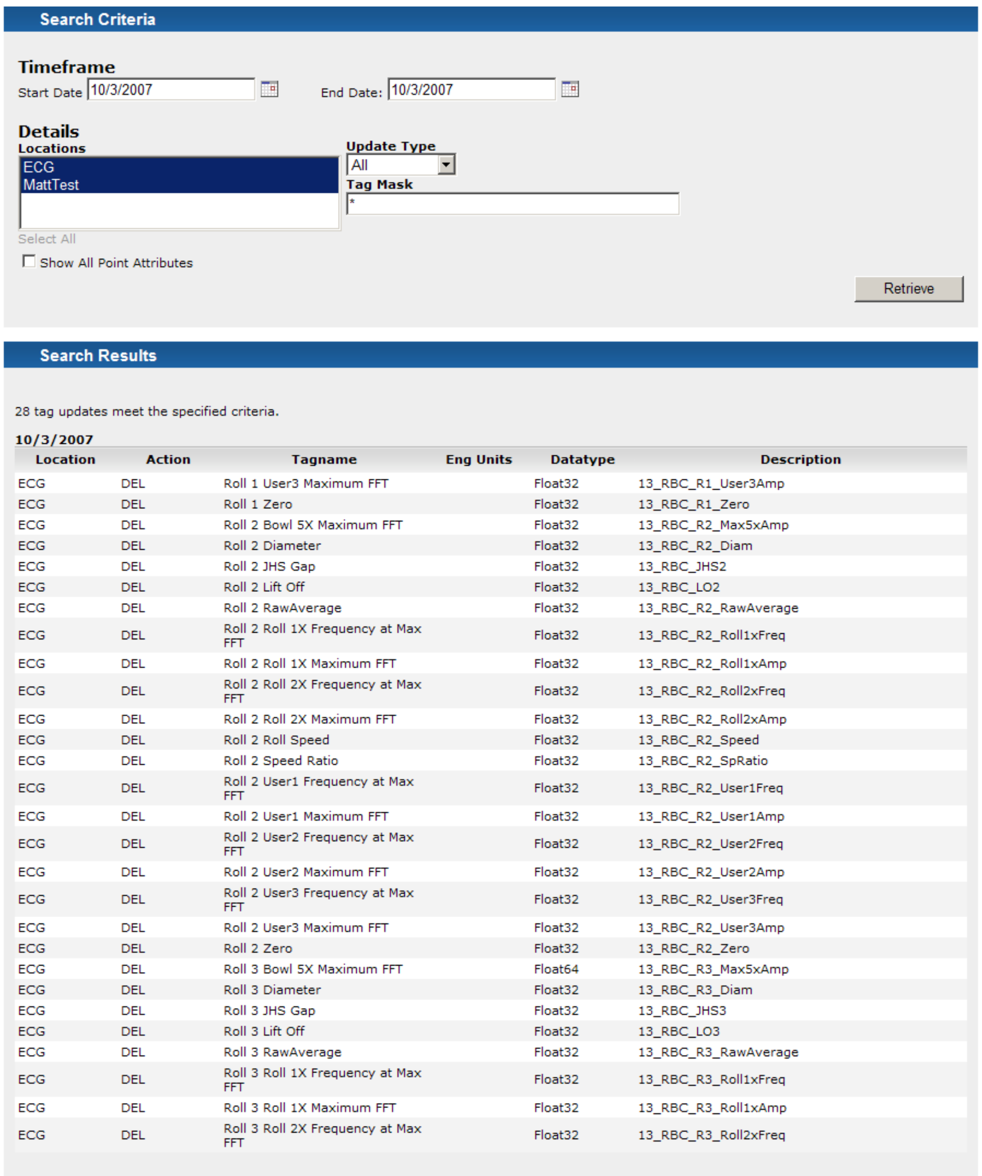
Description

The administrator may search for logs containing a particular string or NOT containing a particular string utilizing the radio buttons and then entering a description.

Timeframe – Start Time and End Time

The administrator must choose a timeframe to retrieve logs from. The default Start Time is one hour ago and the default End Time is the current time. The Start and End Times may be entered manually, or may be entered by clicking the Calendar icon for a graphical calendar interface and choosing the times from the calendar.

3.14.6 View Tag Updates



Location	Action	Tagname	Eng Units	Datatype	Description
ECG	DEL	Roll 1 User3 Maximum FFT		Float32	13_RBC_R1_User3Amp
ECG	DEL	Roll 1 Zero		Float32	13_RBC_R1_Zero
ECG	DEL	Roll 2 Bowl 5X Maximum FFT		Float32	13_RBC_R2_Max5xAmp
ECG	DEL	Roll 2 Diameter		Float32	13_RBC_R2_Diam
ECG	DEL	Roll 2 JHS Gap		Float32	13_RBC_JHS2
ECG	DEL	Roll 2 Lift Off		Float32	13_RBC_LO2
ECG	DEL	Roll 2 RawAverage		Float32	13_RBC_R2_RawAverage
ECG	DEL	Roll 2 Roll 1X Frequency at Max FFT		Float32	13_RBC_R2_Roll1xFreq
ECG	DEL	Roll 2 Roll 1X Maximum FFT		Float32	13_RBC_R2_Roll1xAmp
ECG	DEL	Roll 2 Roll 2X Frequency at Max FFT		Float32	13_RBC_R2_Roll2xFreq
ECG	DEL	Roll 2 Roll 2X Maximum FFT		Float32	13_RBC_R2_Roll2xAmp
ECG	DEL	Roll 2 Roll Speed		Float32	13_RBC_R2_Speed
ECG	DEL	Roll 2 Speed Ratio		Float32	13_RBC_R2_SpRatio
ECG	DEL	Roll 2 User1 Frequency at Max FFT		Float32	13_RBC_R2_User1Freq
ECG	DEL	Roll 2 User1 Maximum FFT		Float32	13_RBC_R2_User1Amp
ECG	DEL	Roll 2 User2 Frequency at Max FFT		Float32	13_RBC_R2_User2Freq
ECG	DEL	Roll 2 User2 Maximum FFT		Float32	13_RBC_R2_User2Amp
ECG	DEL	Roll 2 User3 Frequency at Max FFT		Float32	13_RBC_R2_User3Freq
ECG	DEL	Roll 2 User3 Maximum FFT		Float32	13_RBC_R2_User3Amp
ECG	DEL	Roll 2 Zero		Float32	13_RBC_R2_Zero
ECG	DEL	Roll 3 Bowl 5X Maximum FFT		Float64	13_RBC_R3_Max5xAmp
ECG	DEL	Roll 3 Diameter		Float32	13_RBC_R3_Diam
ECG	DEL	Roll 3 JHS Gap		Float32	13_RBC_JHS3
ECG	DEL	Roll 3 Lift Off		Float32	13_RBC_LO3
ECG	DEL	Roll 3 RawAverage		Float32	13_RBC_R3_RawAverage
ECG	DEL	Roll 3 Roll 1X Frequency at Max FFT		Float32	13_RBC_R3_Roll1xFreq
ECG	DEL	Roll 3 Roll 1X Maximum FFT		Float32	13_RBC_R3_Roll1xAmp
ECG	DEL	Roll 3 Roll 2X Frequency at Max FFT		Float32	13_RBC_R3_Roll2xFreq

This page allows administrators to view the day-to-day changes made by the E-Sync Application when synchronizing the individual E-Larm Locations' PI Systems with the E-Notification database of PI tags. The changes (Update Type/Actions) are divided into three categories:

1. Additions: Occurs when a PI tag exists in a PI System but not in the E-Notification database.

2. Deletions: Occurs when a PI tag exists in the E-Notification database but not in the particular PI System.
3. Modifications: Occurs when any PI tag information in the E-Notification database is different than the PI tag information found in a PI System for a particular PI tag.

Enter the desired Search Criteria and click the Retrieve button to retrieve a list of PI tag updates. The PI tag updates retrieved are partitioned by date. Each update list refers to a single day. The list is ordered first by location then by update type, then by PI tag name.

Timeframe – Start Date and End Date

Select a Start Date and End Date to retrieve PI tag updates from. When first viewing the page, the default Start Date and End Date is the current date. Please note that depending on the settings for the E-Sync Application and the current date entered, there may be no data for the day. The End Date must be equal to or chronologically after the Start Date.

Locations

Select from the list of E-Larm locations to view PI tag updates for those locations. For location administrators, only the locations they are configured to administer are available.

Update Type

Use this dropdown to select a specify type of update for the PI tags. The results retrieved may include all types of updates, or only Additions, only Deletions, or only Modifications.

Tag Mask

Use this input to search for tag updates on a certain PI tag or a set of PI tags. Note that this field is a mask – that is, the character "*" is a wildcard. For example, to search for PI tag updates on all PI tags beginning with "sinu", enter "sinu*".

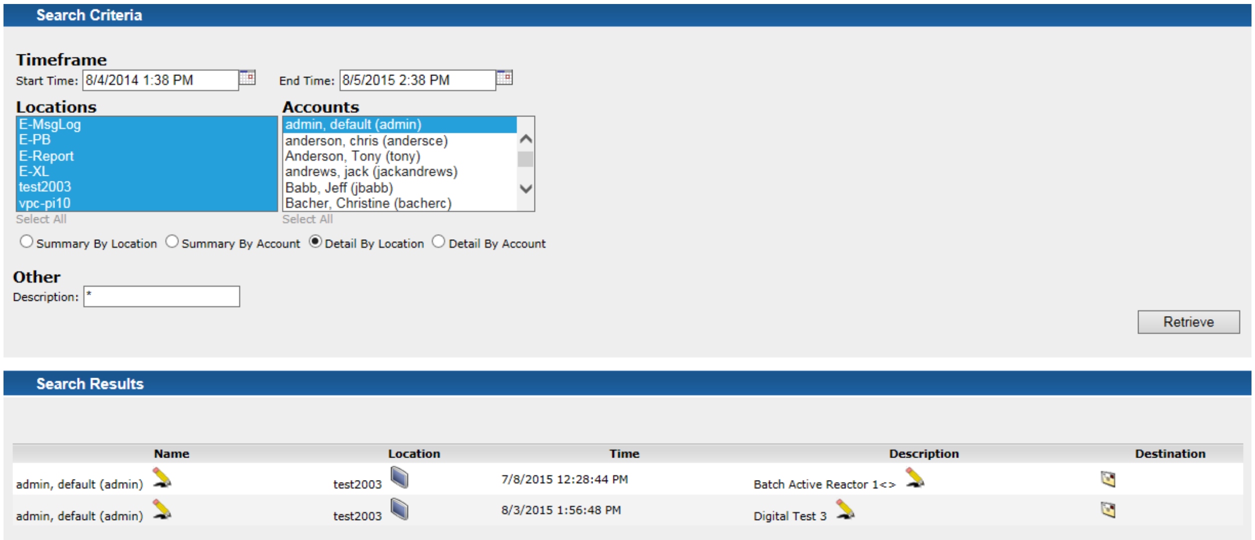
Show All Point Attributes

Select this checkbox to view additional PI tag attributes in the resulting list of tag updates. Clear the checkbox to view basic information only, such as Tagname, Description, and engineering units.

Note about Deleted Tags

When PI tags are found in E-Notification that do not exist on the PI Systems, they are marked to be deleted. However, if the PI tag is being monitored by an E-Larm or E-Report, the PI tag is not deleted.

3.14.7 View History



This page allows administrators to view messages sent. Enter search criteria and click the Retrieve button to retrieve results based on the search criteria provided. Clicking on the column headers will order by that field. Clicking the same column header a second time will reverse the sort order.

Timeframe – Start Time and End Time

The administrator must select a timeframe from which to retrieve messages. The default start time is yesterday (24 hours ago) and the default end time is one hour in the future.

Locations

The administrator must choose the Location(s) from which to display sent messages. All Locations are selected by default when the page is first viewed. To select multiple Locations hold the Ctrl key while selecting the Locations. For location administrators, only the locations they are configured to administer are available.

Accounts

The administrator must choose one or more account. To select multiple Accounts, hold the Ctrl key while selecting the accounts.

Other

The Description search filter becomes available only when Detail By Location or Detail By Account has been selected. An asterisk is a wildcard.

Summary By Location

This option displays summarized activity counts for each location and calendar day. Events are ordered by location, then by date.

Summary By Account

This option displays summarized activity counts for each account and calendar day. Events are ordered by account, then by date.

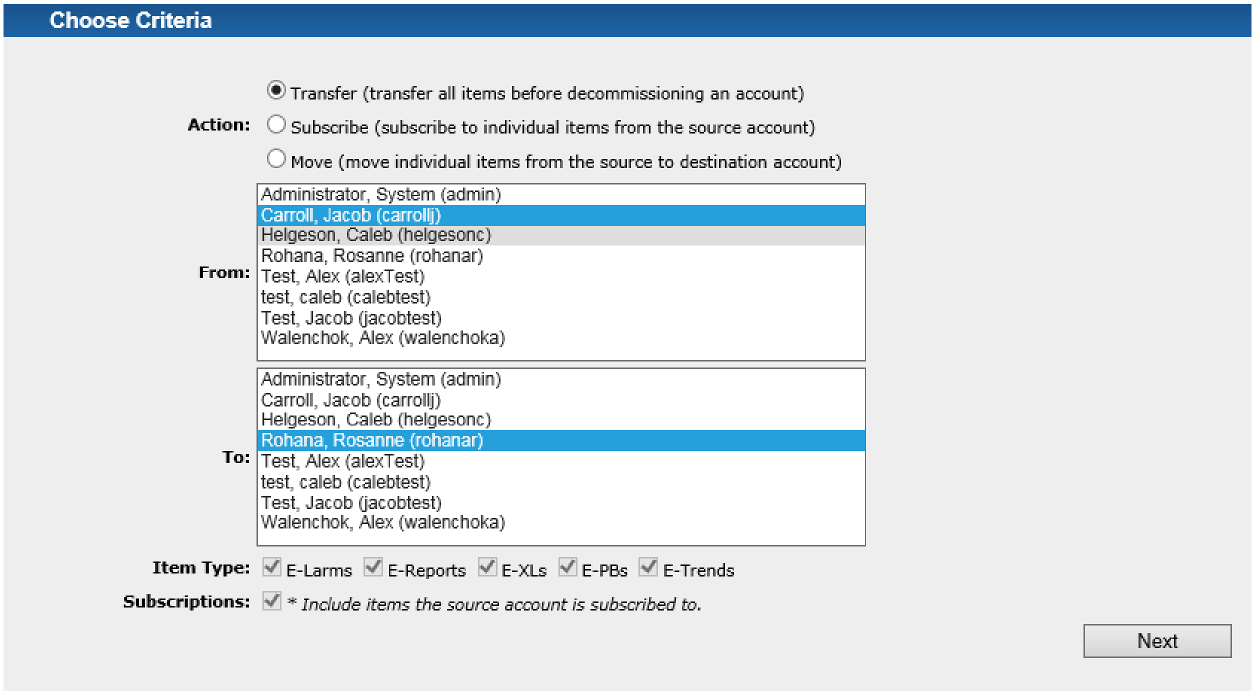
Detail By Location

This option displays activity for individual items (such as E-Larms, E-Reports, E-XLs, E-PBs, etc). Events are ordered by location, account, then by date and time. The Edit icon next to the account name will direct the user to the Account Information page. The Edit icon next to the E-Larm/E-Report/E-XL/E-PB description will direct the user to the configuration page for that item. If the description "Deleted" is shown, then the E-Larm/E-Report/E-XL/E-PB has been deleted.

Detail By Account

This option displays activity for individual items (such as E-Larms, E-Reports, E-XLs, E-PBs, etc). Events are ordered by account, location, then by date and time. The Edit icon next to the account name will direct the user to the Account Information page. The Edit icon next to the E-Larm/E-Report/E-XL/E-PB description will direct the user to the configuration page for that item. If the description "Deleted" is shown, then the E-Larm/E-Report/E-XL/E-PB has been deleted.

3.14.8 Duplicate Items



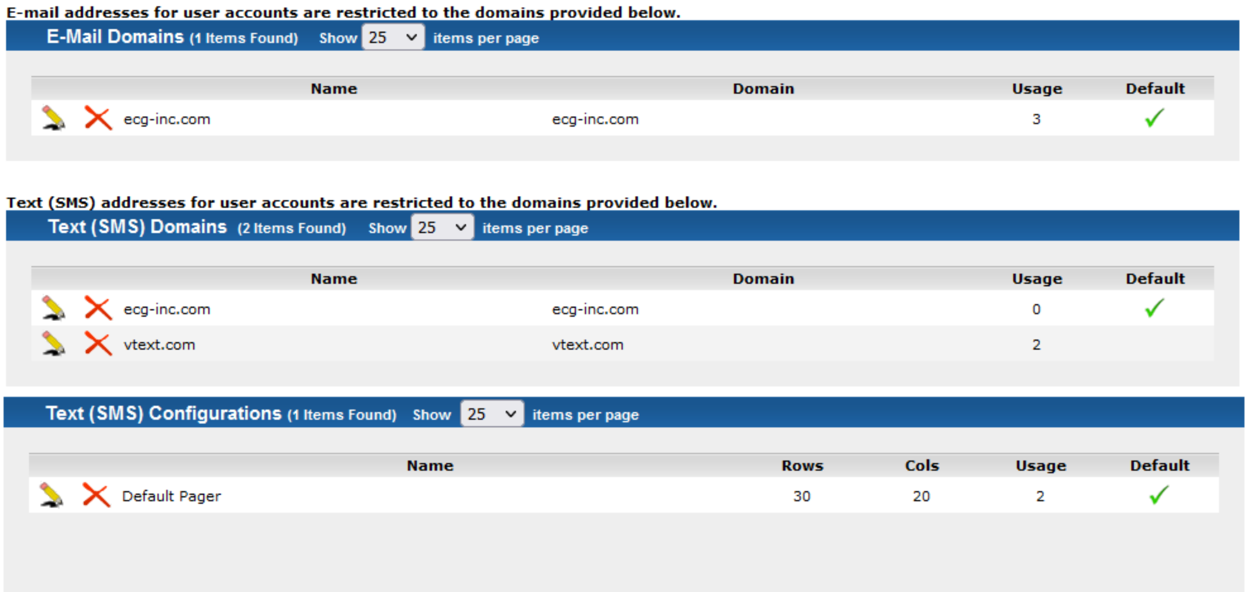
This page allows Complete Web Administrators the ability to transfer, subscribe, or move E-Larms/E-Reports/ E-XLs/E-PBs/E-Trends from one account to another.

- The Transfer option fully transfers all source account items to the destination account. It is highly recommended to use the Transfer option in cases where the source account is being decommissioned and all items owned by the source account are to be fully transferred to destination account. Transferring from one account the another moves all configured items including E-Larms, E-Reports, E-XLs, E-PBs, E-Trends, user-defined schedules, and configured Message Log Monitors.
- The Subscribe option subscribes the destination account to the selected items. If the selected items are not currently shared by the source account, they will automatically shared.
- The Move option removes the item from the source account and adds it to the destination account.

To use the interface, perform the following:

1. Choose the desired Action to Transfer, Subscribe, or Move items.
2. Select the account from which to collect items.
3. Select the account into which the items are to be transferred, subscribed, or moved.
4. When subscribing or moving items, select the type of items to include in process.
5. When subscribing or moving items, indicate if Subscriptions should be included (those items that the source account is subscribed to).
6. Click the Next button.
7. When subscripting or moving items, select specific items to be included from the preview page.
8. Click the Transfer, Subscribe, or Move button to complete the process.

3.14.9 Configure Messaging



This page allows Complete Web Administrators to configure the three aspects of messaging: E-mail Domains, Text (SMS) Domains, and Text (SMS) Configurations (types).

E-Mail Domains

This is a list of all e-mail domains configured in the system.

Click the Add E-Mail Domain button to configure a new e-mail domain or click the Edit icon located within each row to edit a particular item. When the administrator is adding or editing an e-mail domain, the administrator can set if the domain should be used as the default (if so, any other domain marked as the default domain will no longer be default domain), the name (which is shown to the end user e.g. Company Name), and the domain (what actually is used as the domain address e.g. companyname.com). If an administrator changes an existing domain value, the administrator has the option to "migrate associated addresses". When this checkbox is selected, all e-mail addresses using that domain will be updated from the previous domain to the new domain. This option is selected by default.

Click the Delete icon located within each row to delete a particular item. The e-mail address for all accounts using that domain will be cleared and an e-mail will be sent notifying that users will need to update their e-mail addresses since the domain they were using has been deleted.

Text above the e-mail domain list indicates whether domain restrictions are enabled on the site. If the system employs domain restrictions, new and existing users may only specify e-mail addresses that use a configured domain. These settings may be viewed and modified on the System Settings administration page.

If any accounts are using a domain not configured on the system, they will be displayed below the list of domains, along with a link to edit the information associated with those accounts.

Text (SMS) Domains

This is a list of Text (SMS) domains configured in the system.

Click the Add Text (SMS) Domain button to configure a new Text (SMS) domain or click the Edit icon located within each row to edit a particular item. When the administrator is adding or editing an Text (SMS) domain, the administrator can set if the domain should be used as the default (if so, any other domain marked as the default domain will no longer be default domain), the name (which is shown to the end user e.g. Text (SMS) Company), and the domain (what actually is used as the domain address e.g. textcarrier.com). If an administrator changes an existing domain value, the administrator has the option to "migrate associated addresses". When this checkbox is selected, all Text (SMS) addresses using that domain will be updated from the previous domain to the new domain. This option is selected by default.

Click the Delete icon located within each row to delete a particular item. All accounts with an Text (SMS) address using this domain will have their Text (SMS) address set to nothing, and they will be e-mailed notifying that they need to set their Text (SMS) addresses since the domain they were using is now not available for use; the domain will also be deleted.

Text above the Text (SMS) domain list indicates whether domain restrictions are enabled on the site. If the system utilizes domain restrictions, new and existing users may only specify Text (SMS) addresses that use a configured domain. These settings may be viewed and modified on the System Settings administration page.

If any accounts are using a domain not configured on the system, they will be displayed below the list of domains, along with a link to edit the information associated with that account.

Text (SMS) Configurations

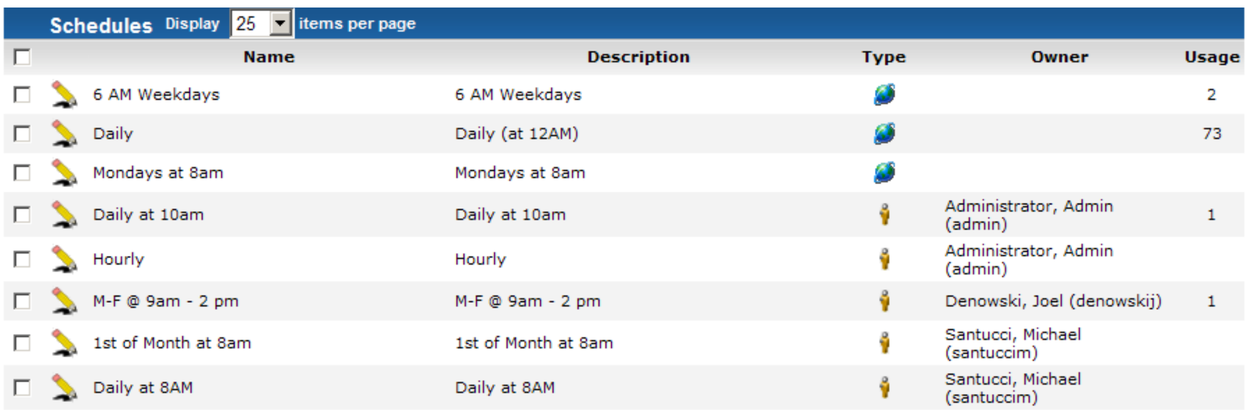
This is a list of Text (SMS) configurations (types) configured on the system.

Click the Add Text (SMS) Config button to configure a new Text (SMS) configuration or click the Edit icon located within each row to edit a particular item.

When the administrator is editing an Text (SMS) configuration, the administrator can set the configuration name (which is shown to the end user), the number of Columns (# of characters available across the screen), the number of Rows (# of rows available from top to bottom on the screen), the Padding Character (since for many pagers, use of spaces can cause problems, it may be helpful for the administrator to specify use of a different character such as "." for padding). Padding is used for E-Reports between the left description and right description for each PI tag), the Initial Padding (many pagers automatically put some text in the first line – this lets the administrator account for this by specifying the number of characters to compensate for this text), and any comments.

Click the Delete icon located within each row to delete a particular item.

3.14.10 Configure Schedules



Schedules Display 25 items per page

	Name	Description	Type	Owner	Usage
	6 AM Weekdays	6 AM Weekdays			2
	Daily	Daily (at 12AM)			73
	Mondays at 8am	Mondays at 8am			
	Daily at 10am	Daily at 10am		Administrator, Admin (admin)	1
	Hourly	Hourly		Administrator, Admin (admin)	
	M-F @ 9am - 2 pm	M-F @ 9am - 2 pm		Denowski, Joel (denowskij)	1
	1st of Month at 8am	1st of Month at 8am		Santucci, Michael (santuccim)	
	Daily at 8AM	Daily at 8AM		Santucci, Michael (santuccim)	

This page allows administrators to view, add, edit and delete schedules.

Click the Add Schedule button to create a new schedule. To delete one or more schedules, select the checkbox next to the desired item(s) and click the Delete Schedule(s) button. To edit an existing schedule, click the Edit icon next to the desired item.

Complete Web Administrators have access to add/edit/delete global and any local account schedules. All other users only have access to view global schedules, and add/edit/delete their local account schedules.

Refer to the Schedule Configuration section of this manual for information on configuring a schedule.

Name

This is what the user will see on the Home Page beside E-Reports, E-XLs, and E-PBs configured for this schedule.

Description

This is what the user will see in the dropdown list of schedules when editing an E-Report/E-XL/E-PB.

Type

This column indicates the scope of the schedule – global or local. Global schedules are available to all users when configuring their E-Reports, E-XLs, and E-PBs. Local schedules are private and only available to the user who created them.

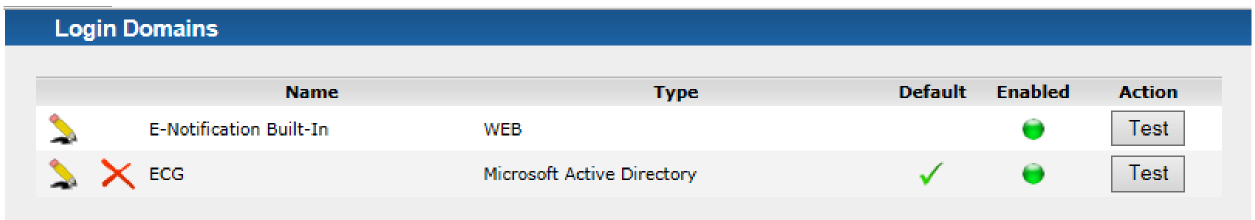
Owner

Global Schedules do not have an owner as they are public and available to all users. Local schedules are created, maintained, and used only by a specific user. This user is considered the Owner of the schedule.

Usage

This is the total number of E-Reports, E-XLs, and E-PBs that are configured to use a particular schedule.

3.14.11 Configure Domains

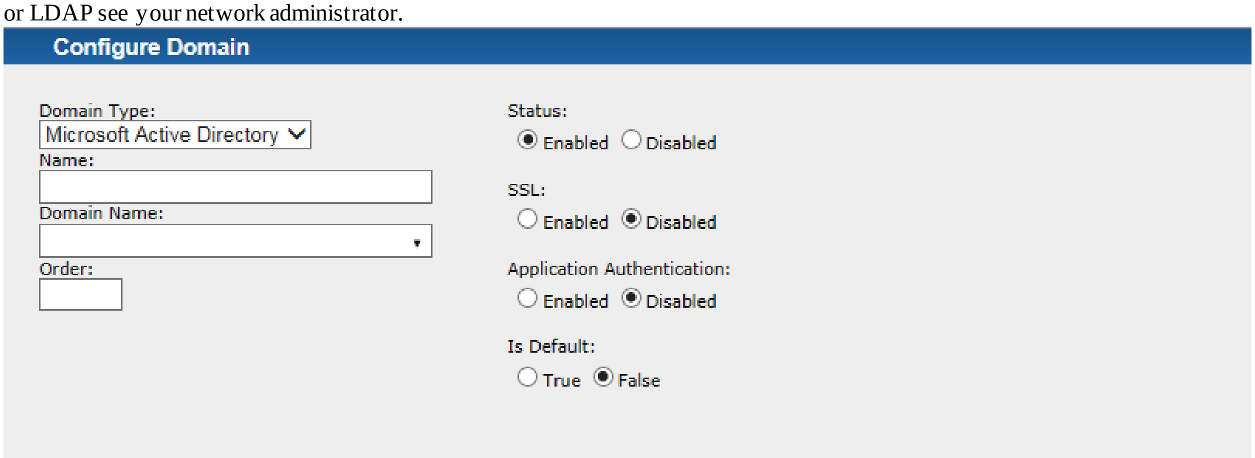


This page allows administrators to configure domain information for user logins.

To delete a domain entry simply click the delete icon in the corresponding row. NOTE: the Built-In domain canot be removed. To create a new domain click the Add Domain button on the top left. To edit an existing domain click the edit icon in the corresponding row. The domain connection can be tested by clicking the test button.

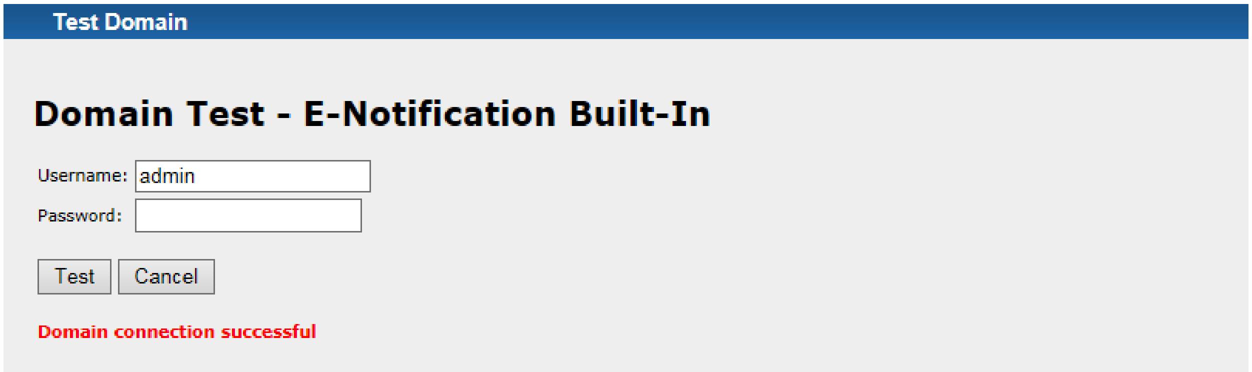
Adding or Editing a Domain

This interface is used to add a new or edit an existing login domain. Glance currently supports Active Directory and LDAP domains only. When editing or adding a domain if the user selects to set the current domain as the default, any other domain set as the default will have its status as the default removed. For more information on the fields required by either Active Directory or LDAP see your network administrator.



Testing a Domain

Once a domain is created or edited the user can test the domain by clicking the Test button. Simply fill in the login information and click Test. A message will appear below to indicate success or failure.



3.14.12 Message Log Monitors

This page allows administrators to configure a Message Log Monitor.

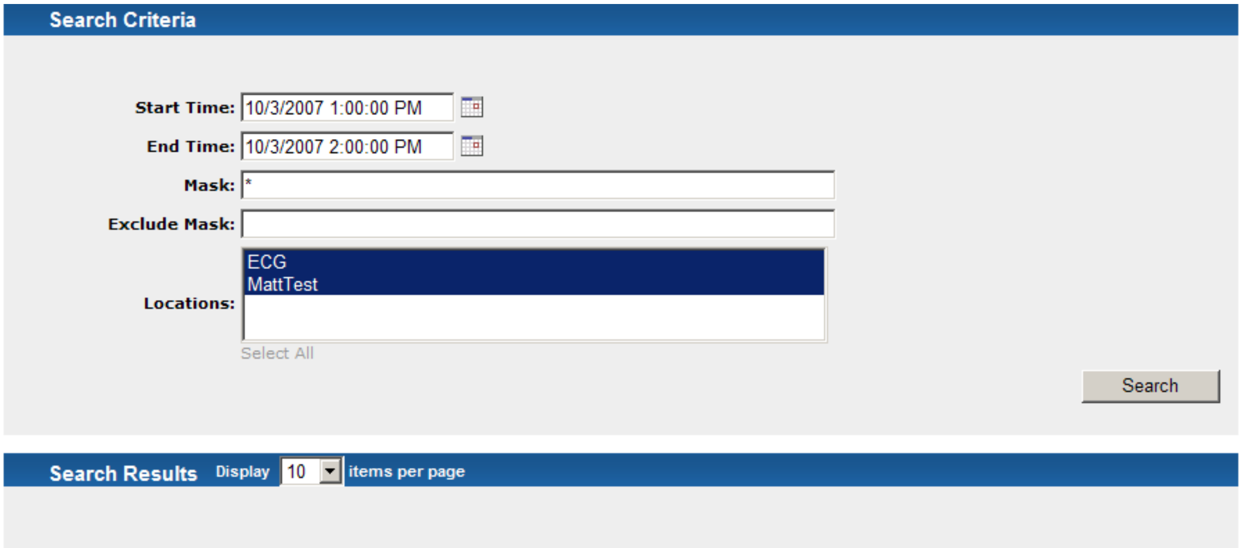
To delete one or more monitors, select the checkbox next to the desired item(s) and click the Delete button. Click the Add button to create a new Message Log Monitor. Click the Edit icon on an existing message log monitor to edit that item.

Adding or Editing a Message Log Monitor

When editing an existing Message Log Monitor, an administrator may modify the Description, Search Masks, Exclude Masks, Administrators to Notify, and Locations to Monitor. To save all the information EXCEPT for Search Masks and Exclude Masks, the administrator should click the Save button. The administrator can add Search Masks and Exclude Masks by specifying a mask in the textbox then clicking the corresponding Add button. To delete a Search Masks or Exclude Mask, click the Delete link included with each mask.

Adding a new Monitor is very similar to editing an existing item except that only one Search Mask and one Exclude Mask may be specified initially. Once created, the administrator may edit that Message Log Monitor to add additional masks.

3.14.13Message Log Search



This page allows an administrator the ability to view the Message Logs for all E-Larm locations (PI Systems). Complete Web Administrators have access to all E-Larm locations. Location administrators only have access to the locations they administer. Click the Search button to view the results.

Start and End Time

The administrator must choose the Start Time and End Time before viewing. When the administrator first views the web page, the Start Time defaults to the current hour and the End Time defaults to the next hour. For example, if it was 10:30 AM on October 6th 2007, the Start Time default would be 10/6/2007 10:00:00 AM, and the End Time default would be 10/6/2007 11:00:00 AM

Log Mask

Enter the text to search for within the Log field.

Log Exclude Mask

Enter text within the Log field to exclude from the search results.

Program Mask

Enter the text within the Program field to search for.

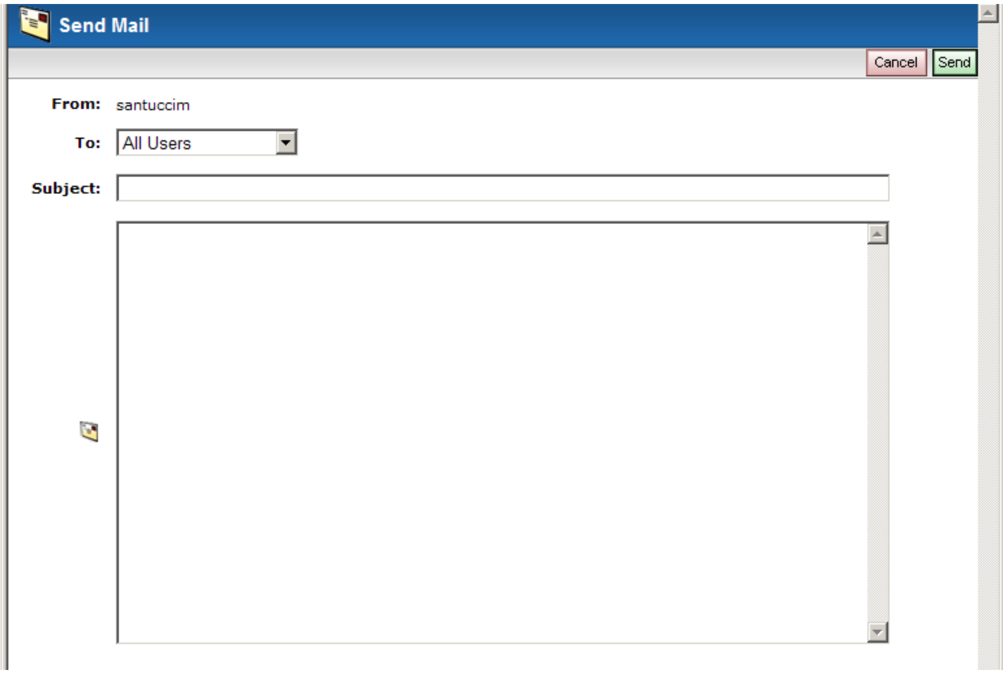
Locations

Select one or more locations to view logs from.

Save as Monitor Button

Click the Save as Monitor button to create a Message Log Monitor based on the specified search criteria. For more information on this page, refer to "Message Log Monitors" section of this manual.

3.14.14 Send Mail



This page allows administrators the ability to send e-mail messages to groups of users. Select a recipient, then specify a subject, and body. Click the Send button to send the message.

Complete Web Administrators may send to All Users, Only Administrators, or to users of a specific E-Larm Location. Users of a specific E-Larm Location are determined by finding all the unique email addresses for accounts that have either an E-Larm monitoring a PI tag at the particular location or an E-Report with at least one PI tag (or PE Equation utilizing a PI tag) at the particular location.

Location Administrators have similar options, but may only send e-mail to users of the locations they are administering.

3.14.15Stats

System Overview

Type	Count
Accounts	17
E-Larm	114
E-Report	32
E-XL	34
E-PB	30
E-Trend	25

New Accounts

Username	First Name	Last Name	Email	Date Created
enoteuser	demo	user		10/3/2007 8:23:44 AM
mooneyj	James	Mooney	mooneyj@ecg-inc.com	8/29/2007 3:32:11 PM
schmoej	Joseph	Schmoe	denowskij@ecg-inc.com	8/1/2007 2:07:50 PM
denowskij	Joel	Denowski	denowskij@ecg-inc.com	8/1/2007 7:54:47 AM
ryan	ryan	ryan	ryan@ecg-inc.com	7/30/2007 1:40:04 PM
helgesonc	Caleb	Helgeson	helgesonc@ecg-inc.com	7/30/2007 12:28:36 PM
Jim	Jim	Scavuzzo	scavuzzoj@ecg-inc.com	7/27/2007 10:32:47 PM
wukier	ryan	wukie	dk@ecg-inc.com	7/27/2007 9:17:57 PM
brandensteint	Thomas	Brandenstein	brandensteint@ecg-inc.com	7/26/2007 11:26:25 AM
scavuzzoj	Jim	Scavuzzo	scavuzzoj@ecg-inc.com	7/25/2007 10:50:28 AM

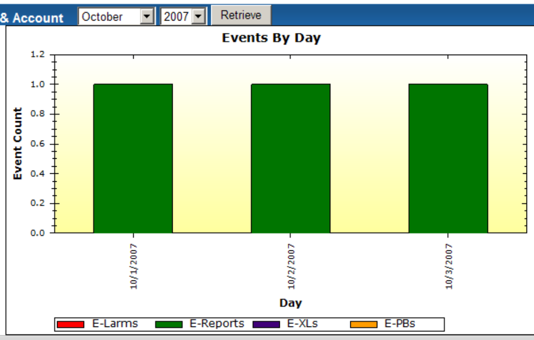
Unverified Accounts

Username	First Name	Last Name	Email To Verify	Old Email	Date Created
enoteuser	demo	user	sugiuraj@ecg-inc.com		10/3/2007 8:23:44 AM

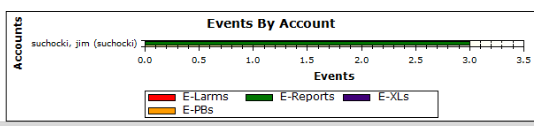
Recent Logins

Username	First Name	Last Name	Email	Last Visit
santuccim	Michael	Santucci	santuccim@ecg-inc.com	10/3/2007 12:32:32 PM
jsugiura	jo	sugiura	sugiuraj@ecg-inc.com	10/3/2007 11:01:57 AM
Matt	Matt	Caesar	caesarm@ecg-inc.com	10/3/2007 11:01:57 AM
helgesonc	Caleb	Helgeson	helgesonc@ecg-inc.com	10/3/2007 10:24:48 AM
enoteuser	demo	user		10/3/2007 8:23:45 AM
admin	Admin	Administrator	rohanar@ecg-inc.com	10/2/2007 1:04:24 PM
mooneyj	James	Mooney	mooneyj@ecg-inc.com	9/12/2007 8:00:59 AM
suchocki	jim	suchocki	suchockij@ecg-inc.com	9/5/2007 5:34:53 PM
ryan	ryan	ryan	ryan@ecg-inc.com	8/29/2007 4:06:11 PM
denowskij	Joel	Denowski	denowskij@ecg-inc.com	8/20/2007 5:04:47 PM

Events By Day & Account October 2007 Retrieve



Day	E-Larm	E-Report	E-XL	E-PB
10/1/2007	0	1	0	0
10/2/2007	0	1	0	0
10/3/2007	0	1	0	0



Name	Events	E-Larms	E-Reports	E-XLs	E-PBs
suchocki, jim (suchocki)	3	0	3	0	0

The Stats page provides general usage statistics to E-Notification administrators. Various sections of the page may be interactive, allowing the administrator to provide a timeframe for desired event statistics. By default, the timeframe is set to the current month and year.

3.14.16System Settings

Company Name

Specify the company name in order to customize or brand the web site. The company is displayed at the top of all pages only when the web site is a Demo site.

Server Supports Excel 2007 extensions

If the server where E-XL is running has Excel 2007 and the appropriate PI-DataLink version installed, this will enable users to upload and save E-XL reports as .xlsx and .xlsm. By default, this is enabled.

Default E-Larm Description

When creating new E-Larms, the default description is set based on the PI tag descriptor. To instead use the PI tagname as the default description, set the Default E-Larm Description to "Tagname". This setting is respected when creating new E-Larms via the PI Tag search as well as the Multi-point builder.

Enable Domain Restrictions

An E-Notification administrator can enable or disable domain restrictions for e-mail and Text (SMS) addresses. Enabling domain restrictions requires that all e-mail and Text (SMS) addresses use domains configured in the system. Administrators can utilize the Configure Messaging administration page to add, delete, or modify domains. Disabling domain restrictions allows a user to specify their entire e-mail and/or Text (SMS) address in their account profile. By default, domain restrictions are enabled.

Enable Strict E-Mail Formatting

Enabling Strict E-Mail Formatting requires that all e-mail and Text (SMS) addresses use the standard username@domain.com or 8005551234@textcarrier.com format. If this is unchecked then there will be no validating e-mail or Text (SMS) addresses (ex. something like "username" or "username@domain" could be used).

Account Verification Mode

An E-Notification administrator can decide how new accounts and account email changes are verified. There are four possible methods. The default method is User Validation.

1. No Validation: No verification is necessary when this method is selected. New accounts are automatically verified and when account email changes are made, they are automatically verified.
2. User Validation: The E-Notification System sends an e-mail to the user containing a link that will validate his or her new account or account email changes. A Complete Web Administrator may also validate the new account or account email changes via the View Accounts administration page.
3. Admin Validation (e-mail): All Complete Web Administrators are sent an email containing a link that will validate the new account or account e-mail changes. The user creating the account or changing his or her e-mail address will NOT receive an e-mail. Only one Complete Web Administrator needs to click the link in the e-mail to validate the new account or account e-mail changes. A Complete Web Administrator may also validate the new account or account email changes from the View Accounts administration page.
4. Admin Validation (no e-mail): No validation email is sent to the user or Complete Web Administrator when a new account is created or e-mail address is changed. The account can only be validated or have a change in e-mail address when the Complete Web Administrator verifies these actions on the View Accounts administration page.

Disable 'Create New Account' Link on Login Page

An E-Notification administrator can enable or disable the ability for new users to sign up for an account on the E-Notification System. By default, the Login page includes a link to 'Create New Account'. Use this option to hide or show that link.

Product Key

To enter or change the Product Key, click the Change License button. Enter the "Registered to" and "Product Key" provided by ECG and click the Register button to submit. Once the web site is licensed, the product key is displayed.

Error Reporting

An E-Notification administrator can enable or disable automated error reporting. When automated error reporting is enabled, an e-mail is sent when an error is encountered on the web site. By default, error reporting is enabled with reports sent to enotedev@ecg-inc.com. The Error Report Recipient E-Mail Address may be modified, but this is not recommended.

Branding

Branding is possible in two places, at the option of the customer: The title bar area at the top of the page in the corner right to the aof the E-Notification logo, and a logo that could appear at the top of the initial login window. Two file replacements are necessary. The following is a recommended set of guidelines to follow when integrating a customer's logo into E-Notification.

Login Window

Maximum picture dimensions: 200 pixels wide by 92 pixels high
Filename: loginLogo.gif
Background color (matted transparency recommended): #386C9E

The logo should not run flush all the way to the edges – it is recommended to keep about 5 to 8 pixels of margin around the edges. All logos and logotypes are different, use personal judgment for margins and spacing. The logo will automatically center horizontally. The login logo uses a dark background so a logo designed for dark or black background use is recommended.

Titlebar

Maximum picture dimensions: 35 pixels tall – the width of the image is up to the customer as well as the customer's display hardware.
Filename: splashR.gif
Background color (matted transparency recommended): #8CABCA

The logo should not run flush all the way to the edges – it is recommended to keep about 5 to 8 pixels of margin around the edges. All logos and logotypes are different, use personal judgment for margins and spacing. The logo will appear flush on the right side of the window. The blue used in the background of the titlebar is close to a 50% neutral grey in perceived value, so a logo with either a light or dark background will work.

SQL Connection Settings

An E-Notification administrator can configure the web site to connect to a different SQL Server in the event of database migration. Provide the SQL connection information, including host, database name (including instance if not default instance), username, and password. After entering the SQL information, click "Test Connection" to test the SQL Connection. After a successful connection test, continue by providing a username and password for an E-Notification administrator. Click Save to commit the settings. In the event these settings cannot be saved, detailed error information will be displayed.

3.14.17 Test Connections

Internet Access

To determine if the web site host machine can connect to an external computer on the network, provide the Host/IP address of the external machine and click "Test Internet Access". The Ping response will be displayed.

SQL Server

Provide SQL Server, SQL Server Database, SQL Server Username, and SQL Server Password to test connectivity to an SQL Server. Click "Test SQL Server Connection" to determine if the inputs provided form a valid SQL connection.

FTP Server

Provide FTP Server, FTP Username, FTP Password, and FTP Port to test connectivity to an FTP server. Click "Test FTP Server Connection" to view results. Please note that this simply opens an FTP connection, but does NOT validate write access.

PI System Server

Provide a PI System Server, PI Username, and PI Password to test connectivity to a particular server. Click "Test PI System Server Connection" button to display connection results. Please note that this only verifies read access to the PI Server and does NOT verify write access.

Twilio

Use this to test sending text messages from E-Notification using Twilio Cloud Services. Enter the company's Twilio account information, including Account SID, Auth Token, and Sender Phone Number. Enter a Recipient Phone Number. All phone numbers must include the country code and numeric characters only, preceded by a plus (+) sign. Click "Test Twilio SMS" button to display connection results. A response of "Queued" indicates success. Other responses may provide assistance in troubleshooting Twilio connectivity issues as these messages come directly from the Twilio service.

Automated Error Reports

To test the automated report system click "Test Automated Error Reports." This sends an automated error report to the email address configured in the "Error Reporting" section under System Settings.

4 E-Notification Add-in for Excel

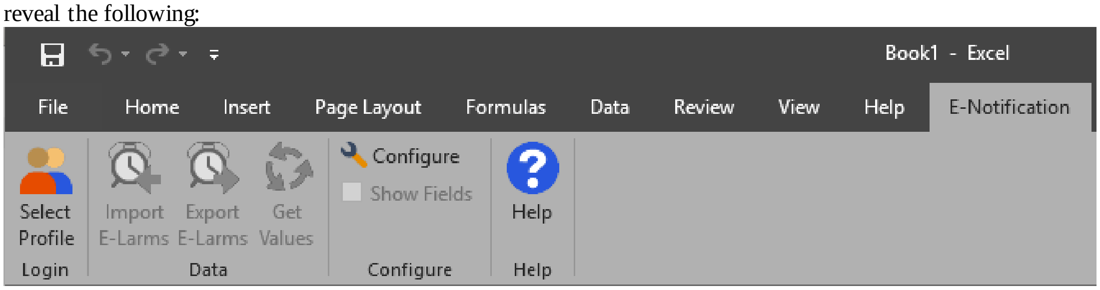
4.1 Introduction

The E-Notification Add-in for Excel provides a spreadsheet interface to a user's E-Larms. The following requirements must be met in order to use this component of the E-Notification System:

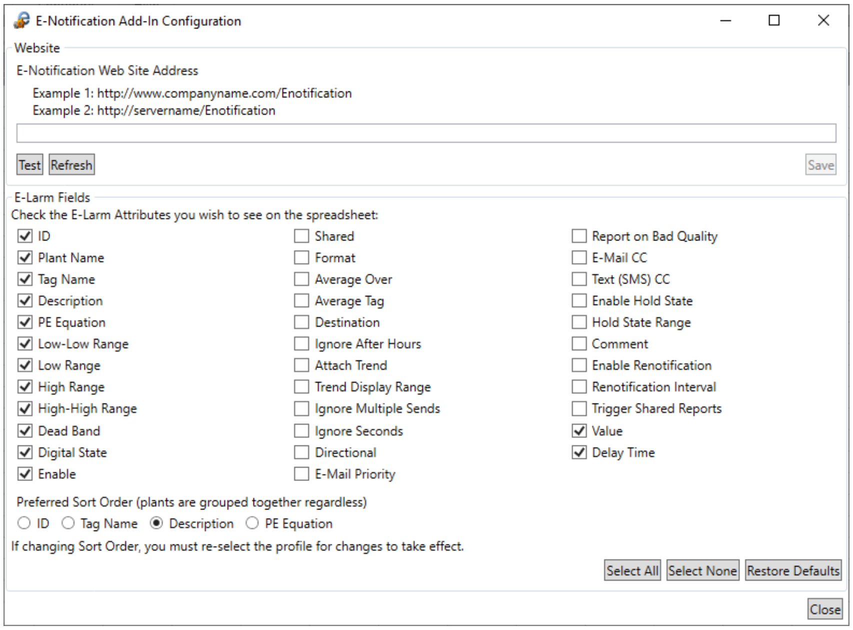
1) The E-Notification Web Site must be running and accessible from the user's computer.
2) Microsoft Excel 2016 x64 or higher must be installed on the user's computer.
3) The OSIsoft PI-DataLink add-in for Excel must be installed.

4.2 Getting Started

After the E-Notification Add-in for Excel has been installed it will appear in the Microsoft Excel Ribbon. Clicking on it will reveal the following:



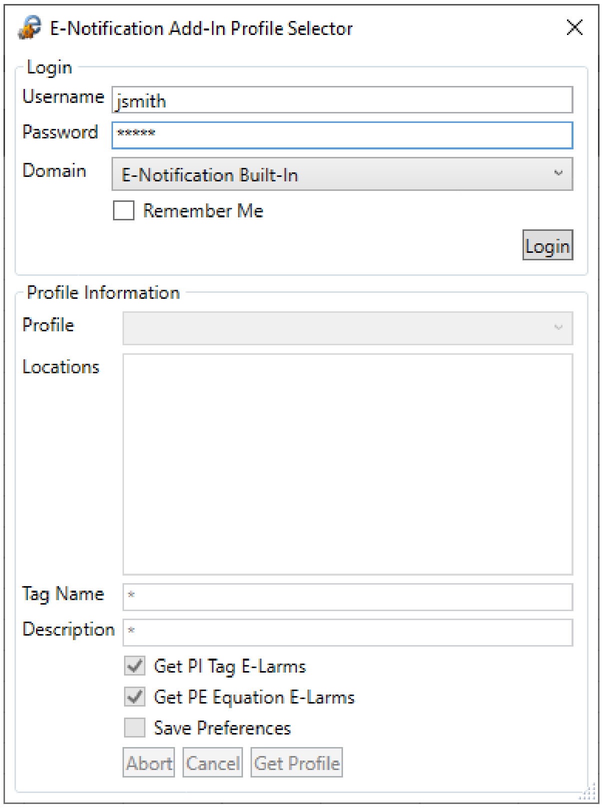
Notice that most of the ribbon items have been disabled. This is because there is not yet a valid connection to the E-Notification Web Site. (These ribbon items would also be disabled if the OSIsoft PI DataLink add-in for Excel were not detected). Click "Configure" in the ribbon to bring up the following:



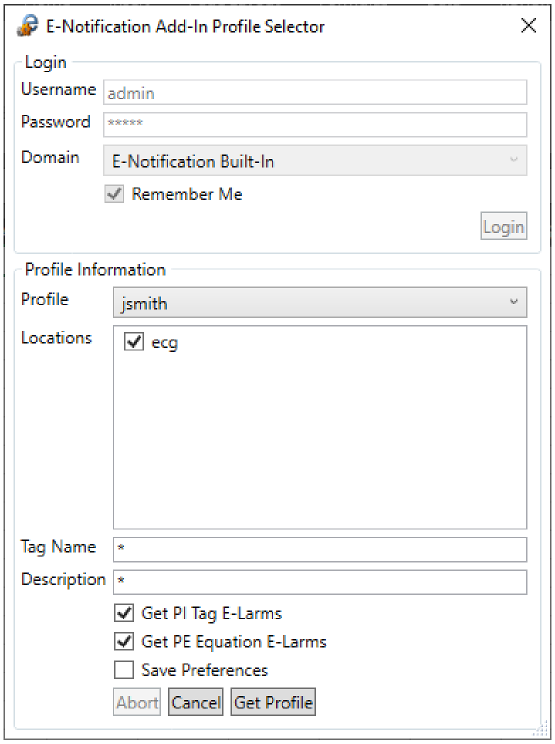
Type in the address to your company's E-Notification Web Site, click Test, then click "Save". Finally, configure which E-Larm fields you want to be visible on the spreadsheet. When configuration settings are complete, click "Close". There is also the option to sort the E-Larms returned by ID, Tag Name, Description, and PE Equation. The default sorting field is by Description. Also note that E-Larms are grouped by Location first then sorted by one of the fields previously mentioned.

4.3 Logging in/Selecting a Profile

Click "Select Profile" from the E-Notification ribbon. This is where the user will enter in his/her E-Notification system credentials for his/her existing E-Notification account.

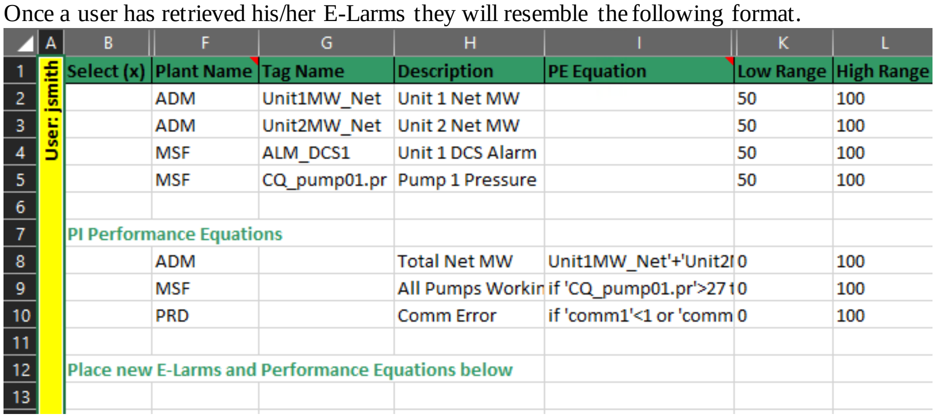


If the user checks "Remember Me" the login information will be stored in the E-Notification add-in. Once successfully logged in the user must now specify which E-Larms to retrieve. Location administrators and Complete Web Administrators will be able to choose profiles other than their own and add/edit/delete E-Larms for the location(s) they administer. General users will not be able to select a profile other than their own. Next the user must decide from which location to retrieve the E-Larms. Multiple locations may be selected. If the user chooses to limit the E-Larms returned by Tag Name or Description, those options are also available. A default of "*" in each box will bring back all E-Larms for the selected Profile/Location combination. The user can further limit which E-Larms are to be retrieved by specifying which kind of E-Larms to retrieve – PI Tag and/or PE Equation E-Larms. The profile settings may also be saved to the E-Notification add-in by checking the box next to "Save Preferences". Once the user is satisfied with the configuration of the Profile Information, clicking "Get Profile" will initiate retrieving the E-Larms. If the users wishes to cancel the process after clicking "Get Profile" he/she can simply click "Abort" and the retrieval will cease. To change the Profile Information and/or Login settings simply choose "Select Profile" again from the E-Notification ribbon.



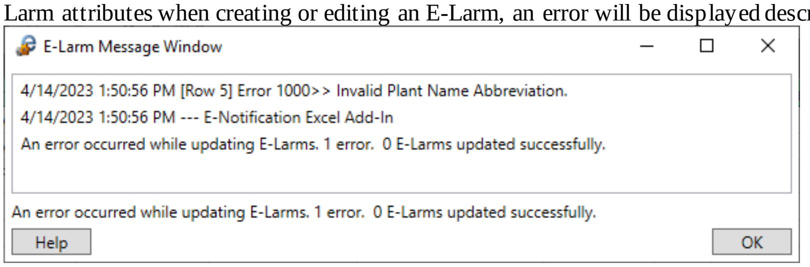
4.4 Editing E-Larms

Once a user has retrieved his/her E-Larms they will resemble the following format.

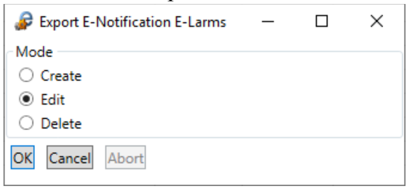


	A	B	F	G	H	I	K	L
1	User: jsmith	Select (x)	Plant Name	Tag Name	Description	PE Equation	Low Range	High Range
2			ADM	Unit1MW_Net	Unit 1 Net MW		50	100
3			ADM	Unit2MW_Net	Unit 2 Net MW		50	100
4			MSF	ALM_DCS1	Unit 1 DCS Alarm		50	100
5			MSF	CQ_pump01.pr	Pump 1 Pressure		50	100
6								
7		PI Performance Equations						
8			ADM		Total Net MW	Unit1MW_Net'+'Unit2I	0	100
9			MSF		All Pumps Workir	if 'CQ_pump01.pr'>27	10	100
10			PRD		Comm Error	if 'comm1'<1 or 'comm	0	100
11								
12		Place new E-Larms and Performance Equations below						
13								

The colored vertical bar to the left of the E-Larm definitions indicates which user the E-Larms belong to. If an administrator was impersonating another user (as on the E-Notification web site) that information would also appear in this bar. There are generally three main subsections of the E-Larm section on this spreadsheet. The first main section shows the user's PI Tag E-Larms. The second section shows the Performance Equation E-Larms and the last section is where new E-Larm definitions may be placed so as to create new E-Larms. Most of the E-Larm attributes have limits on what data may be entered. These limits are denoted in the header cell comments – denoted by red triangles in the upper-right corner of the cells. If a mistake is made in one of the E-Larm attributes when creating or editing an E-Larm, an error will be displayed describing what the error is. For example:



To edit an E-Larm, modify the desired attributes and place an “x” in the E-Larm “Select (x)” column. From the E-Notification ribbon, click “Export E-Larms”. Choose “Edit” and click “OK”.



4.5 Creating E-Larms

To create E-Larms simply fill in the desired E-Larm information in the “Place new E-Larms and Performance Equations below” section. The only required fields are: “Plant Name”, “Description” and “Tag Name” (or “PE Equation” depending on which type of E-Larm to be created). The fields that are left blank will be filled in with default values. By default, the “Attach Trend” option is True, and the time period shown on the attached trend is “*-8” (the end time is the current time and the start time is the current time minus eight hours). When finished defining the new E-Larms, click “Export E-Larms” from the E-Notification ribbon, select “Create” and then click “OK”.

4.6 Deleting E-Larms

To delete E-Larms, simply place an “x” in the E-Larm “Select (x)” column, click “Export E-Larms” from the E-Notification ribbon, select “Delete”, and click “OK”. A warning will prompt the user to ensure this is the desired action.

4.7 Getting Values

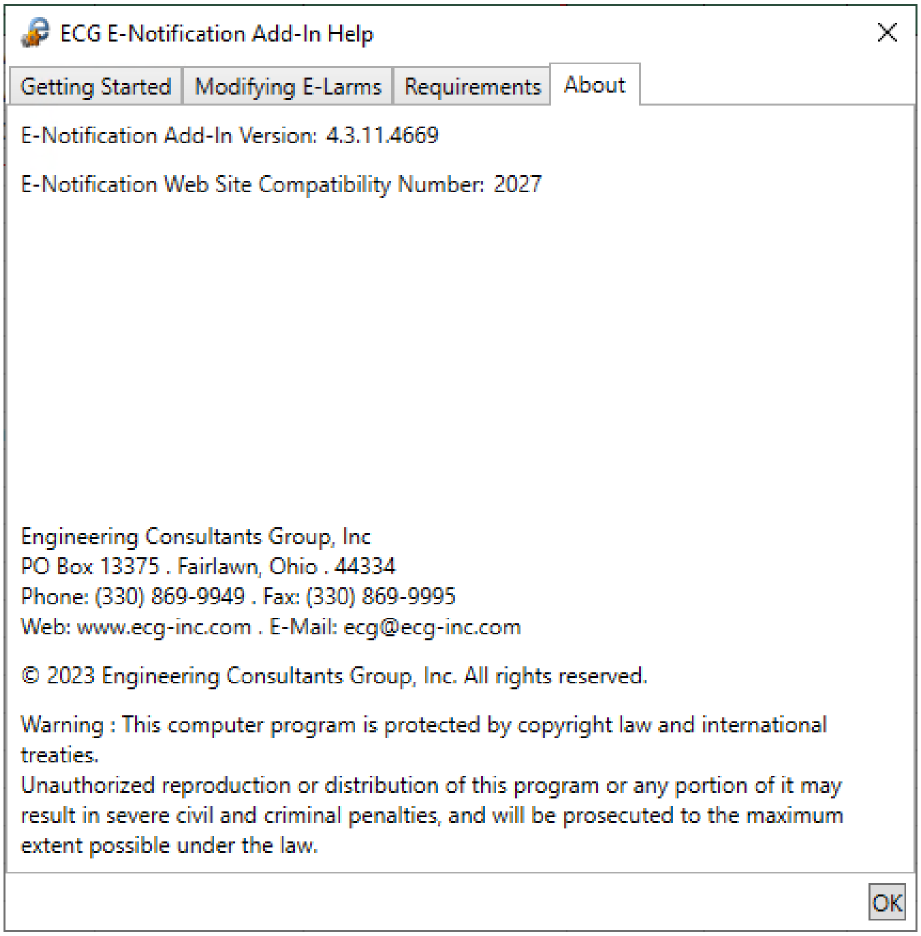
To view the current values of an E-Larm, place an “x” in the E-Larm “Select (x)” column and click “Get Values” from the E-Notification ribbon. For PI Tag E-Larms, the current snapshot value of the PI tag will be returned in the “Value” column. For Performance Equation E-Larms, the performance equation will be evaluated with the result returned in the “Value” column.

4.8 Show All PI/E-Larm Fields

If the user wishes to temporarily see all of the E-Larm fields, he may check the “Show Fields” checkbox in the E-Notification ribbon. This is a quick way to view all fields without having to go through the configuration form. Unchecking the box will return the visible fields back to the previously configured state.

4.9 Help & Compatibility

The “Help” option from the E-Notification ribbon will bring up a window with various tips on how to use this component of the E-Notification System as well as an “About” tab which will display the add-in version and “E-Notification Web Site Compatibility Number”. This number determines whether or not the E-Notification add-in may connect to the E-Notification Web Site. If the web site has been updated and is no longer compatible with the user’s version of the E-Notification add-in then no connection will be established to the Web Site and the user must contact the company’s E-Notification administrator to receive the newest version. The vendor and copyright information is also displayed on the “About” tab.



4.10 Uninstalling

If the users wishes to remove the E-Notification Add-in for Excel he/she may choose to uninstall via Windows Add/Remove Programs. A Windows administrator may be required to perform this function if the user does not have sufficient permissions.

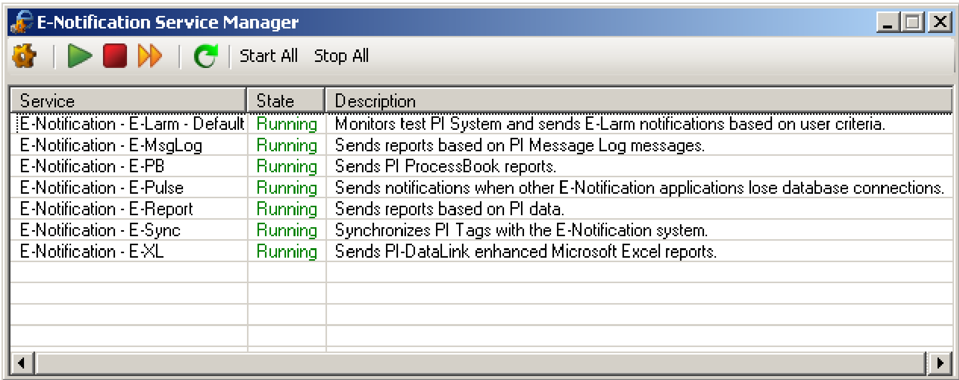
5 Software Configuration

5.1 Introduction

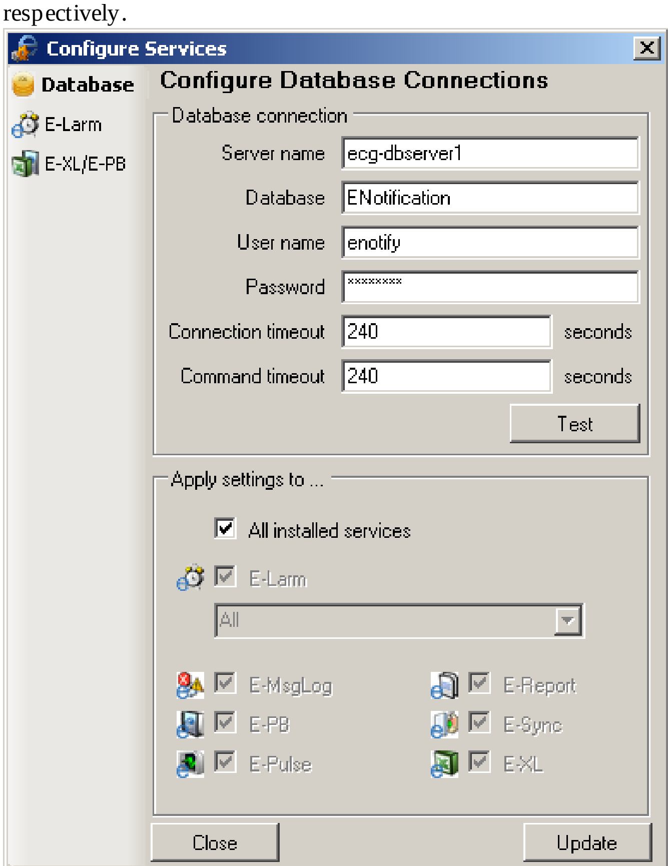
This section outlines the steps involved in advanced configuration of the E-Notification system. Note: many E-Notification services (E-Larm, E-Report, E-XL, and E-PB) log sent notifications to a file on the server where they are installed. These log files are located (by default) in C:\Program Files(x86)\ECG Inc\E-Notification\log or wherever the software is installed.

5.2 E-Notification Service Manager

The E-Notification Service Manager manages all of the E-Notification application services. The manager can stop, start, and restart any E-Notification service. It is also the interface for configuring E-Larm Applications.

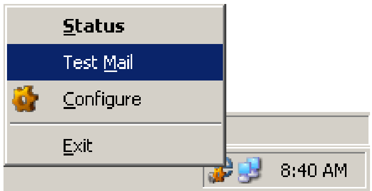


The E-Notification Service Manager also manages the Database connections for the Application Suite and E-Larm Applications. If the E-Notification database name, login, or location change in any way the changes can be applied through the service manager. The database configuration allows for changes to the Connection and Command timeouts – which may be modified if experiencing difficulties with database connections timing out or database commands requiring more time to complete, respectively.

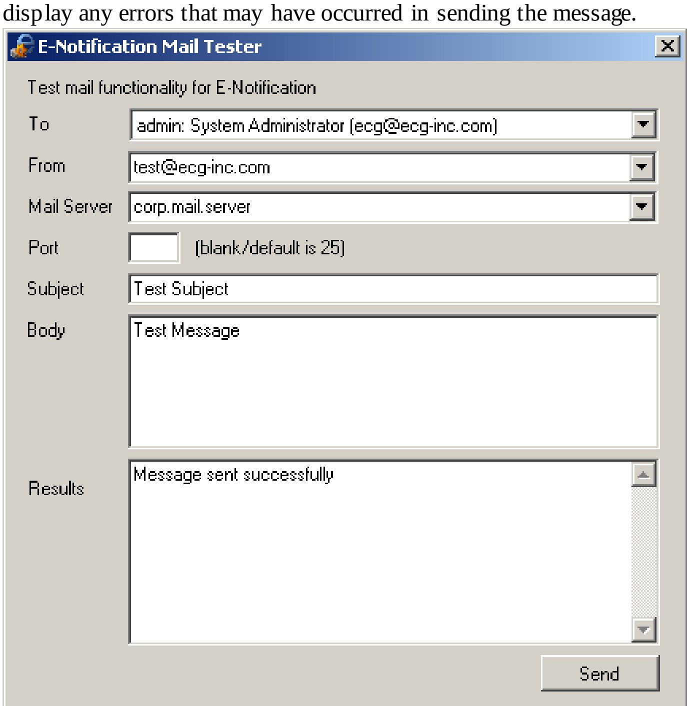


5.2.1 Testing E-Mail Connectivity (Troubleshooting E-Mail Issues)

The E-Notification Service Manager includes a program to test the connectivity between the corporate e-mail server and the E-Notification application server. If the user is experiencing issues with E-Notification messages being completely blocked, this is the best place to start troubleshooting. To bring up the test mail window, right-click the E-Notification Service Manager icon in the System Tray and choose Test Mail.



The mail test dialog is fairly straightforward – the "To" dropdown contains a list of accounts in the E-Notification system. The default "From" address is what is setup in E-Notification – this can be changed for testing purposes. The "Mail Server" dropdown contains a list of mail servers defined in E-Notification (and can be changed for testing). The port can be left blank unless your mail server does not use the standard port 25. Choose test subject and message and click Send. The Results box will display any errors that may have occurred in sending the message.



5.3 E-Larm Application

5.3.1 Introduction

The E-Larm Application is one of the core components of the E-Notification System. It functions to provide alerts and trigger reports based upon user-defined options. The E-Larm application is modular in that each PI System uses its own E-Larm installation. Therefore, adding another PI System to an existing E-Notification System requires a local instance of the E-Larm application and a reliable network connection to the E-Notification database.

The E-Larm Application is built using OSIsoft's PI-SDK and takes advantage of some advanced features from PI such as exception monitoring. Review the "E-Notification Server Requirements" section to find out which software(s) should be installed for this application.

Each E-Larm application installed monitors a single PI System and is responsible for monitoring and processing of all E-Larms configured for that PI System. In addition to the obvious high limit and low limit, E-Larms support a diverse range of features such as attaching trends to e-mail notifications, directional alarming, PI tag smoothing, and triggering of other reports such as E-Reports, E-XLs, and E-PBs.

PI PE Equations or PI Performance Equations have long been an integral part of the PI System. PE Equations offer many functions and have proven useful to for alarming purposes. E-Notification fully implements OSIsoft's PE Equations – they provide users with the ability to perform conditional alarming, tag averaging, and much more without having to add PI tags to the PI System. For a complete reference, please contact the PI System Administrator or reference OSIsoft's PI manuals.

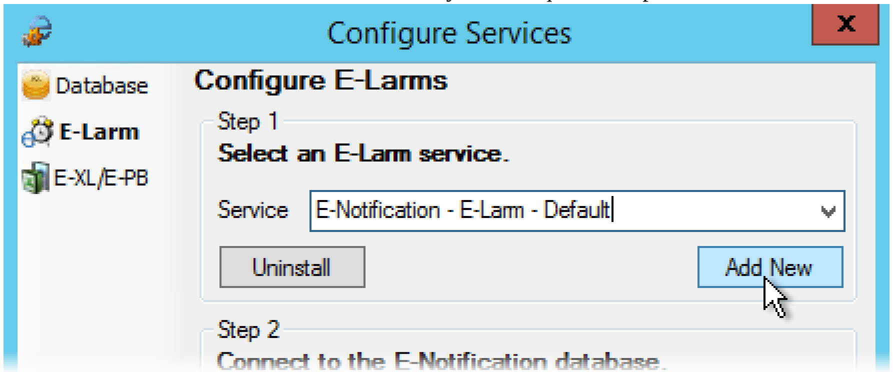
The E-Larm Application keeps a log of all messages sent. This default log file is found in "Installation Directory\Log\E-Larm LocationName_queue.log". E-Larm also logs entries into the Database which is viewable on the Web Site under Administration / View Logs. Administrators can also view events generated by E-Larm by using Windows Event Viewer and viewing the Application Log on the computer where the E-Larm is installed.

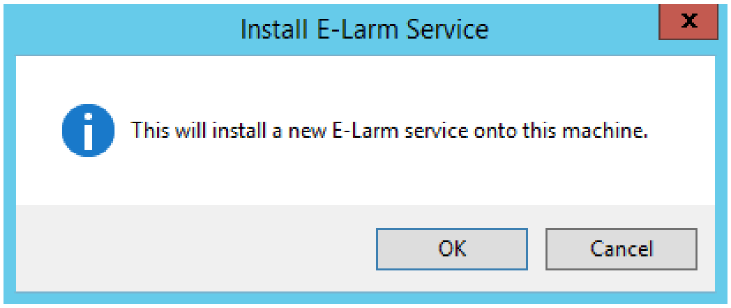
5.3.2 Installation (E-Larm Application)

The E-Notification installer will handle the initial installation of E-Larm(s) on the host computer. The PI System details, database connection information and location details are handled during this initial install. Once installed the settings may be changed using the web site and/or the E-Notification Service Manager utility. See the section about configuring the E-Larm application for more information.

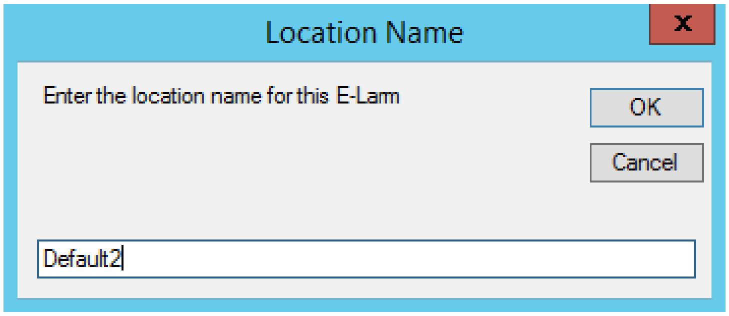
5.3.3 Installing additional E-Larms (on the same computer)

If installation of the E-Notification system has already occurred on the host computer, install new E-Larms using the E-Notification Service Manager. This can be done by typing in a new E-Larm name and clicking the "Add New" button in the Configure E-Larm form (see figures in the following section). Once a new E-Larm is installed, it must be configured and enabled from the E-Notification Web Site. If you have questions, please contact ECG for further assistance.

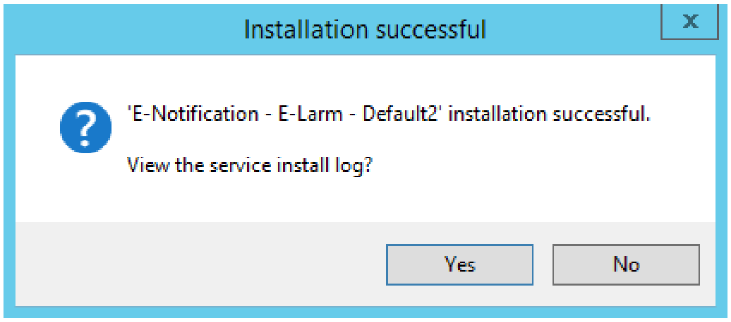




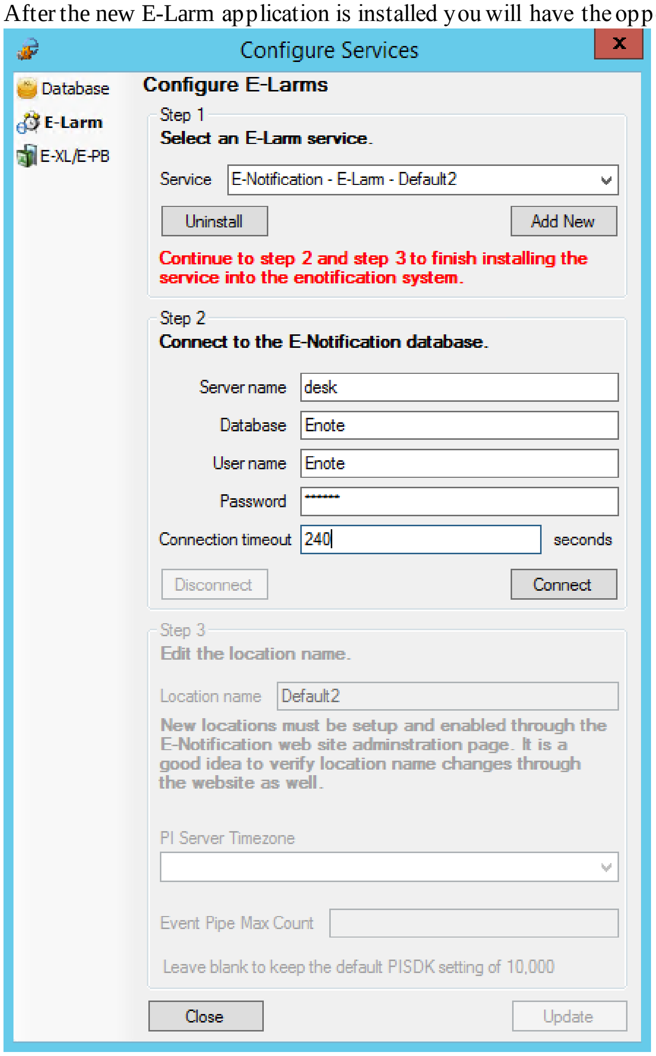
To install another E-Larm application, click "OK" when prompted to "install a new E-Larm service onto this machine."



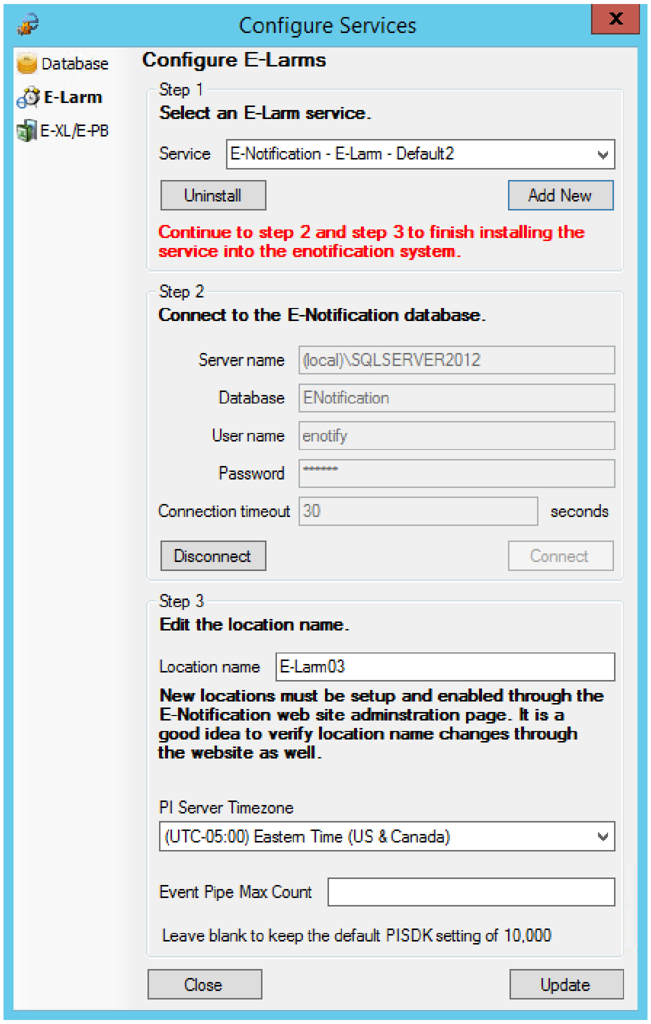
Give the new E-Larm Application a name.



After the new E-Larm application is installed you will have the opportunity to view the install log. Click "No" if not interested.



Once the new E-Larm application has been installed, configure its database connection information and click "Connect".



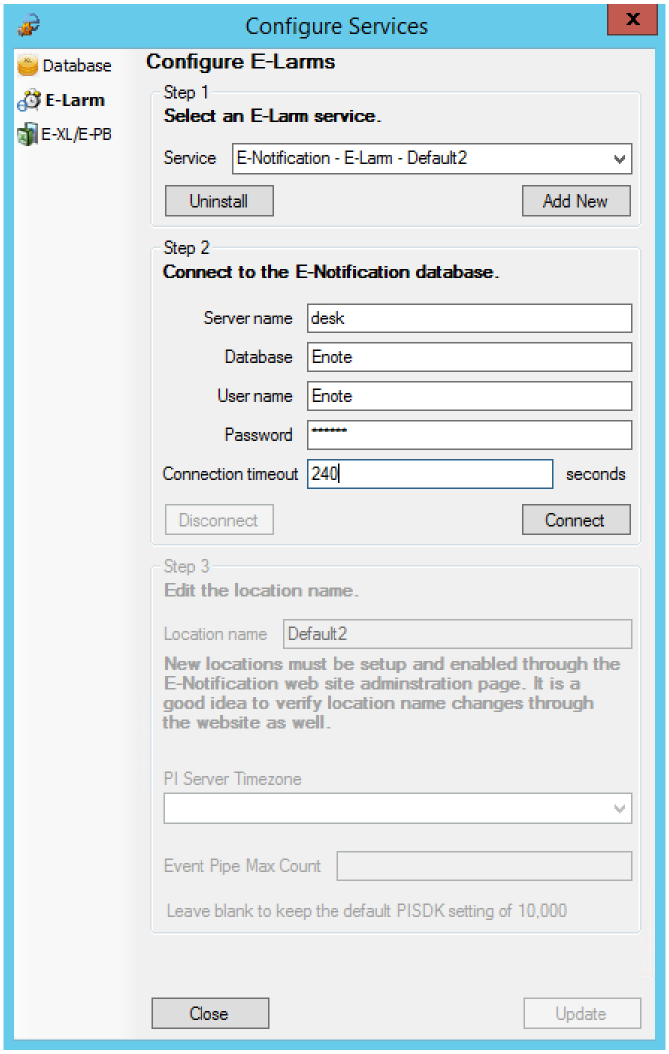
Once connected to the database, you may edit the "Location name" as desired. If the PI Server this E-Larm service is monitoring is in a different timezone than the *database* server, change that configuration here. The max count for the Event Pipe can also be changed here by entering a value in the "Event Pipe Max Count" field. If this field is left blank then the default PISDK setting of 10,000 will be used. When finished click "Update". Advanced configurations of the new E-Larm application (PI server, e-mail servers, etc) must now be configured via the "View Locations" administration section of the E-Notification Web Site. The new E-Larm application *must* be enabled via the E-Notification Web Site. Once those configurations are made, the new E-Larm service may be started from the E-Notification Service Manager.

5.3.4 Configuring (E-Larm Application)

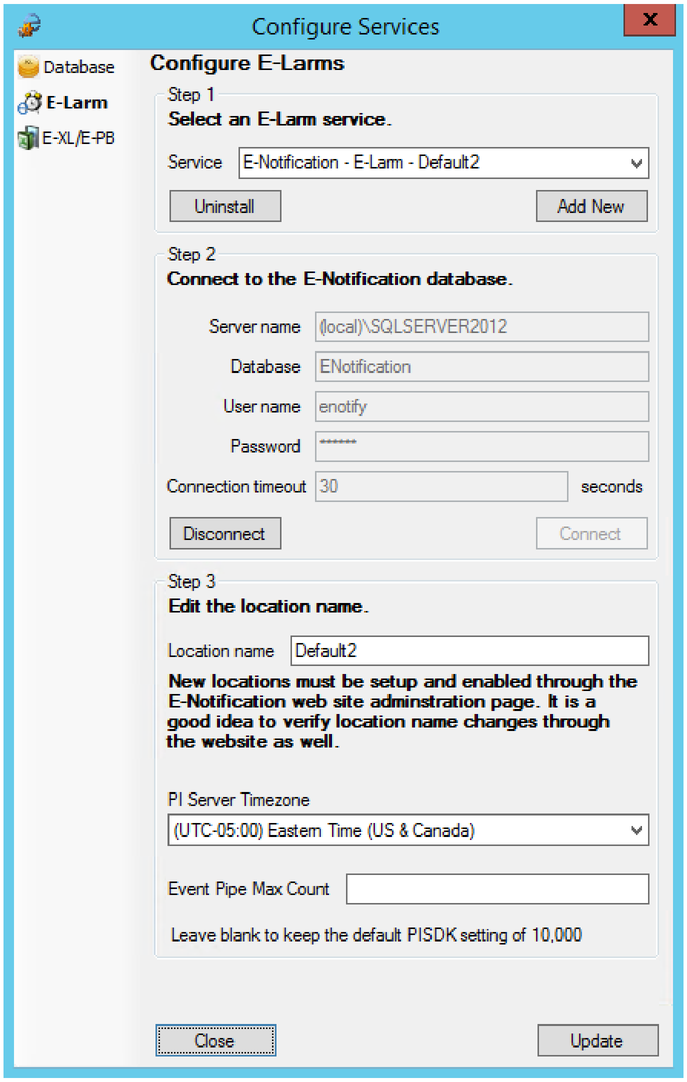
The E-Larm Application can be configured at any time, but the settings will not take effect until the Application is stopped and started. To modify the connection string or location name, go to the Start Menu → Programs → ECG, Inc → E-Notification Service Manager. This application will monitor the status and start/stop the E-Notification applications. It also has a configure section to modify E-Larms.

Configure Dialog

Run the E-Notification Service Manager (if it is not already running) to launch the E-Notification Services monitoring application. This adds an E-Notification program to the Windows system tray. Double-click the icon, select an E-Larm service, and click the Configure icon from the menu to show the Configure E-Larm dialogue below.



Modify an E-Larm by selecting it in Step 1. The database connection information configured for the selected E-Larm is loaded into the second part of the form (Step 2).



Connection String

Enter or modify the database connection information and click the Connect button. Once a connection has been successfully made, the Location name becomes editable. To change the location name, PI Server Time zone, or Event Pipe Max Count modify the fields in Step 3 and click Apply.

5.4 E-Report Service

5.4.1 Introduction

The E-Report Service is a core component of the E-Notification System. It provides PI snapshot- and PE Equation-based reports according to user-defined options on a scheduled and/or triggered basis. Only one installation of the E-Report application is required for multiple PI Systems under Corporate and Enterprise licensing schemes.

The E-Report Service utilizes OSIsoft's PI-SDK, and integrates right into the Microsoft Windows architecture via Windows Services. The E-Notification installer installs the necessary support DLLs and data components. Review the "E-Notification Server Requirements" section to find out which software(s) should be installed for this service.

E-Reports support a diverse range of features, including:

- E-Reports can be delivered to a user's Text (SMS), along with the ability for one to choose exactly what information should be sent per point (such as Point Description, Point Tagname, PI Value).
- E-Reports have the ability to include a trend with the e-mail notification. This has proven to be extremely useful as users are not only able to see what the current value of the points are, but what the values have been for a certain amount of time. These trends are configurable and one can select nearly any time range and can even specify other points not chosen in the E-Report.
- E-Reports have the ability to be "shared" with other E-Notification users – so one user can setup an E-Report and other users interested in that report can subscribe to it.
- E-Reports also have the ability to deliver to additional e-mail and Text (SMS) CC addresses, allowing for an alternative method of "sharing" E-Reports.
- The E-Report Application keeps a log of all messages sent. This file is found in the Log folder of the E-Notification installation directory (the default is "C:\Program Files\ECG Inc\ENotification\Log\E-Report_queue.log"). E-Report also logs entries into the Database which can be viewed on the Web Site under Administration / View Logs. Administrators can also view events generated by E-Report by using Windows Event Viewer and viewing the Application Log.

5.4.2 Configuration

Configuration of the E-Report Service is performed through the E-Notification Service Manager as well as the Web Site. The Service Manager allows configuration of the SQL connection string only. To edit it, right-click the E-Notification E-Report service from the E-Notification Service Manager and click Configure. Modify the SQL Connection String as desired. Click the Update button to save the changes or click the Cancel button to discard changes. From the Web Site it is possible to modify the Mail Servers, Message Footers, From Address, and Web Site Address. These options can only be edited by Web Site Administrators by choosing Administration / View Locations and clicking the Edit icon next to E-Report.

5.5 E-XL Service

5.5.1 Introduction

The E-XL Service is one of the core components of the E-Notification System. It provides Microsoft Excel (with OSIsoft PI-DataLink) spreadsheet reports based upon a scheduled and/or triggered basis. Only one installation of the E-XL service is required for multiple PI Systems under Corporate and Enterprise licensing schemes.

The E-XL Service is built using OLE automation, and integrates right into the Microsoft Windows architecture via Windows Services. The E-Notification installer installs the necessary support DLLs and data components. Review the "E-Notification Server Requirements" section to find out which software(s) should be installed for this service. E-XLs support a diverse range of features including:

- E-XLs have the ability to save the Microsoft Excel spreadsheets in multiple output formats including HTML, XLS, and CSV.
- E-XLs can be delivered to E-Mail and/or an FTP directory.
- E-XLs can contain VBA macro code for added user-defined dynamic configurations.
-

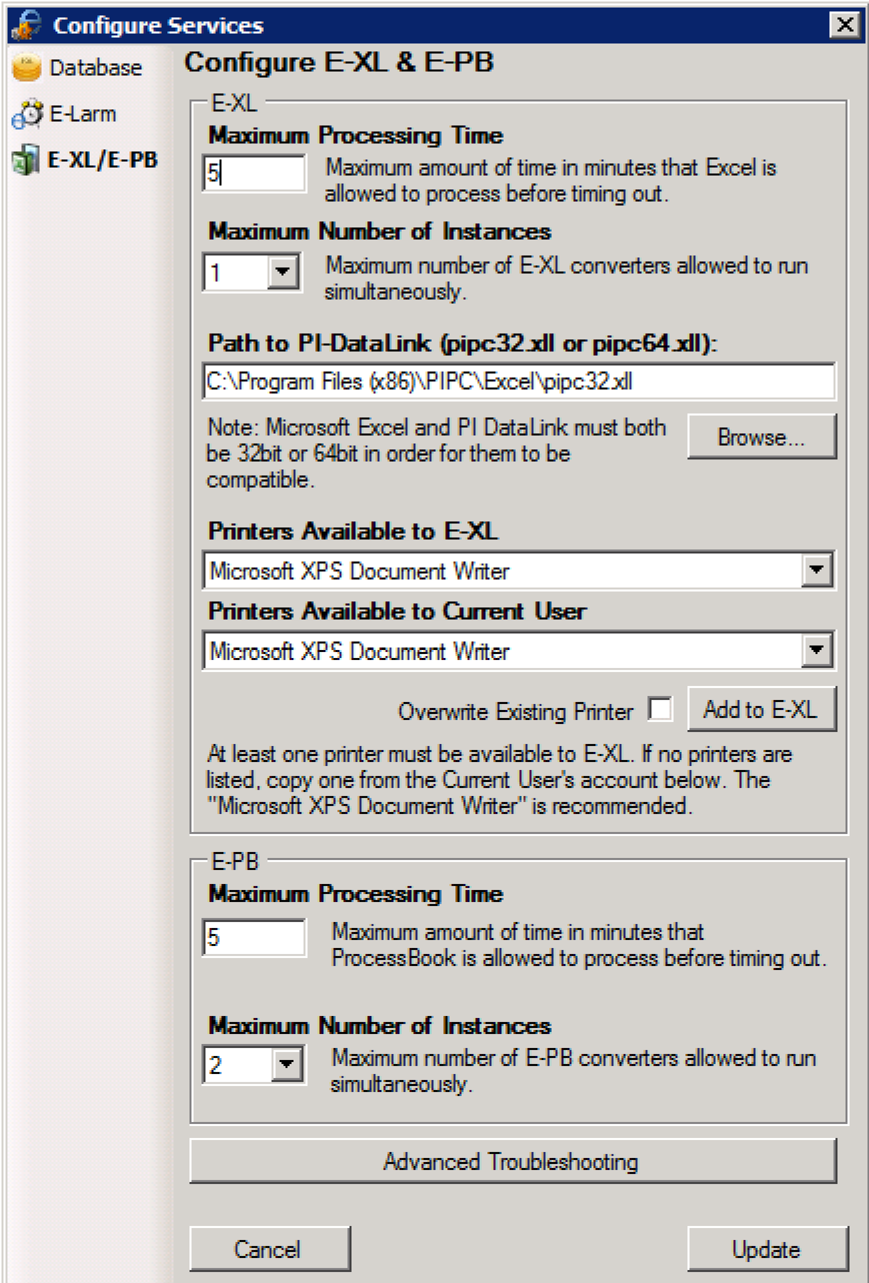
The E-XL service keeps a log of all messages sent. This file is found in the Log folder of the E-Notification installation directory (the default is "C:\ Program Files\ECG Inc\ENotification\Log\E-XL_queue.log"). E-XL also logs entries into the E-Notification database, which can be viewed on the Web Site under Administration / View Logs. Administrators can also view events generated by E-XL by using Windows Event Viewer and viewing the Application Log.

5.5.2 Configure Dialog

Configuration of the E-XL service is performed through the E-Notification Service Manager. Right-click the E-Notification E-XL service from the E-Notification Service Manager and click Configure. This dialog allows you to configure the advanced options of the E-XL as well as E-PB services. Click the Update button to save the changes. Click the Cancel button to discard changes.

This dialog is organized into 2 sections: E-XL and E-PB. To configure the database connection, refer to the introduction section on the E-Notification Service Manager.

E-XL Advanced Configuration



Specify the full path to the pipc32.xll or pipc64.xll file that is installed with PI-DataLink below "Path to DataLink". The default is C:\Program Files\PIPC\Excel\pipc32.xll. The "Maximum Processing Time" input allows the administrator to configure the number of minutes E-XL will allow Excel to wait before considering an E-XL's spreadsheet processing as timed out. When an E-XL's processing has timed out, the spreadsheet results will not be attached, but an e-mail will be sent (with a note that it has timed out). The "Maximum Number of Instances" allows the administrator to configure the number of E-XLs that may be processed at the same time. The default maximum is set to 1. It is not recommended to exceed 10 instances. Keep in mind that each instance requires128 MB of RAM. At least one printer must be available to E-XL. If there are no options listed in the

“Printers Available to E-XL”, select a printer from the “Printers Available to Current User”, then click “Add to E-XL”. The Microsoft XPS Document Writer is recommended. If E-XL or E-PB are not sending expected messages, click the “Advanced Troubleshootiong” button to troubleshoot the issue.

5.6 E-MsgLog Service

5.6.1 Introduction

The E-MsgLog Service is an optional component of the E-Notification System. It provides hourly reports based upon data in multiple PI Systems’ Message Logs. Only one installation of the E-MsgLog application is required for multiple PI Systems under Corporate and Enterprise licensing schemes.

The E-MsgLog Service utilizes OSIsoft’s PI-SDK and runs as a Windows Service. Review the “E-Notification Server Requirements” section to find out which software(s) should be installed for this service.

E-MsgLog Monitors have the ability to choose which users receive the e-mail notification and have the ability to specify not only search masks, but exclude masks as well.

The E-MsgLog Service keeps a log of all messages sent. This file is found (under a default installation) in “C:\Program Files\ECG Inc\ENotification\Log\E-MsgLog_queue.log”. E-MsgLog also logs entries into the database, which can be viewed on the Web Site under Administration / View Logs (for more information, refer to the “View Logs” section of this document). Administrators can also view events generated by E-MsgLog by using Application Log in the Windows Event Viewer.

5.6.2 Configure Dialog

Configuration of the E-MgLog Service is performed through the E-Notification Service Manager as well as the Web Site. The Service Manager allows configuration of the SQL connection string only. To edit it, right-click the E-Notification E-MsgLog service from the E-Notification Service Manager and click Configure. Modify the SQL Connection String as desired. Click the Update button to save the changes or click the Cancel button to discard changes. From the Web Site it is possible to modify the Mail Servers, Message Footers, From Address, and Web Site Address. These options can only be edited by Web Site Administrators by choosing Administration / View Locations and clicking the Edit icon next to E-MsgLog.

5.7 E-PB Service

5.7.1 Introduction

The E-PB Service is a core component of the E-Notification System. It provides PI ProcessBook reports based upon a scheduled and/or triggered basis. Only one installation of the E-PB service is required for multiple PI Systems under Corporate and Enterprise licensing schemes.

The E-PB Service is built using OLE automation, and integrates right into the Microsoft Windows architecture via Windows Services. The E-Notification installer installs the necessary support DLLs and data components. Review the “E-Notification Server Requirements” section to find out which software(s) should be installed for this service.

The E-PB service implements its own back-end architecture needed to support automating PI ProcessBooks. E-PBs supports a diverse range of features including:

- E-PBs have the ability to save the PI ProcessBook files in multiple formats: PDI, PNG, and JPG.
- E-PBs also feature the ability to save multiple Displays when the PI ProcessBook uploaded is a PIW file.
- E-PBs can be delivered to E-Mail and/or an FTP directory.

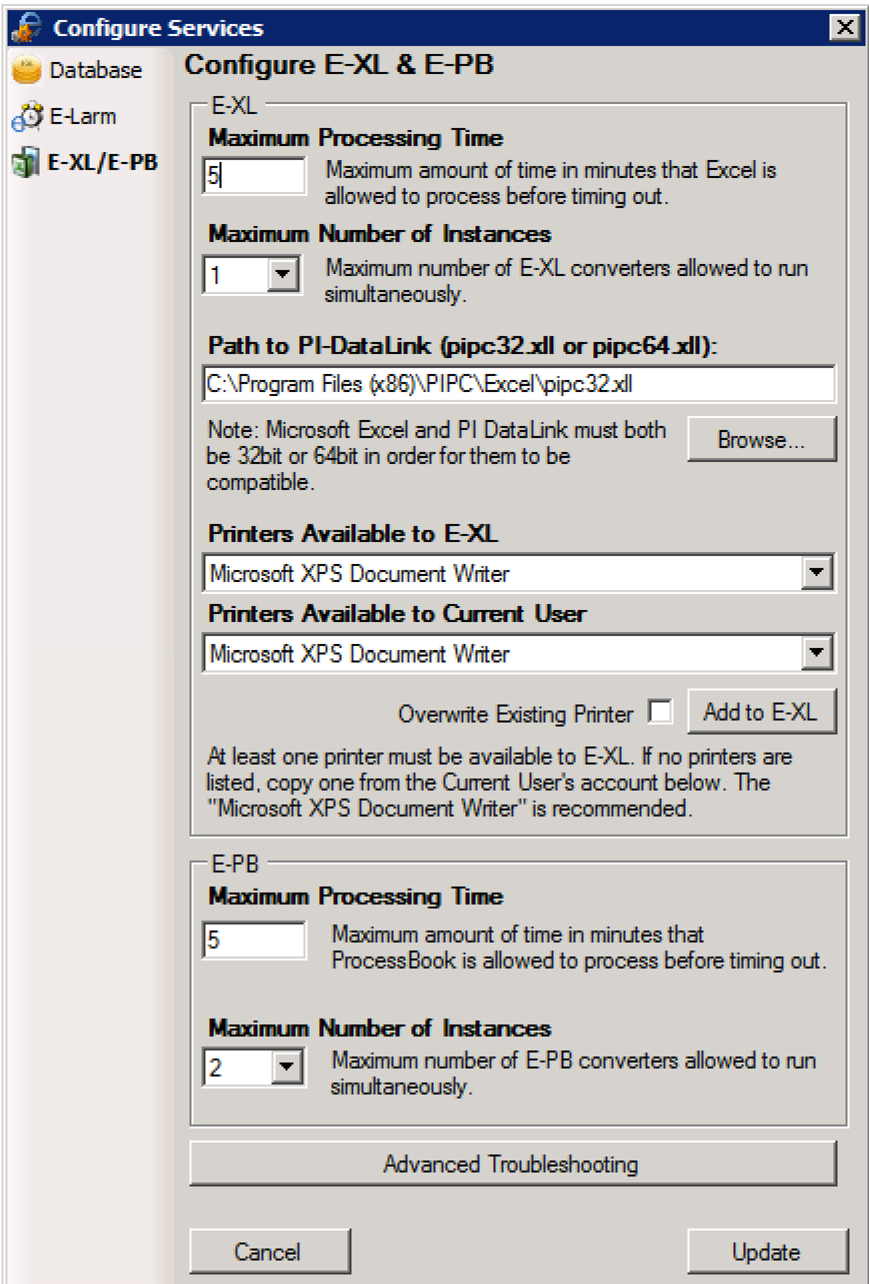
The E-PB Service keeps a log of all messages sent via e-mail. This file is found in the Log folder of the E-Notification installation directory (the default is “C:\Program Files\ECG Inc\ENotification\Log\E-PB_queue.log”). E-PB also logs entries into the E-Notification database, which can be viewed on the Web Site under Administration / View. Administrators can also view events generated by E-PB by using Windows Event Viewer and viewing the Application Log.

5.7.2 Configure Dialog

Configuration of the E-PB service is performed through the E-Notification Service Manager. Right-click the E-Notification E-PB service from the E-Notification Service Manager and click Configure. This dialog allows you to configure the advanced options of the E-PB as well as E-XL services. Click the Update button to save the changes. Click the Cancel button to discard changes.

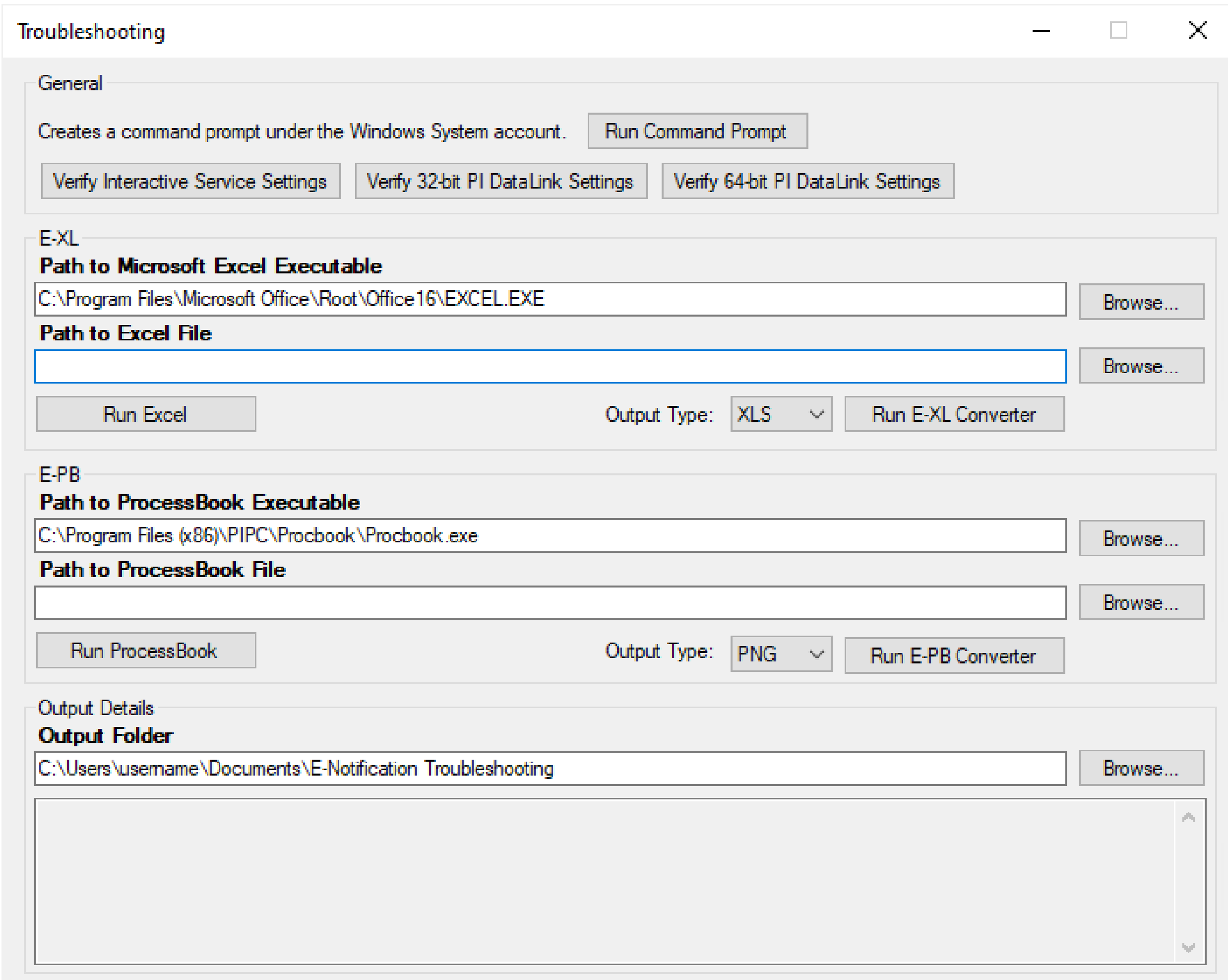
The dialog is organized into 2 sections: E-XL and E-PB. To configure the database connection, refer to the introduction section on the E-Notification Service Manager.

E-PB Advanced Configuration



The “Maximum Processing Time” input allows the administrator to configure the number of minutes E-PB will allow ProcessBook to wait before considering an E-PB's processing as timed out. When an E-PB's processing has timed out, the results will not be attached, but an e-mail will be sent (with a note that it has timed out). The “Maximum Number of Instances” allows the administrator to configure the number of E-PBs that may be processed at the same time. The default is set to 2. It is not recommended to exceed 5 instances. Keep in mind that each instance requires 128 MB of RAM. If E-XL or E-PB are not sending expected messages, click the “Advanced Troubleshootiong” button to troubleshoot the issue.

E-XL / E-PB Advanced Troubleshooting



The Advanced Troubleshooting dialog provides a mechanism to run Excel, E-XL, ProcessBook, and E-PB in an interactive mannger to view and troubleshoot issues.

For general troubleshooting, “Run Command Prompt” to open a command line interface under the Windows System account. Some versions of PI DataLink add a registry key that is formatted in a way that is not usable by the Windows System account. To verify that is not the problem, click “Verify 32-bit PI DataLink Settings” if using 32-bit Excel, or “Verify 64-bit PI DataLink Settings” if using 64-bit Excel.

Both E-XL and E-PB require interactive services to function properly. To verify that interactive services are enabled on the machine, use the “Verify Registry” button. If appropriate settings are not found, the user is prompted to correct the settings. A reboot is required for the settings to take effect.

To troubleshoot E-XL, ensure the path to the Excel executable is correct and provide your own Excel spreadsheet file, then “Run Excel” to open that file. If any Excel dialogs are shown, they must be addressed. Next, click “Run E-XL Converter” to actually process the file provided. When the test is complete, the Output Folder will automatically be opened. The results of the test should appear as files in the Output Folder.

To troubleshoot E-PB, ensure the path to the ProcessBook executable is correct and provide your own ProcessBook PDI or PIW file, then “Run ProcessBook” to open that file. If any ProcessBook dialogs are shown, they must be addressed. Next, click “Run E-PB Converter” to actually process the file provided. When the test is complete, the Output Folder will automatically be opened. The results of the test should appear as files in the Output Folder.

As each test is performed, the raw commands will appear in the Output Details area.

5.8 E-Pulse Service

5.8.1 Introduction

The E-Pulse Service is one of the core components of the E-Notification System. It provides notifications when any other E-Notification application or service has not “responded” (all E-Notification applications communicate and update certain fields in the database every minute) within a certain amount of time.

The E-Pulse Service integrates into the Microsoft Windows architecture via Windows Services. The E-Notification installer installs the necessary support DLLs and data components. Review the “E-Notification Server Requirements” section to find out which software(s) should be installed for this application.

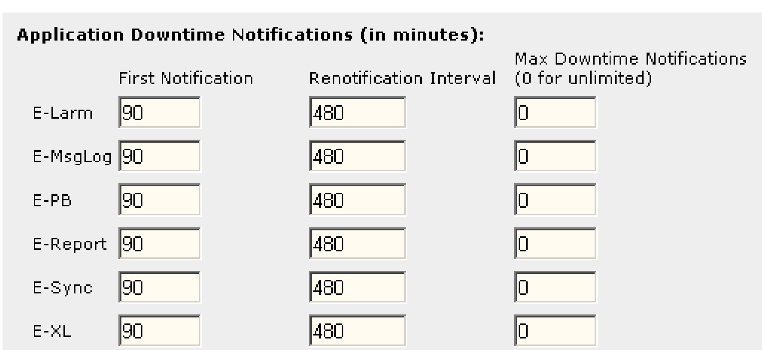
The E-Pulse Service implements its own back-end architecture via the E-Notification database.

The E-Pulse Service supports the ability to specify the amount of time before an E-Notification application “type” (such as E-Larm, E-MsgLog, E-Report, E-XL, E-PB, and E-Sync) is considered “down” (when the application has not responded). The E-Pulse Service also supports a Renotification Interval that will send out subsequent alerts every 8 hours (480 minutes is the default) after the previous alert has been sent until the faulting application begins updating the database again.

The E-Pulse service also supports the ability to limit the number of downtime notifications to receive when application is considered “down”. This is the total number of notifications that a location administrator will receive (first notification plus the number of renotifications sent). The default is 0 which means no limit – that is notifications will be sent every interval until the faulting application begins updating the database again.

Administrators can be signed up for these notifications by going to the Edit / My User Info page on the E-Notification Web Site and checking the box(es) next to the location(s) they would like to receive notifications for.

The E-Pulse Application keeps a log of all messages sent. This file is found in the E-Notification installation directory (default is “C:\Program Files\ECG Inc\ENotification\Log\E-Pulse_queue.log”. E-Pulse also logs entries into the E-Notification database which can be viewed on the Web Site under Administration / View Logs (for more information, refer to the “View Logs” section. Administrators can also view events generated by E-Pulse by using Windows Event Viewer and viewing the Application Log.



5.8.2 Monitoring Communications (E-Pulse Application)

E-Pulse monitors all applications' communications, which is possible because each application updates specific data in the Database very regularly. When the PI System is unavailable for the E-Larm Applications, this data is not updated. When the Database is unavailable for any of the applications, this data is not updated (the most common reason for this to occur is the network between the application and the Database is unavailable).

When data for a specific application has not updated within 90 minutes (customizable – this is the default value), it is considered "down" and will be listed on the Web Site in the "Apps Down" navigation menu on the left side. E-Pulse will notify all location administrators configured for that particular application. If the application is still "down" 8 hours after the initial alert was sent, a second alert will be sent. This will continue at 8 hour intervals (customizable – this is the default) until the faulting application's connection is restored to the database and/or PI System.

5.9 E-Sync Service

5.9.1 Introduction

The E-Sync Service is one of the core components of the E-Notification System. It allows for PI tag synchronization between the PI System(s) and the E-Notification database.

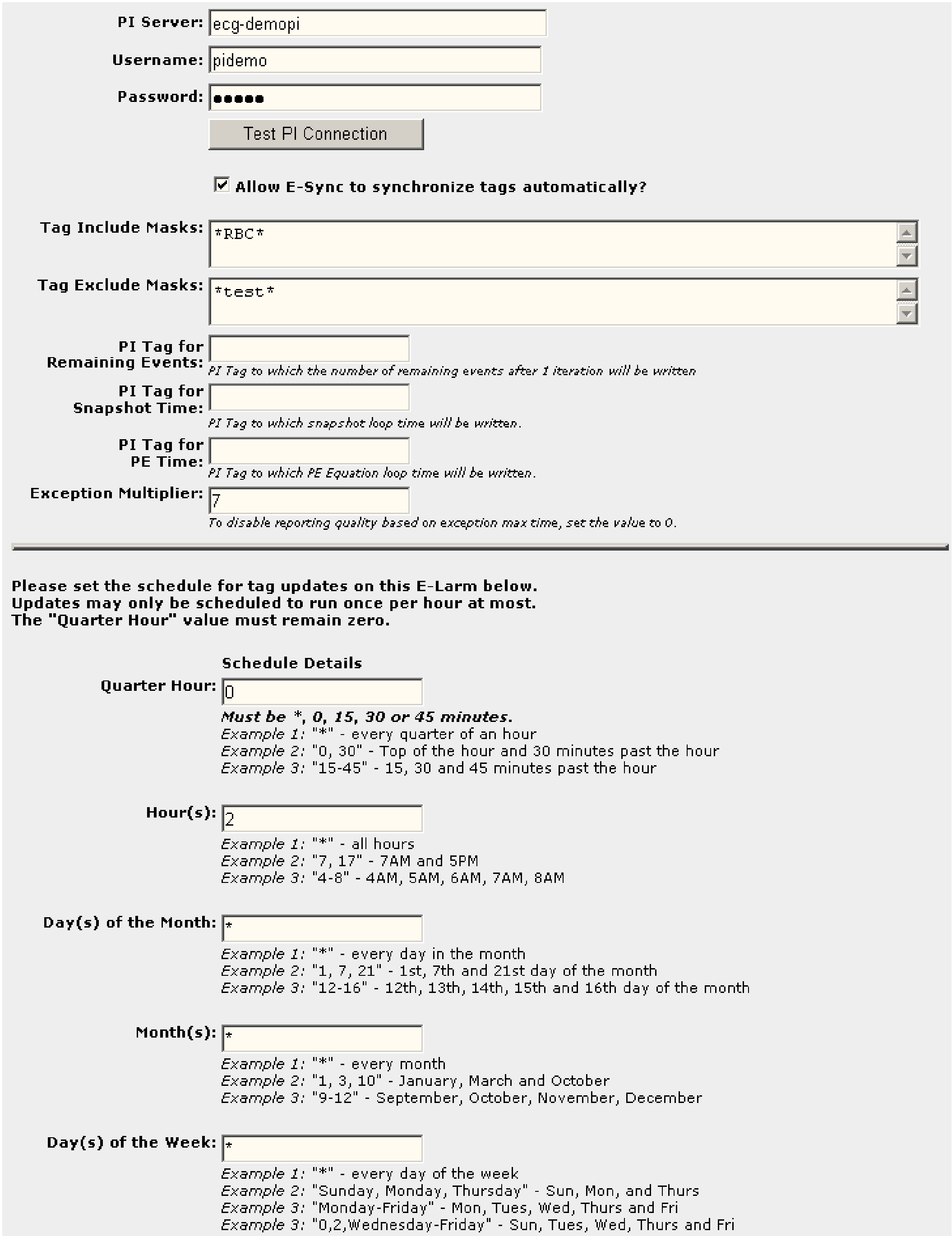
The E-Sync Service uses OSIsoft's PI-SDK, and integrates into the Microsoft Windows architecture via Windows Services. The E-Notification installer installs the necessary support DLLs and data components. Review the "E-Notification Server Requirements" section to find out which software(s) should be installed for this application.

The E-Sync Service implements its own back-end architecture via the E-Notification database. It supports the ability to specify which PI tags should be synchronized per location by way of Tag Include Masks and Tag Exclude Masks (refer to the "PI Tag Masks" section for more information).

The E-Sync Service logs entries into the E-Notification database which can be viewed on the Web Site under Administration / View Logs (for more information, refer to the "View Logs" section). Administrators can also view events generated by E-Sync by using Windows Event Viewer and viewing the Application Log.

5.9.2 E-Sync Configuration

The E-Sync Service is configured entirely through the Web Site. Each E-Larm application has unique configurations available for E-Sync. To access these configurations, visit the E-Notification Web Site and click "View Locations" under "Administration" in the left menu bar. From the "Locations Listing" page, click the Edit icon next to the E-Larm location and scroll down to view its E-Sync configuration properties as seen in the following image.



This section is organized into two subsections – one for configuring PI System information and another for configuring when E-Sync should begin synchronizing PI tags with the E-Notification. If for some reason the PI System information was entered incorrectly during installation or the name and/or login of the PI System has changed, the E-Larm location information must be updated and can be done easily from this screen. There is even a button to validate the PI System connection before saving.

Masks:

PI tag masks allow filtering of which PI tags that are returned when syncing the E-Notification database with PI tags on a PI System. A collection of masks allows the selected PI tags returned to E-Notification to be filtered by simple pattern matching of the PI tag names. This gives the administrator the capability to limit the number of tags that are available to the E-Notification system. PI Tag Masks are NOT case sensitive (CDT* will return the same results as cdt*).

Two types of masks exist: INCLUDE Masks and EXCLUDE Masks.

Include masks return PI tags that match the given pattern (see below for the pattern matching syntax).

Exclude masks prevent PI tags from being included into E-Notification if they match the pattern. This involves entering a pattern then checking the checkbox next to "exclusive".

A pattern is a string with wildcards.
? Matches any single character
* Matches zero or more characters
# Matches any single digit (0–9)
[charlist] Matches any single character in charlist
[!charlist] Matches any single character not in charlist

For more information on Pattern Matching see the following examples.

EXAMPLES

For example, using the following set of PI tags on a PI System, the examples will return the results listed below.

PI tag set:
SINUSOID,SINUSOIDU,CDT158,CDTM158,CDR158,SINE,SINEU,SINE2,SINE3,CDTQ,CDZ

To return PI tags that begin with "SINE" and "CDT" and to exclude tags that end in "158",
INCLUDE Mask=SINE*
INCLUDE Mask=CDT*
EXCLUDE Mask=*158
Results=SINE, SINEU, SINE2, SINE3, CDTQ

Return PI tags that contain "DT" in the name,
INCLUDE Mask=*DT*
EXCLUDE Mask=
Results=CDT158, CDTM158, CDTQ

Return all PI tags except ones that have "DT" in the name,
INCLUDE Mask=
EXCLUDE Mask=*DT*
Results=SINUSOID, SINUSOIDU, CDR158, SINE, SINEU, SINE2, SINE3, CDZ

To return all PI tags that begin with "CD" and end with "158" with 1 unknown character in the middle,
INCLUDE Mask=CD?158
EXCLUDE Mask=
Results=CDT158, CDR158

Return PI tags that begin with "CD", end with "158", and have either "T" or "R" in the middle of the name,
INCLUDE Mask=CD[TR]158
EXCLUDE Mask=
Results=CDT158, CDR158

Pattern Matching Syntax:

A group of one or more characters (charlist) enclosed in brackets [ ] can be used to match any single character in string and can include almost any character code, including digits.

Note: To match the special characters left bracket '[', question mark '?', number sign '#', and asterisk '*', enclose them in brackets. The right bracket ']' cannot be used within a group to match itself but it can be used outside a group as an individual character.

By using a hyphen '-' to separate the upper and lower bounds of the range, charlist can specify a range of characters. For example, [A-Z] results in a match if the corresponding character position in string contains any letters in the range A–Z. Multiple ranges are included within the brackets without delimiters

Other important rules for pattern matching include the following:

An exclamation point '!' at the beginning of charlist means that a match is made if any character except the characters in charlist is found in string. When used outside brackets, the exclamation point matches itself. A hyphen '-' can appear either at the beginning (after an exclamation point if one is used) or at the end of charlist to match itself. In any other location the hyphen identifies a range of characters delimited by the characters on either side of the hyphen.

When a range of characters is specified, they must appear in ascending sort order (that is, from lowest to highest). Thus, [A-Z] is a valid pattern, but [Z-A] is not.

The character sequence [] is considered a zero-length string "".

In some languages, there are special characters in the alphabet that represent two separate characters. For example, several languages use the character æ to represent the characters a and e when they appear together. The Like operator recognizes that the single special character and the two individual characters are equivalent.

When a language that uses a special character is specified in the system locale settings, an occurrence of the single special character in either pattern or string matches the equivalent two-character sequence in the other string. Similarly, a single special character in pattern enclosed in brackets (by itself, in a list, or in a range) matches the equivalent two-character sequence in string. Masks allow the administrator to filter which PI tags are to be synchronized with the E-Notification database. These masks then give the administrator control over which PI tags are available to a location (E-Larm application) in the E-Notification system.

Schedule Locations:

A location schedule gives the administrator flexible control over when an E-Larm location's PI tags will be synchronized with the E-Notification system. The default schedule for E-Sync is to run at 2AM every morning. This is done by setting the "Quarter Hour" to 0 (top of the hour), "Hour(s)" to 2 (2AM), "Day(s) of the Month" to * (for every day), "Month(s)" to * (for every month), and "Day(s) of the Week" to * (for every day of the week). Generally, it is not necessary to synchronize PI tags more than once per day unless the PI tag names change often. Also it is highly recommended to perform PI tag synchronizations when the E-Notification server (where the E-Sync service is running) is under low load.

Sync Tags Now:

When the "Sync Tags Now" button is clicked at the top of the web page, the E-Sync Service will be triggered to synchronize the PI tags with this particular E-Larm location. The synchronization will occur when the E-Sync Service is correctly installed.

5.10 Database

The Database is a core component the E-Notification System. It provides the sole repository for all information pertaining to E-Notification. The Database is contained in the Microsoft SQL Server architecture. Microsoft SQL Server 2008 or later, including Express versions, is required.

5.11 Web Site

The Web Site is one of the core components of the E-Notification System. It provides the sole user interface for the E-Notification System.

The Web Site integrates into the Microsoft Windows architecture via Internet Information Services (IIS). The E-Notification installer installs the necessary support DLLs and data components. The computer hosting the Web Site should have the latest Windows operating system and IIS (5.0 or higher).

IIS offers an improved application "protection" model that ensures that when problems occur, IIS itself does not "crash" (contact ECG for more information).

The Web Site's virtual directory must be set as an ASP.NET 4.0 application and must run under an Application Pool containing only .NET 4.0 applications.

Typically, the E-Notification setup program ensures appropriate permissions on all web site folders. In the event that web trends do not render on the web site, please double check the file permissions on the TrendImages folder of the folder containing the web site (the default is "C:\Program Files (x86)\ECG Inc\E-Notification\Website\TrendImages"). The user running IIS is must be given security permissions of Full Control on that folder.

5.12 Report Viewer

5.12.1 Introduction

The Report Viewer acts as a web-based client for viewing archived E-Notification Reports generated from E-XL or E-PB. The Report Viewer requires use of an FTP and Web server so that the desired E-XLs/E-PBs can be configured to write to the Report Viewer (FTP) data directory.

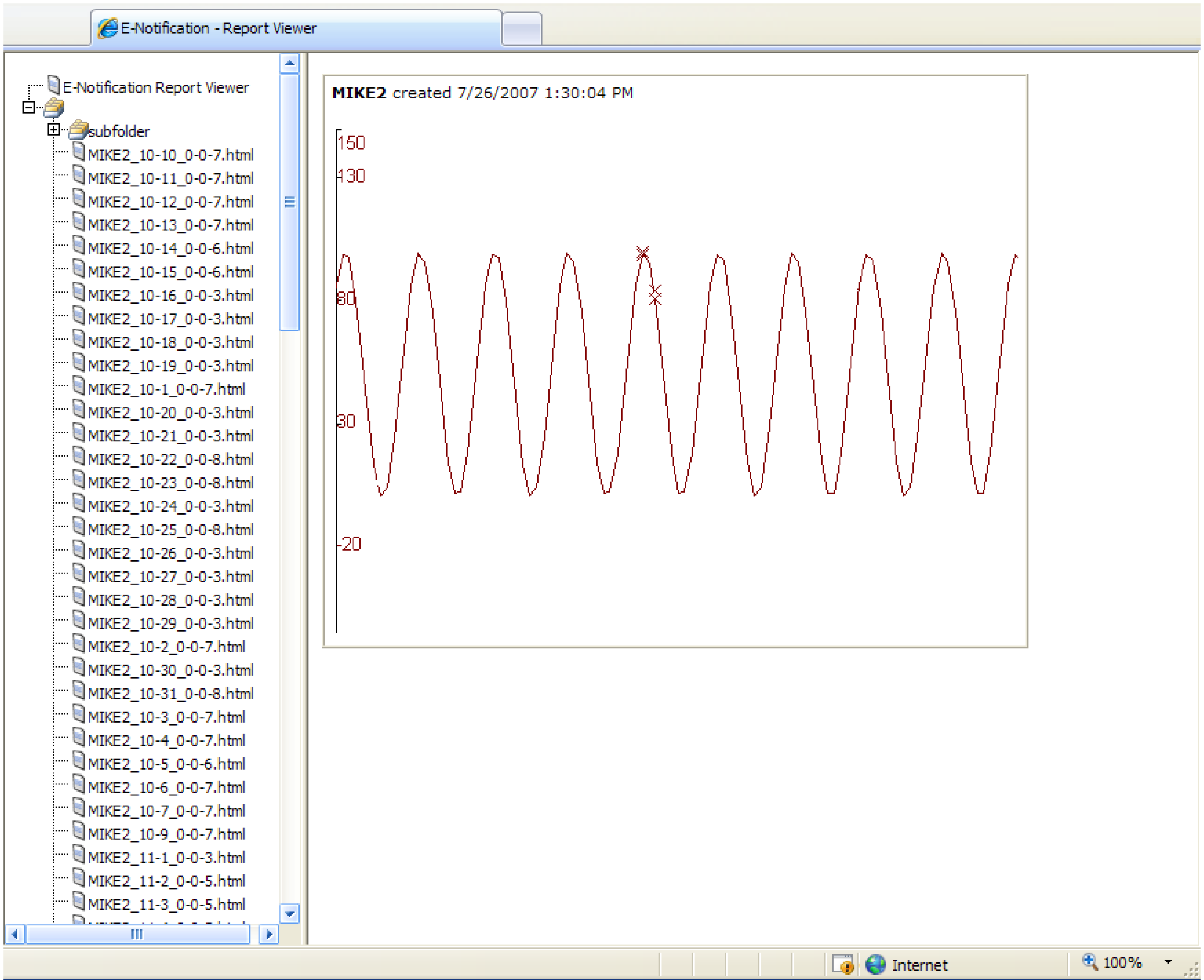
The Reports can be categorized into multiple folders – with support for any number of folder levels.

Report Viewer provides a range of features to the E-Notification user base, including:

- All forms of Reports (critical-event, hourly/daily/weekly, etc.) can be organized and viewed in one convenient location.
- Report information can be viewed anywhere on the Intranet via a desktop.

5.12.2 Using (Report Viewer)

To navigate, choose one of the directories on the left menu of the page. After selecting a directory, a list of Report files (with extension "html") will be shown. The following figure is an example of the menu being used.



5.12.3 Maintenance (Report Viewer)

Potential Issues

In order to only show pertinent reports (and not the graphics used), all folders that start with "_" or end in "_files" are ignored.

Some characters in the filename or folder may cause problems and alternative characters should be considered. These characters are vital to the HTML language and have reserved meaning. A short list of such characters include: #, &, <, >. Spaces will not cause problems.

Not directly related to the Report Viewer, but just as vitally important, are the E-XL and E-PB Services. Please refer to the Known Issues section of this manual for information regarding E-XL/E-PB issues and performance.

Other Uses

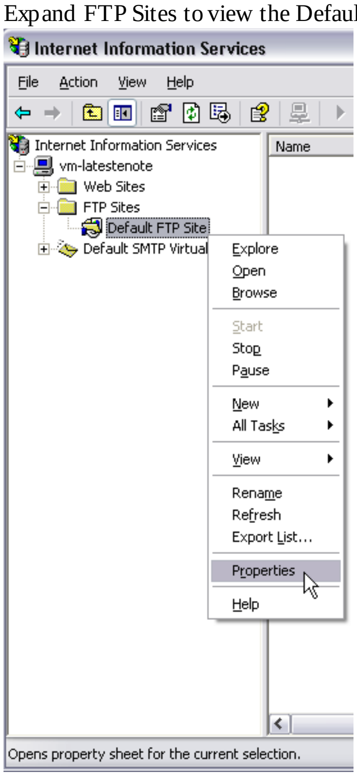
The Report Viewer can also be used to display other files, and has no limitations in terms of files that can be stored. Just an example of such a use is the storage of PI ProcessBook Display Libraries categorized with folders by PI System and equipment. Contact ECG for more information.

6 Frequently Asked Questions (FAQ)

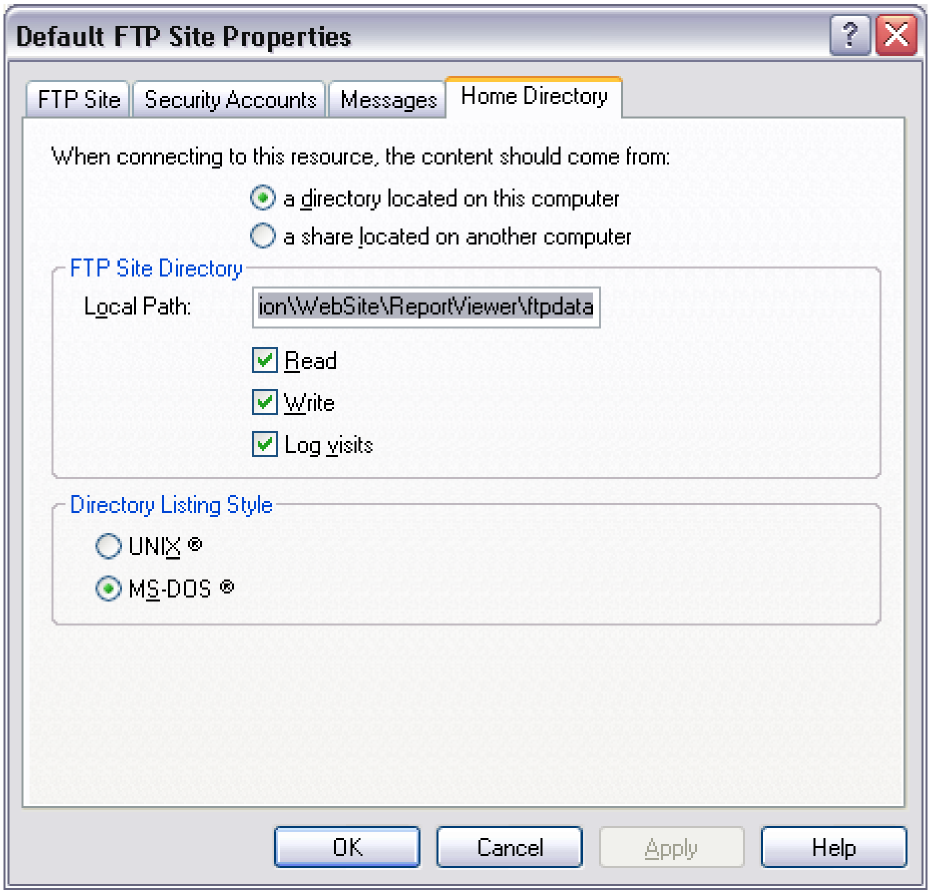
6.1 How to Configure FTP and Report Viewer

This assumes the web server is a dedicated machine and does not host any other web or ftp-based software.

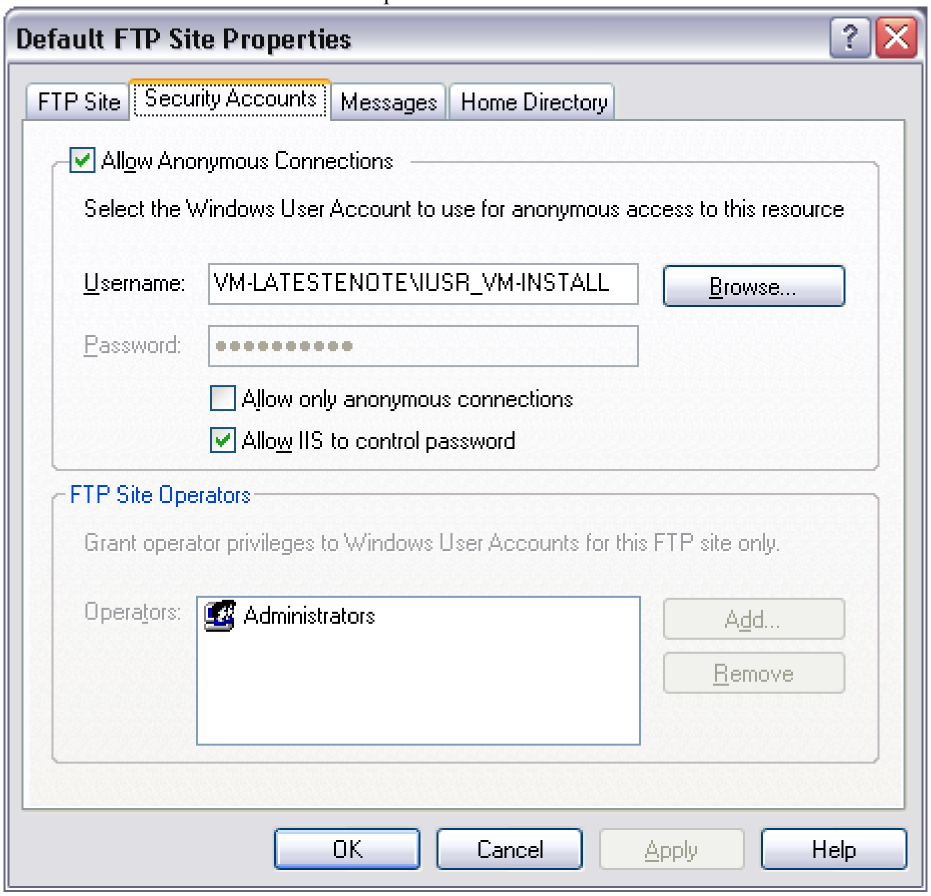
Configuring FTP in IIS 6 or Earlier

1. On the web server hosting E-Notification, open Control Panel → Administrative Tools → Internet Information Services.
2. Expand FTP Sites to view the Default FTP Site. Right click Default FTP Site to select Properties.
3. 

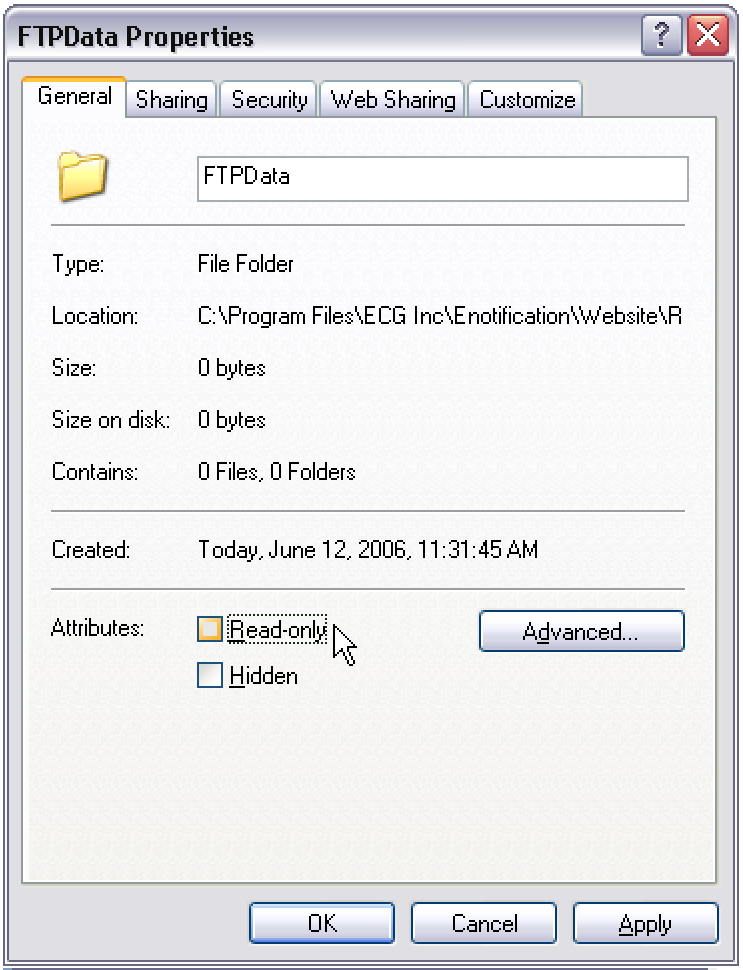
4. Select the Home Directory tab to set the following properties:
    a. Local Path: C:\Program Files\ECG Inc\ENotification\Website\ReportViewer\ftpdata
    b. Enable Read, Write, and Log Visits checkboxes.

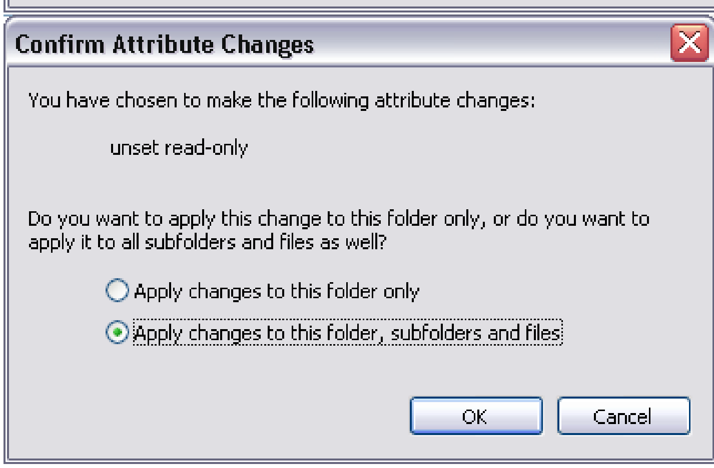
5. 
Default FTP Site Properties
FTP Site
Security Accounts
Messages
Home Directory
When connecting to this resource, the content should come from:
a directory located on this computer
a share located on another computer
FTP Site Directory
Local Path:
ion\WebSite\ReportViewer\ftpdata
Read
Write
Log visits
Directory Listing Style
UNIX ®
MS-DOS ®
OK
Cancel
Apply
Help

6. Select the Security Accounts tab to set the following properties:
    a. Username (set by the E-Notification installer and should not be modified)
    b. Enable “Allow Anonymous Connections” checkbox
    c. Disable “Allow only anonymous connections” checkbox
    d. Enable “Allow IIS to control password”

7. 

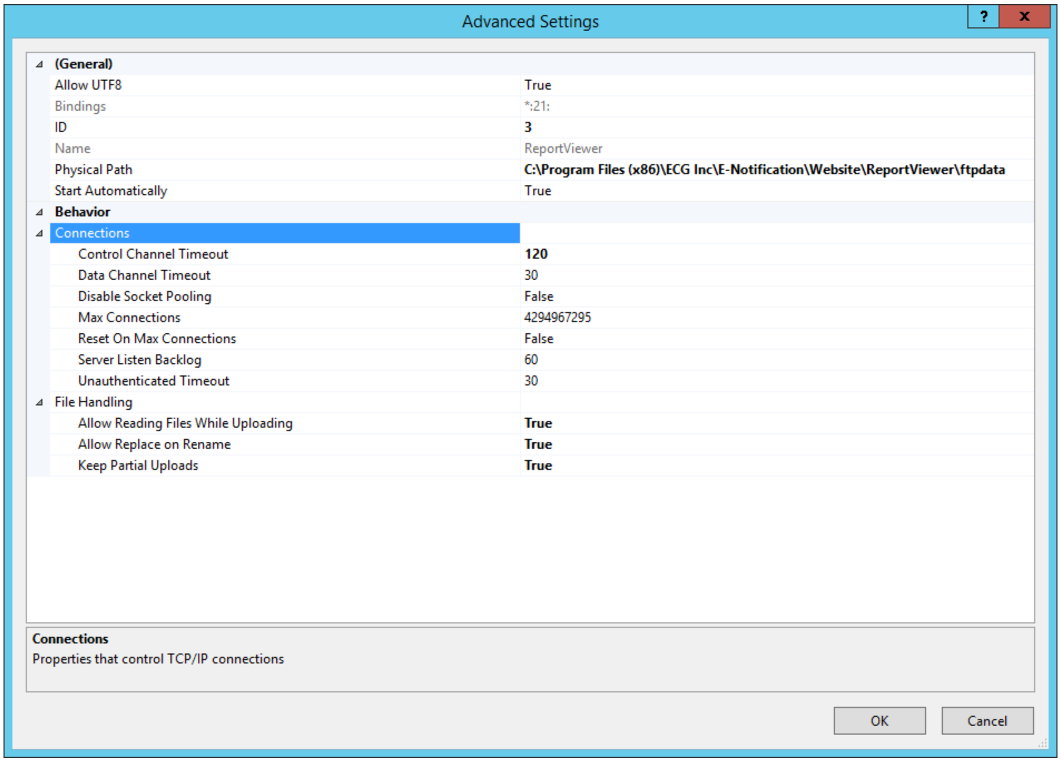
8. Open C:\Program Files\ECG Inc\Enotification\Website\ReportViewer to find the FTPData folder.
    a. Right click FTPData to select Properties.
    b. Select the General tab.
    c. In the “Attributes” section, ensure that the Read-only checkbox is not selected. Click OK to save your changes. If prompted, select “Apply changes to this folder, subfolders and files” as shown below.

9. 

10. 

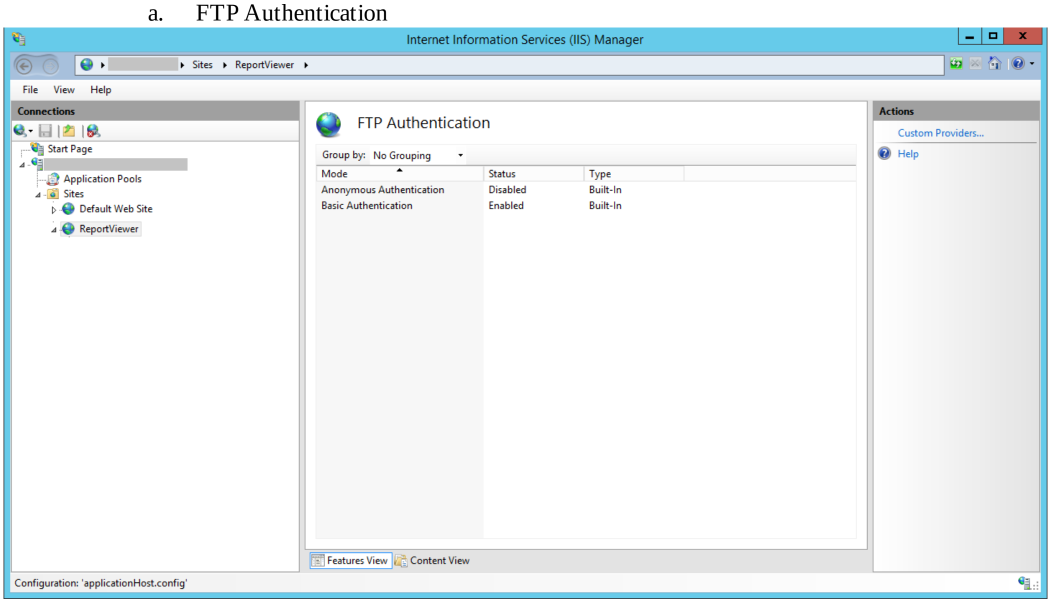
Configuring FTP in IIS 7 or Higher

1. On the web server hosting E-Notification, open Control Panel → Administrative Tools → Internet Information Services.
2. Expand FTP Sites to view the Default (or Report Viewer) FTP Site and verify the following settings.
    a. Advanced Settings

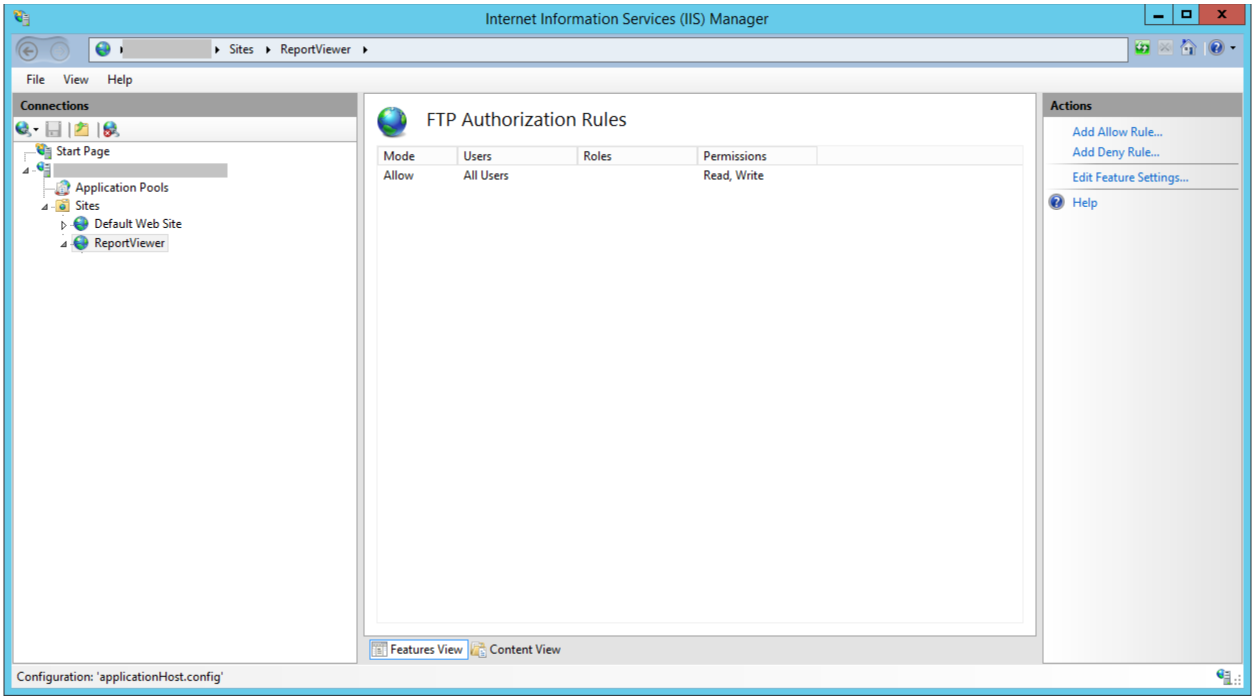


3.

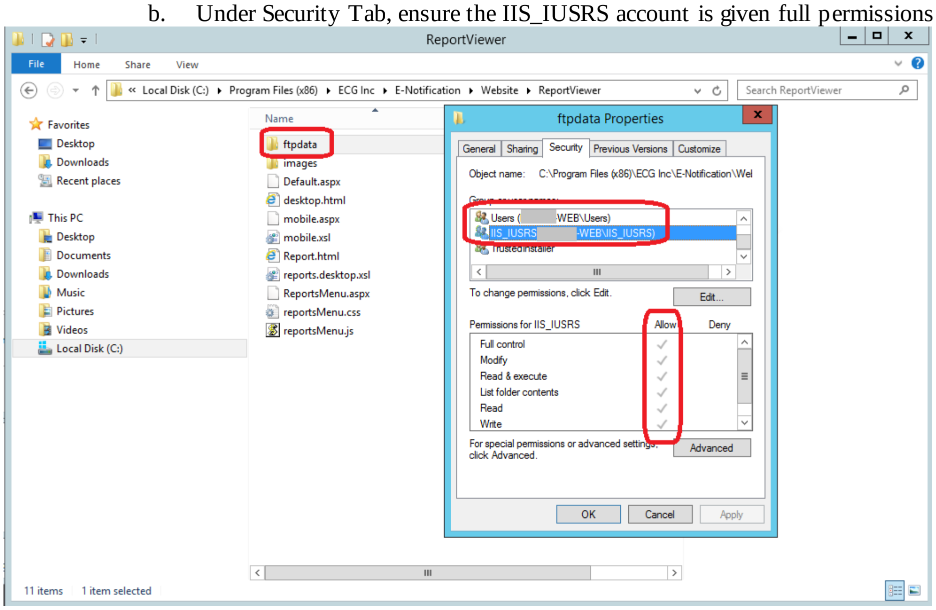
a. FTP Authentication

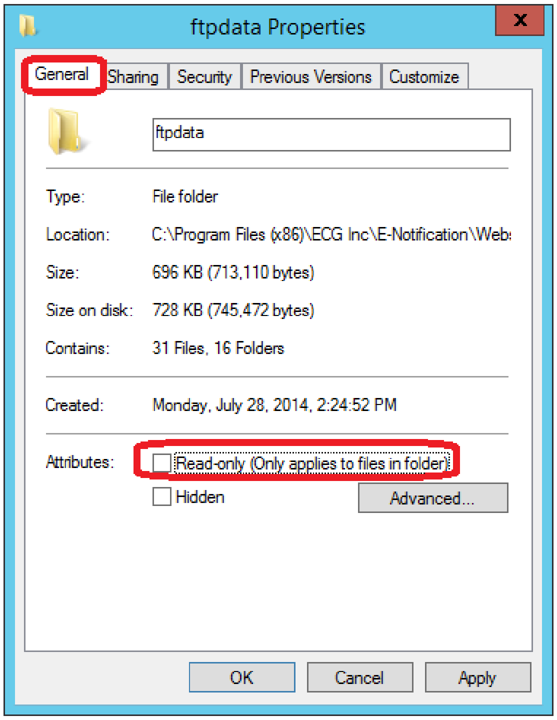


b. FTP Authorization



4. In Windows Explorer, browse to the ftpdata folder, right click to modify Properties.
   a. Under General Tab, Uncheck ReadOnly attribute on the folder and Apply to all subfolders. Note: After applying, closing Properties, and re-opening Properties later, the setting may not "stick" and may again indicate ReadOnly. Unsetting ReadOnly and applying to all subfolders once is sufficient.
   b. Under Security Tab, ensure the IIS_IUSRS account is given full permissions as well as local Users group.





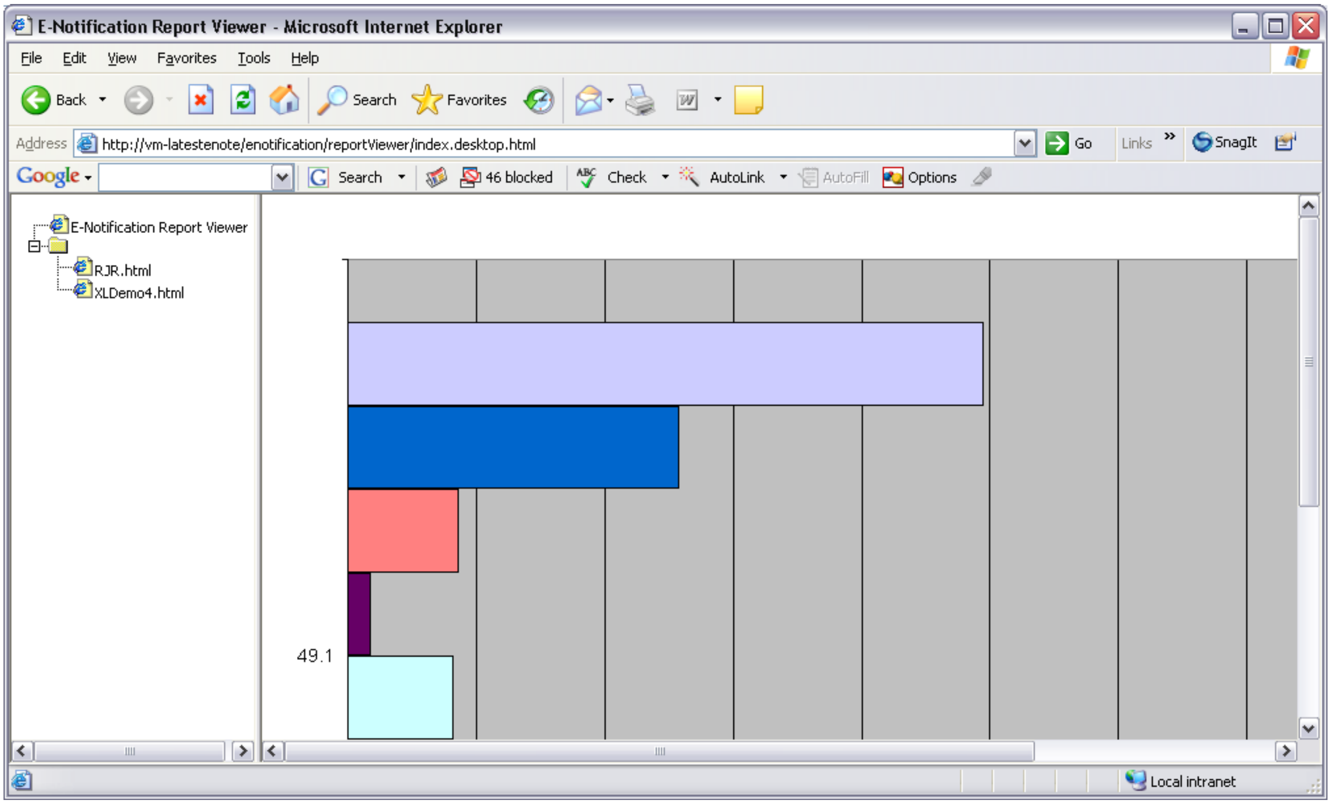
Enabling Report Viewer on an Item

To allow an E-XL/E-PB to be viewed in Report Viewer, the item must include FTP as a destination. The following describes how to configure an E-XL, but the procedure is identical for E-PB.

1. Create/Edit an E-XL.
2. Under E-XL Configuration, modify the Destination to “FTP” or “E-mail & FTP”. This will reveal FTP settings.
3. Set the Host to the name of your FTP server. Most installations use the local machine, so “localhost” is used.
4. Set File Path to “/”.
5. Set username to Anonymous and password to your email address – OR –
6. Set username to your domain login, such as CompanyDomain\SmithJ, and set the password to your domain password.
7. Select “over write”.

Using Report Viewer

1. Select “Report Viewer” under “Tools” on the E-Notification web site.
2. A folder structure containing previously generated FTP-enabled reports is displayed.
3. Click each report description to view the report contents.



6.2 How to Monitor a Computer

Many methods are available to monitor a computer. This section describes two such methods including the PerfMon Interface and the PI Ping Interface. These interfaces populate PI tags that can be monitored via E-Notification.

PerfMon Interface

This interface allows the PI Administrator the ability to monitor any performance object on any computer – allowing any PI user to monitor a large array of operating system and application variables, including:

- Computer Processor Time: % of time the processor is executing, individually or total.
- Database Data File(s) Size: the size of an individual database file, or all databases total.
- IIS Not Found Errors/sec: the error rate due to IIS web page requests that were not found.
- Network Interface Bytes Sent/sec: the rate at which bytes are sent on a network interface.

A limited "basic" version of this interface is included in PI UDS 3.3, with a limitation of only being able to write to 32 tags. The full version is not limited.

Ping Interface

This interface allows the PI Administrator the ability to monitor the ping response on any computer accessible on the same network as the computer running the Ping Interface. This proves to be particularly helpful when computers are only available on restricted networks – which are regularly used in the process environment.

A limited "basic" version of this interface is included in PI UDS 3.3, with a limitation of only being able to write to 32 tags. The full version is not limited.

6.3 How to Monitor a PI Interface

A critical piece of all PI Systems is their interfaces. E-Notification allows monitoring of critical tags with the option of being notified when the values becomes "bad quality". This will occur for two scenarios:

1) A non-numeric value such as "Shutdown", "I/O Timeout", etc. is shown.
2) The PI tag has not received a recent value from its interface.

A "bad quality" message will be sent for Scenario 2 when the difference between the PI System's time minus the current PI tag value's timestamp is greater than that PI tag's exception max time (in seconds) multiplied by the E-Larm Application's Exception Multiplier value (see the Edit Location section of this manual under Web Site Administration). Below are two examples to illustrate Scenario 2:

Example 1

Tag Value=4.56
Tag Value Timestamp=7/4/2007 6:12:45 AM
Tag ExcMax=600 (default)
E-Larm Application Exception Multiplier=7 (default)
PI Server current time=7/4/2007 6:13:04 AM

(PI Server current time-Tag Value Timestamp) = 19 [seconds]
Tag ExcMax * E-Larm Exception Multiplier = 4,200 [seconds] = 1 hour 10 min
19 > 4,200? No

Example 2

Tag Value=6512.39
Tag Value Timestamp=7/12/2007 7:10:54 PM
Tag ExcMax=10
E-Larm Application Exception Multiplier=7 (default)
PI Server current time=7/12/2007 7:13:24 PM

(PI Server current time-Tag Value Timestamp) = 150 [seconds] = 2.5 mins
Tag ExcMax * E-Larm Exception Multiplier = 70 [seconds] = 1 min 10 sec
150 > 70? Yes – BAD QUALITY!

However, this mechanism has its limitations in terms of monitoring an interface. In some scenarios, a PI interface will continue to provide data for PI tags (including updating the tag value timestamps), but it may not be accurate. This problem can be quite complex but for many PI interfaces that can provide I/O rates and I/O rates standard deviations as tags, monitoring both items is very useful. Please consult the PI interface's documentation for information.

6.4 How to Monitor a PI System

The sole purpose of the E-Pulse application is to monitor E-Notification applications. This is done by regularly polling the Database for a particular field per application. Each application updates this field usually once per minute.

An E-Larm Application's field is not updated when the application cannot communicate with the Database (usually occurs when the network is unavailable between them).

After typically 90 minutes, the E-Pulse Application will consider the application down and write data to the Database so that the Web Site will list the application as down and will e-mail properly-configured administrators that the location is down. When the application does begin to write to its field, E-Pulse will write data to the database indicating this and e-mail the administrators again.

To properly configure an administrator to be notified, a Complete Web Administrator (a location administrator does not have sufficient privileges) must go to View Accounts on the E-Notification Web Site, and find the user account. The Complete Web Administrator should then click the Edit icon to view that account's Details page. Choose the location to be notified on by checking the checkbox under the E-mail or Text (SMS) icons (or both) under the "E-Pulse Notification Method). Click the Continue button at the top-right corner of the web page to store the changes.

Options do exist that allow an administrator the ability to control the time that must elapse before the E-Pulse Application will consider an application or E-Larm location (PI System) down. All types of applications (such as E-Larm, E-Report, E-XL, etc.) can have their E-Pulse timeout values configured. An administrator must edit one location at a time, and can change this value by modifying the input after the following text: "Downtime Notification:" and clicking the Save button.

6.5 How to Trigger Reports Under an Hour

The E-Report, E-XLs, and E-PBs only allow for scheduling down to a quarter-hourly level. If users or a system administrators need reports every X minutes, an E-Larm can be setup to act as the scheduler.

E-Larms have the ability to utilize PE Equations, which have a wide variety of functions available, including statistical and time functions. Using a PE Equation, an E-Larm can be created that will output a 1 for a given scenario otherwise 0. With the High limit set to 0.9, the Low limit set to 0, and pertinent reports selected for triggering, this new E-Larm will accurately schedule reports. It is also recommended to set the Destination to None (by unchecking both the E-Mail and Text (SMS) checkboxes on the Configure E-Larm page – no E-Larm messages will be sent, but the reports will still be triggered).

Example

To send an E-Report via email every five minutes, use the following PE Equation:

If minute('*') Mod 5 = 0 Then 1 Else 0

The E-Larm will have a value of 1 every fifth minute, but for all other minutes, 0. It should be noted that some PI Systems appear to not be able to process this PE Equation (giving a "Snapshot error -12300: PE Error.") – if this occurs, please contact ECG so we can note your environment.

An alternative to this PE Equation (though more performance- and maintenance-intensive) is the following:

If minute('*') = 0 Or minute('*') = 5 Or minute('*') = 10 Or minute('*') = 15 Or minute('*') = 20 Or minute('*') = 25 Or minute('*') = 30 Or minute('*') = 35 Or minute('*') = 40 Or minute('*') = 45 Or minute('*') = 50 Or minute('*') = 55 Then 1 Else 0

Select the option to Trigger Reports and select the desired reports.

6.6 How to Turn On/Off Verbose Logging for E-Sync

In order to help debug any E-Sync issues that might arise, it is now possible to turn on "verbose", or detailed, logging to record actions performed while synchronizing PI Systems with E-Notification. To turn on the verbose logging, edit the "E-Sync.exe.config" file in a text editor (such as notepad). This file is located in E-Notification installation directory (the default is "C:\Program Files\ECG Inc\ENotification".

To turn Verbose Logging ON, make the following changes to E-Sync.exe.config:

1) Find the line "<add name="EventLog"/>" and comment it. "Commenting" or "commenting out" a line of code renders it inactive. To do this in XML syntax (the code language that the E-Sync.exe.config file is written in), add a "<!--" before the line(s) and a "-->" after it/them. Two examples are listed below. They both generate the same effect.
    a. <!--<add name="EventLog"/>-->
    b. <!--
        <add name="EventLog"/>
       -->
2) Find the line "<add name="FileLog"/>" and **un**comment it. Uncommenting a line of code in XML means removing the "<!--" before it and removing the "-->" after it.
3) Find the line "<add name="DefaultSwitch" value="Information" />" and comment it.
4) Find the line "<add name="DefaultSwitch" value="Verbose" />" and **un**comment it.
5) Find the line "<add name="EventLog" type="System.Diagnostics.EventLogTraceListener" initializeData="E-Sync"/>" and comment it.
6) Find the line "<add name="FileLog" type="Microsoft.VisualBasic.Logging.FileLogTraceListener, Microsoft.VisualBasic, Version=8.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a,

processorArchitecture=MSIL" initializeData="FileLogWriter" location="ExecutableDirectory" AutoFlush="true" MaxFileSize="1000000000" >" and **un**comment it.

To turn Verbose Logging OFF, make the following changes to the E-Sync.exe.config file:

1) Find the line "<add name="EventLog"/>" and **un**comment it.
2) Find the line "<add name="FileLog"/>" and comment it.
3) Find the line "<add name="DefaultSwitch" value="Information" />" and **un**comment it.
4) Find the line "<add name="DefaultSwitch" value="Verbose" />" and comment it.
5) Find the line "<add name="EventLog" type="System.Diagnostics.EventLogTraceListener" initializeData="E-Sync"/>" and **un**comment it.
6) Find the line "<add name="FileLog" type="Microsoft.VisualBasic.Logging.FileLogTraceListener, Microsoft.VisualBasic, Version=8.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a, processorArchitecture=MSIL" initializeData="FileLogWriter" location="ExecutableDirectory" AutoFlush="true" MaxFileSize="1000000000" >" and comment it.

If you have any questions about how to correctly make these changes to the E-Sync.exe.config file, please contact ECG as we will be happy to provide assistance.

6.7 How to Rename an E-Larm Location

If it becomes necessary to rename an E-Larm Location, this can be done via the E-Notification Service Manager (see "Configuring (E-Larm Application)" above). The web site and all E-Notification messages relating to the renamed E-Larm Service will be displayed with the new information but when looking at the list of services running in the E-Notification Service Manager (or Windows' Services list) the old name will still be displayed. If that must be changed as well the two options are: Uninstalling/Installing via the E-Notification Service Manager or using sc.exe from the Windows Resource Kit to rename the service's Display Name using the following syntax:
[command prompt]sc config *service_name* DisplayName="*new_service_display_name*"
Note that the *service_name* and *service_display_name* are two different ways to reference the same service. *Service_Name* refers to the shorthand name of a service and *service_display_name* refers to the generally human-readable title associated with the service. For E-Larm services, the *service_names* are: E-Larm, E-Larm02, E-Larm03, etc. The associated *service_display_name*s are "E-Notification – E-Larm – *name*". Please contact ECG for assistance in renaming an E-Larm Service.

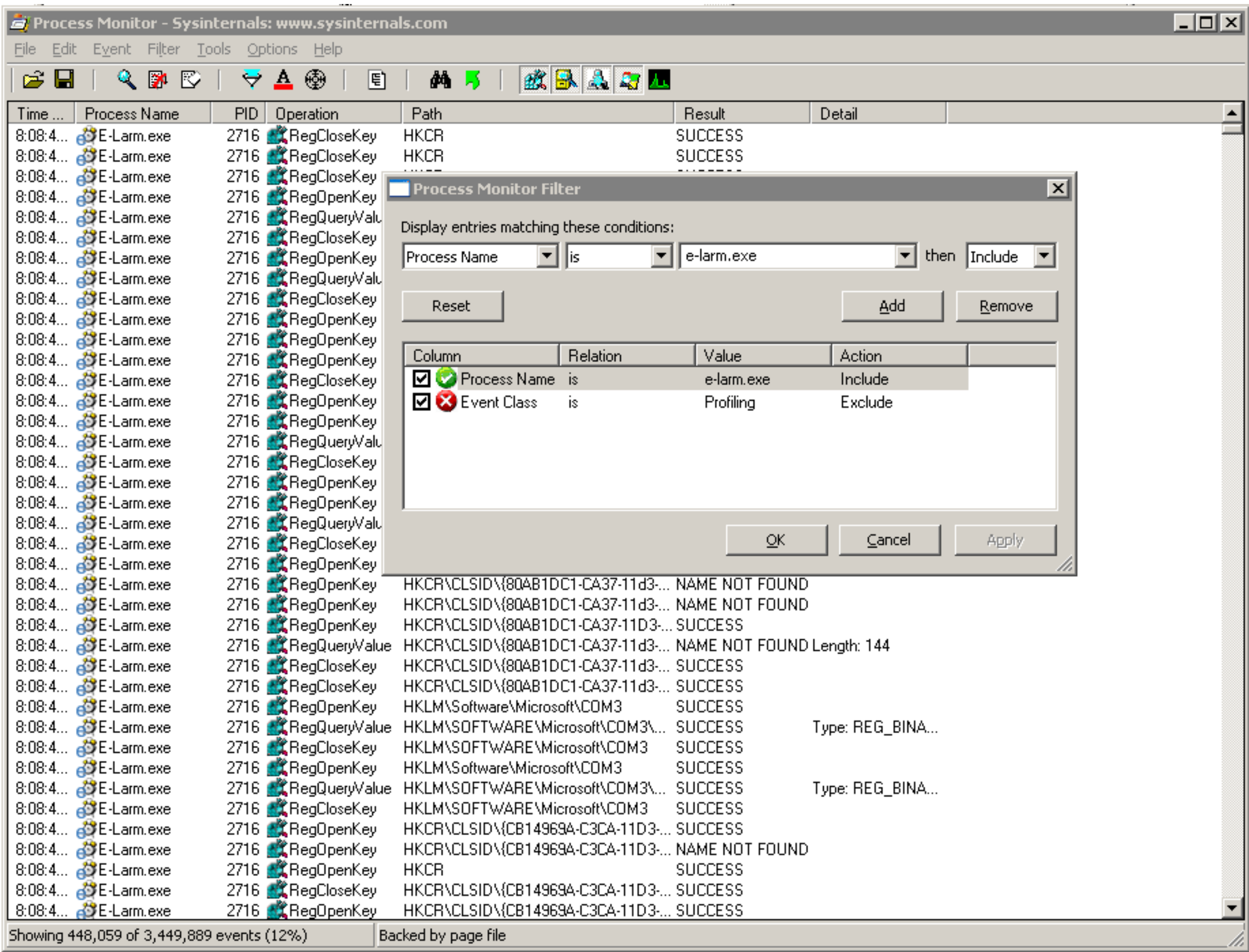
After renaming an E-Larm location, the E-Sync, E-Pulse, E-Report, and E-MsgLog services should be restarted.

6.8 How to Monitor Network Bandwidth Usage

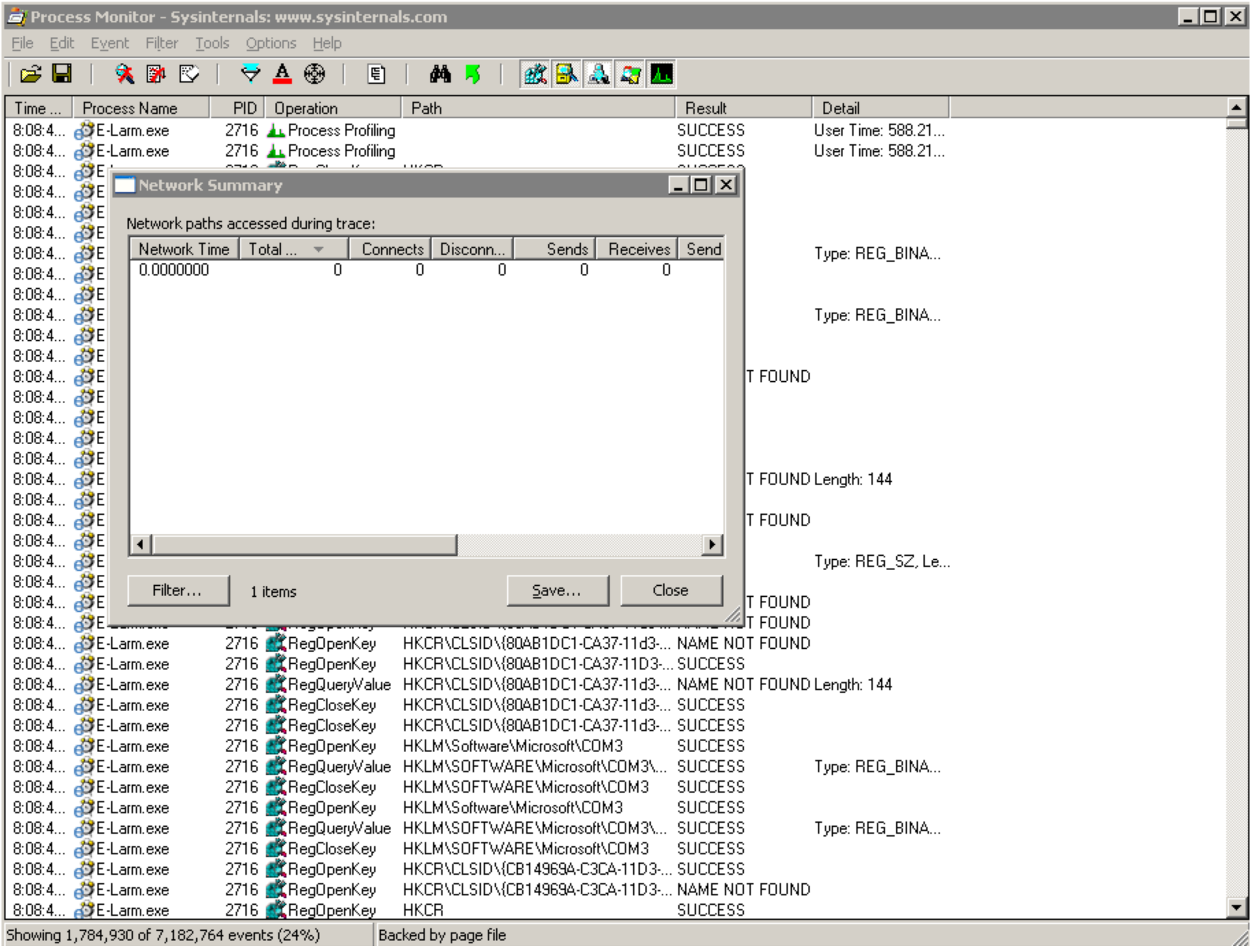
Users that would like to monitor bandwidth usage can do this by using Process Monitor within Microsoft's SysInternals. The SysInternals package can be downloaded from Microsoft's web site at the following address:
http://technet.microsoft.com/en-us/sysinternals/bb896645.aspx

To use Process Monitor, the user will run promon.exe on the machine where they are looking to monitor bandwidth. The user will be able to apply a filter by choosing Filter → Filter.

Set a filter for the Process Name in question. For example, if the user would like to check the bandwidth usage for E-larm.exe, the user would select Process Name is e-larm.exe, and Add the filter to the Process Monitor instance.



After the filter has been set, let the Process Monitor capture data for a few minutes, and then end the capture. The user can end the capture by clicking on the hourglass on the left hand side of the toolbar. Once the Process Monitor was able to capture data, the user can check the bandwidth by checking Tools → Network Summary. This will give a report on the bandwidth used by the Process during the captured time period.



6.9 How to Reduce Frequency of Database Traffic from E-Sync

By default, E-Sync communicates with the SQL Server every 30 seconds. A setting is available to reduce the frequency of this communication. On the E-Notification application server, open installation location, typically c:\Program Files (x86)\ECG Inc\E-Notification\E-Sync.exe.config using a text editor such as Notepad. Add or modify the following configuration key/value. For example, change the value to 30 to communicate every 60 seconds instead of every 30 seconds.

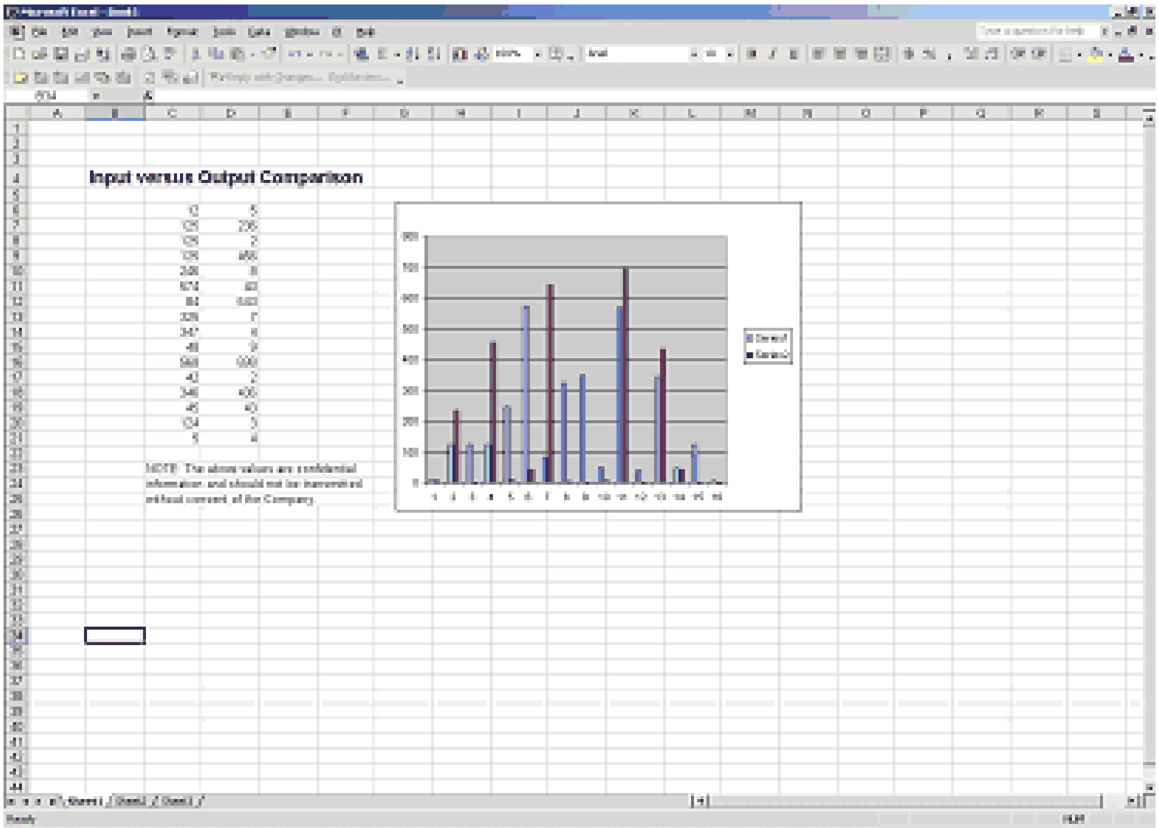
```
<configuration>
  <appSettings>
    <clear/>
    <!-- Time in seconds to check for scheduled and triggered syncs. Default is 30 seconds-->
    <add key="CheckInterval" value="60"/>
  </appSettings>
```

7 Known Issues

7.1 Chart is not included in E-XL message

Issue

The E-XL message (or FTP contents) is sent but without charts that are to the right of all text (see screenshot below).



Explanation

The E-XL service obtains the area to "save" via standard Excel calls, but differing versions may have problems in returning the area inclusive of charts. The key factor in determining the area appears to be text as opposed to charts.

Solution

Place any text to the right of the chart.

7.2 E-XL messages with graphical or html formats not included in emails, ftp, etc.

Issue

The E-XL message (or FTP contents) is blank or reports an html error. Additionally, the Event Viewer of the server hosting E-XL includes an error description similar to “Unable to get the PrintArea property of the PageSetup class”.

Explanation

The E-XL Service obtains the area to "save" via standard Excel calls, including a call to determine the “Printable Area”. A printer must be installed in order for this to call to perform correctly.

Solution

Ensure that at least one Printer is installed by an Administrator of the machine. A list of installed printers may be found using “Control Panel” then “Printers”. Stop the E-XL service, install a printer, then restart the application.

If the problem persists, it may become necessary to edit the registry to allow the System user (the machine account running the E-XL service) to access a printer. The following is taken from a Microsoft Knowledge Base article found here:
http://support.microsoft.com/kb/184291

You must set up a printer for the SYSTEM account to resolve this problem. To set up printers for the SYSTEM account, perform the following:

This method requires you to modify the registry using the Registry Editor.

WARNING: Using Registry Editor incorrectly can cause serious, system-wide problems that may require you to reinstall Windows to correct them. Microsoft cannot guarantee that any problems resulting from the use of Registry Editor can be solved. Use this tool at your own risk.

1. Ensure that the user you are currently logged into on the server has the desired printers installed.
2. Launch the Registry Editor (Regedit.exe).
3. Select the following key:
   HKEY_CURRENT_USER
   \Software\Microsoft\Windows NT\Current Version\Devices
4. From the Registry menu, click Export Registry File.
5. In the File Name text box, type c:\Devices.reg.
6. Select the following key:
   HKEY_CURRENT_USER
   \Software\Microsoft\Windows NT\Current Version\PrinterPorts
7. From the Registry menu, click Export Registry File.
8. In the File Name text box, type c:\PrinterPorts.reg.
9. Select the following key:
   HKEY_CURRENT_USER
   \Software\Microsoft\Windows NT\Current Version\Windows
10. From the Registry menu, click Export Registry File.
11. In the File Name text box, type c:\Windows.reg.
12. From the Start button, select Run. Open Devices.reg in Notepad by typing Notepad Devices.reg in Run dialog box.
13. Replace the text HKEY_CURRENT_USER with HKEY_USERS\.DEFAULT
14. Save the file. Then import it into the registry by double-clicking the file in Windows Explorer.
15. Repeat steps 13 through 15 for PrinterPorts.reg and Windows.reg.

These steps only work for local printers.

7.3 E-XL E-mails Sent With No Data

Issue

E-XL E-mails are sent but no matter what format is chosen (PNG, JPG, CSV, XLS, or HTM) no data ever shows up in the e-mails.

Solution

Ensure the E-XL service (found in the Windows Services list) is running under the System account and allowed to interact with the desktop. You must restart the E-XL service after changing either the logon account or interactive setting.

Alternate Solution

If errors are showing up in the Windows Application Event Viewer logs with the source "EXLConverter" and description "Unable to get the PrintArea property of the PageSetup Class" then try the following. First ensure that at least one printer (physical or virtual) is defined (generally found from the Windows start menu by clicking Start→Settings→Printers and Faxes. If at least one is already defined then try the registry fix explained here by Microsoft: http://support.microsoft.com/default.aspx/kb/184291

7.4 E-PBs are Timing Out

Issue

The E-PB Application acts to automate the process of starting OSIsoft's PI ProcessBook, opening a ProcessBook file, and saving one or more screens to image file(s). All problems (including abnormal application crashes) inherent to PI ProcessBook cause problems when used by E-PB.

PI tagname cannot be found (is either pointing to a deleted tag or is setup to reference the wrong PI System). E-PB Behavior: E-PB will time-out. If the E-PB destination is set to FTP, the user will be sent an e-mail stating there was a Timeout.

Solution

Fix the ProcessBook screen by pointing to the correct PI tagname/PI System and uploading the updated file to the E-PB.

Issue

PI System cannot be found (is either not available, is not listed as a connection in the Connections dialog, or does not match an identical connection in the Connections dialog).
E-PB Behavior: E-PB will time-out. If the E-PB destination is set to FTP, the user will be sent an e-mail stating there was a Timeout.

Solution

If the PI System is not listed in the Connections dialog on the server hosting the E-PB Application, add it with the exact same server name. If the PI System is not available there currently is no action available to resolve this problem.

7.5 Hard Drive Full on Server Running E-PB

Issue

ProcessBook .tmp files are not deleted, causing the partition to fill up. E-PB Behavior: E-PB will stop functioning when the partition is full (cannot download data from the Database). When the partition has available space again, E-PB will start functioning again.

Note: Make sure to copy the ProcessBook file to the machine running the E-PB Application and open it – if any errors appear, resolve them, save and upload the same file into the E-PB.

Explanation

PI ProcessBook (like many other applications) utilizes temporary files. On occasion, ProcessBook may terminate unexpectedly and will not delete its pertinent temporary files. When a medium to large volume of E-PBs are being processed, these temporary files may quickly fill up one more gigabytes in a few days. The file size of the E-PBs, the likelihood of ProcessBook not deleting its temporary files, along with the rate of processing E-PBs will determine the size consumed.

Solution

Regularly utilize the Windows Disk Cleanup utility. If a weekly basis is not sufficient, it is recommended to create a batch file similar to the following:

```
c:
cd\
cd %windir%
cd temp
del /Q *.*
```

Modify accordingly. Please note that "del /Q *.*" will delete all files without prompting. Schedule this script via Scheduled Tasks on a daily (or more/less frequent) basis. It should be noted that temporary files currently being used will not be deleted - an "Access is Denied" error will be given instead.

7.6 E-PBs Being Sent Later Than Expected

Issue

E-PBs are being received later than expected.

Explanation

A recent performance test was completed over approximately 40 E-PBs on a dual Pentium Xeon 2.2 GHz processor machine with 2 GB of RAM. The E-PBs used were single-screen PDI files with what is to be considered an average amount of objects, trends, values, etc. The table below contains the results of the tests.

Maximum Number of Instances	Average Time to Process all E-PBs (minutes)
3	3.01
4	2.64
5	2.38
6	2.08
8	1.65

Solution

The E-PB Application has a setting that controls the number of PI ProcessBook applications that are instantiated at a time ("Maximum Number of Instances" under the Advanced tab found in the E-PB Application's Configure dialog). If an E-Notification System has a need to process any amount of E-PBs greater than 10-15 per hour, it may be advisable to consider increasing this "Maximum Number of Instances" value.

7.7 Message Log Search Webpage Reports Errors

Issue

The Message Log Search page utilizes the PI-SDK on the web server to retrieve the Message Log events. In some cases, errors may be displayed or the page may stop responding.

Before any other steps are taken, ensure that the PI-SDK is installed on the web server.

Explanation

The PI-SDK is unable to access the PI "known hosts" table.

Solution

Log in to the web server as someone with Administrative privileges. From the Start Menu choose Run and enter the command "regedit" (if using Windows 2000, enter the command "regedt32"). Navigate the registry tree to: \HKEY_LOCAL_MACHINE\SOFTWARE\PISystem

From the Edit (or Security) menu choose "Permissions". Click the Add button. You may be prompted to provide an account with domain privileges. Select "SYSTEM" from the list at the top of the dialog or type "SYSTEM" (without the quotes) in the lower box. Click OK. In the resulting dialog titled "Permissions for PISystem" select "SYSTEM" from the list of names at the top, then select the "Full Control" checkbox so it is checked. Click OK.

7.8 PE Equations not supported on PI 3.2.357.4 or less

Issue

PE Equation calls (specifically when editing an E-Larm monitoring a PE Equation) may not be supported when communicating with a PI System with a version earlier than 3.2.357.4.

Explanation

This specific problem occurs when the PE Equation is retrieving "interpolated or timed archive values before any online archive time". See PI Data Archive 2.357.8 Release Notes found at http://www.osisoft.com.

Solution

Upgrade the PI System to version 3.2.357.4 or higher.

7.9 PI Batch Tag(s) are listed in Tag Search

Issue

PI Batch Tag(s) are listed in the Tag Search

Explanation

Batch tags are indistinguishable from standard PI tags and are therefore include in E-Notification's list of PI tags.

Solution

Filter out the individual tags by editing the particular location (View Locations) and utilizing the Tag Exclude Mask input.

7.10 Images not showing up in e-mails from E-PB in Outlook 2007

Issue

In an E-PB generated from a .PIW file (utilizing more than one ProcessBook screen), only the first image is embedded in the e-mail message while the rest are appended as attachments – even when both "Show the image(s) (and HTML document) in the e-mail message?" and "Place all images in HTML document" have been checked in the E-PB's configuration.

Explanation

This specific problem has only been discovered in Outlook 2007. It is unclear as to what exactly has changed between Outlook 2003 and 2007. ECG is currently investigating the issue and will be working on a patch to solve this problem.

Solution

The images attached to the E-PB in the e-mail contain the correct information. Viewing those images one at a time may be tedious but the data is accessible via that method.

7.11 E-Larm based on PE Equation is not received or is repeatedly disabled.

Issue

An E-Larm based on a PE Equation is configured and enabled. The E-Larm is not sent when expected. The user returns to the E-Notification web site to find that it has been disabled.

Explanation

In the event an invalid PE Equation is encountered, the owner and all subscribers will receive an e-mail indicating a syntax error and the E-Larm will be automatically disabled.

Solution

Edit the E-Larm in question and correct the PE Equation. While editing the E-Larm, use the “Get Value” button to evaluate the PE Equation ensuring a correct expression. Finally, enable the E-Larm if it has been disabled.

7.12 Web Site is not able to access PI information.

Issue

The web site keeps showing errors when trying to access PI information (get value, trend PI tags, etc) even though the information is defined in the Connections box of the PI-SDK. The web site is possibly giving COM errors referencing PI CLSIDs (in detailed error messages to administrators). The PI servers may be correctly configured in the About box of the PI-SDK program but these errors still happen. Another example is when testing a valid login to the PI System via the Test Connections web page in the E-Notification Web Site, the error “Object reference not set to an instance of an object.” is returned.

Explanation

The web site user (generally IUSR_ <COMPUTERNAME> or equivalent) must be able to read the PI .dlls in the PIPC folder in order to process some of the PI-related calls. Without this access web site errors will occur when trying to access PI-related information.

Solution

Allow the “Users” group on the server hosting the E-Notification Web Site at least Read access to the PIPC folder. If, due to security reasons, the “Users” group is not allowed access then it is required that the “Authenticated Users” group must have Read & Execute access to the PIPC folder and all subfolders/files.

7.13 Website unable to connect to a PI System but the E-Notification Services can.

Issue

Users are unable to create or edit E-Larms, E-Reports, or E-Trends because the web site cannot connect to the PI System.

Explanation

OSIsoft has confirmed that there is an issue with PI-SDK 1.3.6.363 that may prevent web applications from connecting to the PI system giving an error similar to the following: "Error: Unable to convert server to a collective.: -2147176697". Looking up that error code in the PI-SDK help yields "0x8004AF07 Unable to create PISDK registry key".

Solution

Upgrade the PI-SDK on the web server to 1.3.6.364 or higher.

7.14 EXLConverter Consistently logging 0x800A03EC errors to the Windows Event Viewer

Issue

E-XL reports stop working and EXLConverter consistently logs 0x800A03EC errors to the Windows Event Viewer.

Explanation

The Excel folder for the Default User may have been corrupted through Windows or Office patches. Deleting this folder from the server running the E-XL service may correct the issue (Excel will recreate it the next time it runs).

Solution

Delete the following folder:
C:\Documents and Settings\Default User\Application Data\Microsoft\Excel

7.15 EXLConverter Consistently Logging Event ID 2 / Error Code -2146827284 to the Windows Event Viewer with Installations of Office 2010 or Office 2013.

Issue

E-XL reports stop working and EXLConverter consistently logs Event ID 2 and/or Error Code -2146827284 to the Windows Event Viewer with installations of Office 2010 or Office 2013.

Explanation

The Excel folder for the Default User may be missing and cannot be created by Excel.

Solution

Create the following folder on the Application Server. C:\Users\Default\AppData\Roaming\Microsoft\Excel.

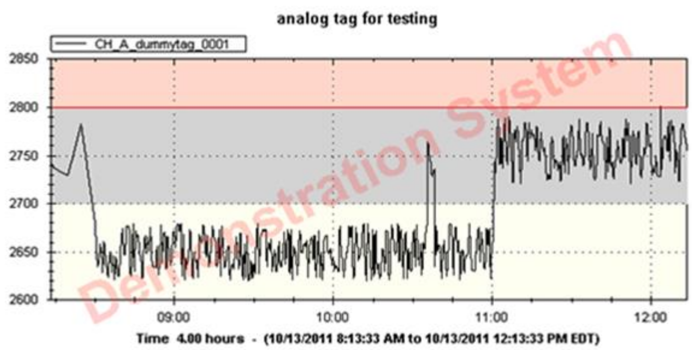
7.16 E-Larm sending "false" alerts when using Deadband and Hold State

Issue

E-Larm may appear to be sending "false" alerts in certain circumstances when it is configured with both deadband and hold state attributes.

Explanation

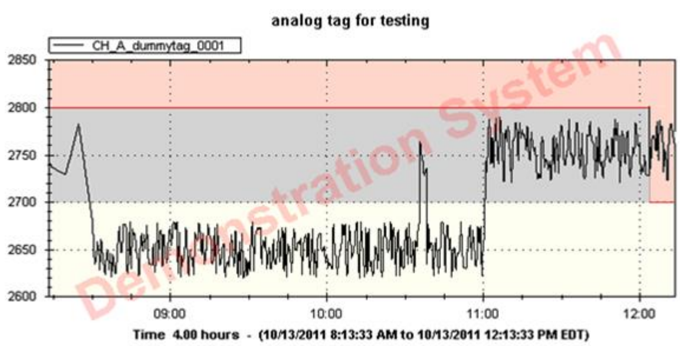
When using both deadband and hold state in an E-Larm configuration, there may be times that it appears that a false alert is being sent.



In this case, it looks like the alert (sent 10 minutes after the small spike into the High range) was sent by mistake.

Solution

What actually is happening is correct, and by design. By using the deadband attribute, once the signal value crosses the High limit threshold, the signal is considered to be high until it goes back into the actual normal range (white area below the deadband). Effectively, the High range in this case is determined more like the following image.



This is why the alert was sent – the signal was still in the "High" range 10 minutes after the initial spike because it had not gone completely back into the normal range. The resolution here would be to raise the High limit to account for signal spikes at this range.

7.17 E-XL not working for 64bit Office 2010 or 2013

Issue

E-XL consistently fails to convert spreadsheets and email the results. These failures are logged in the Windows Event Viewer.

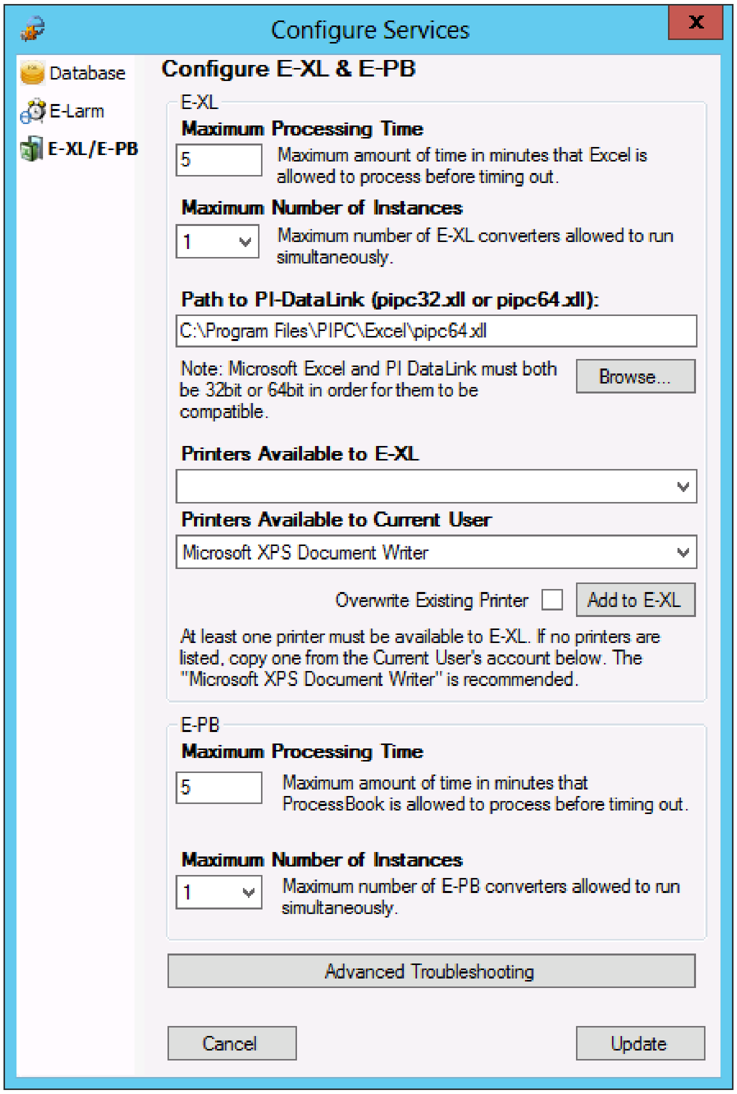
Explanation

Several changes were made in newer versions of Office to limit the ability to automate running Excel – the basis for what E-XL is able to send spreadsheet reports. Several workarounds can be used to get this automation to work again.

Solution

1) Ensure the correct version of PI DataLink is installed for your version of Excel. This means a 32bit version of PI-DataLink is required for a 32bit version of Excel and a 64bit version of PI-DataLink is required for a 64bit version of Excel.

2) Ensure the correct pipc.xll file is configured in the E-Notification Service Manager for E-XL. By default, the path for the 32bit version on a 64bit version of Windows is:
C:\Program Files (x86)\PIPC\Excel\pipc32.xll
for the 64bit version of pipc.xll, the default path is:
C:\Program Files\PIPC\Excel\pipc64.xll



3) Create the following folder on the server running E-XL if it does not already exist:
C:\Users\Default\AppData\Roaming\Microsoft\Excel

4) Add machine-level PI trusts to your PI servers

5) Download and run Microsoft's PSExec program and run Excel via the server's SYSTEM account to see what is happening. Try using PI-DataLink calls in a spreadsheet as well as printing.
https://technet.microsoft.com/en-us/sysinternals/bb897553.aspx
Run this program from a DOS window using the syntax:
`psexec -s -i cmd`
From the new DOS window that opens, run Excel. Example:
`C:\Program Files\Microsoft Office\Office15\Excel.exe`

6) To simulate printers being available for the SYSTEM account, export the following registry keys from the SID of the current user (to find your SID, run the following from a DOS window: `whoami /user`)

HKEY_USERS\{SID}\Software\Microsoft\Windows NT\Current Version\Device
HKEY_USERS\{SID}\Software\Microsoft\Windows NT\Current Version\PrinterPorts
HKEY_USERS\{SID}\Software\Microsoft\Windows NT\Current Version\Windows

edit the exported keys to import them to the following locations, respectively:

HKEY_USERS\.DEFAULT\Software\Microsoft\Windows NT\Current Version\Device
HKEY_USERS\.DEFAULT\Software\Microsoft\Windows NT\Current Version\PrinterPorts
HKEY_USERS\.DEFAULT\Software\Microsoft\Windows NT\Current Version\Windows

7.18 E-Notification Website and Internet Explorer 11

Issue

Some customers have experienced issues when viewing the E-Notification website using Internet Explorer 11

Explanation

On some servers not running the latest Windows updates and patches, Internet Information Services does not recognize Internet Explorer as a valid web browser.

Solution

Install Microsoft .NET Framework 4.5.2 or higher on the server running the E-Notification website.
https://www.microsoft.com/en-us/download/details.aspx?id=30653

7.19 E-XL not working for DataLink 2013 or Newer

Issue

Some customers have experienced issues when running E-XL using Excel 2013 in combination with PI DataLink 2013 or newer. When trying to run E-XL reports, emails are returned with the error "Error running converter: Converter finished without files."

Explanation

OSIsoft introduced UI COM add-ins for PI DataLink 2013, which are required to use these newer ribbon versions of PI DataLink. Without the COM add-ins correctly configured for the SYSTEM account (which E-XL uses when running as a service), EXLConverter will fill the Windows Event Viewer Application Log with Errors: "Object reference not set to an instance of an object at ENotification.EXL.Converter.Converter.Run()"

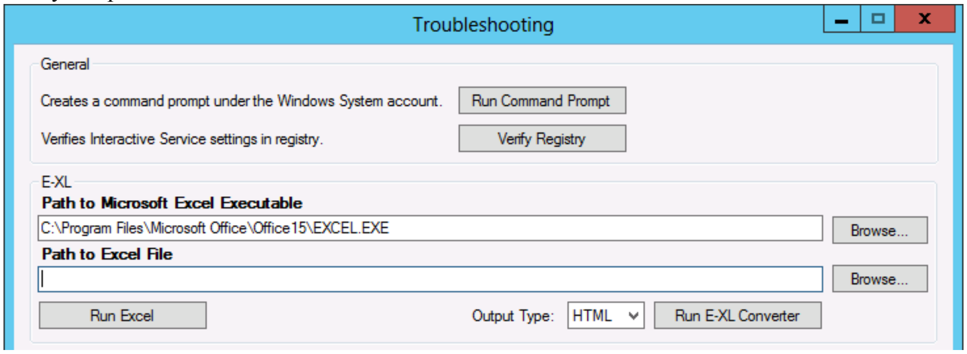
Solution

Using the Advanced Troubleshooting tool for E-XL in E-Notification's Service Manager, the UI COM add-in can be included in Excel for the SYSTEM account. This can be accomplished as follows.

1) Run the E-Notification Service Manager from the System Tray (or start menu)

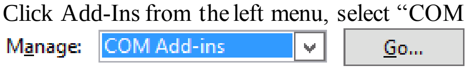
2) Select the E-XL service and click the Configure icon ( ). The "E-XL/E-PB" window should show up. Click the Advanced Troubleshooting button.

3) Verify the path to Excel.exe is correct and click the "Run Excel" button.

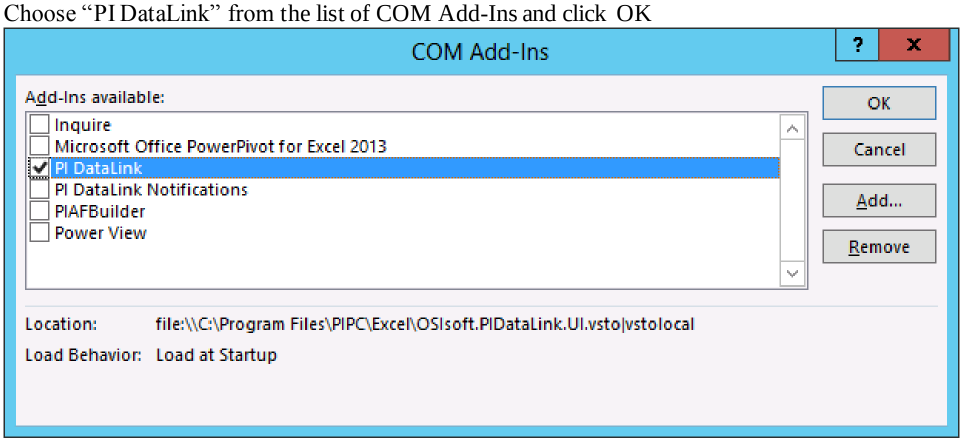


4) Once Excel is open, click File, then Options.

5) Click Add-Ins from the left menu, select "COM Add-Ins" in the dropdown and click "Go…"



6) Choose "PI DataLink" from the list of COM Add-Ins and click OK



7) Close Excel and run the E-XL report again.

7.20 E-XL times out or does not complete with Office 2016+ on an Application Server without internet connectivity.

If E-XL is hanging or timing out when running on an Application Server with Office 2016 or higher installed, please open Excel on the Application Server. If it hands on open, please verify the machine has internet connectivity. OSIsoft has determined that Microsoft Office reaches out to the internet for verification purposes when third party DLLs, such as DataLink, are loaded. Without internet access, Excel will hang. To correct the issue, please provide the machine internet connectivity or downgrade to Office 2013.