Alarm Gateway Object for Wonderware Application Server

User Guide
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PR 00185

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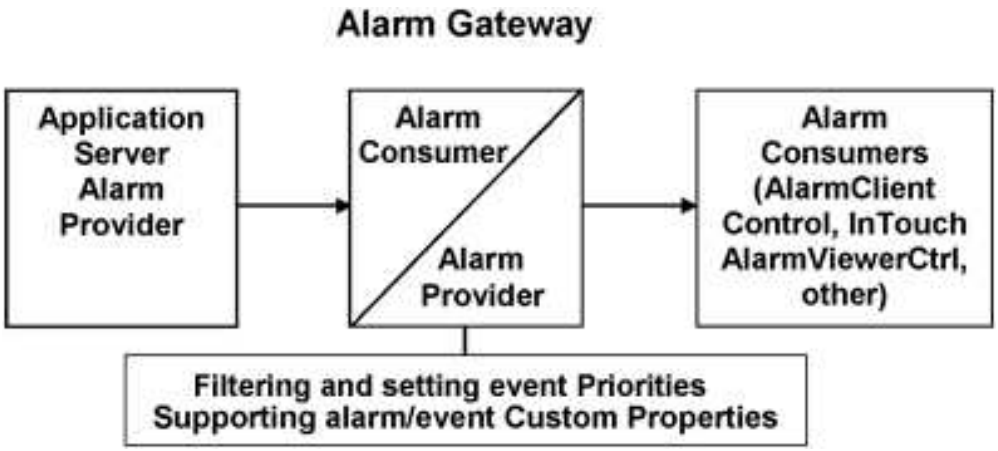
Alarm Gateway Object for Wonderware Application Server

Introduction

The **Alarm Gateway Object** (Alarm Gateway) is a basic component of Wonderware Finland **Alarm Extension Pack Standard Edition** and provides functionality to create separate configurable Alarm Provider for alarms coming from Wonderware Application Server (WAS) and/or other Alarm Providers compatible with Wonderware Alarm System:



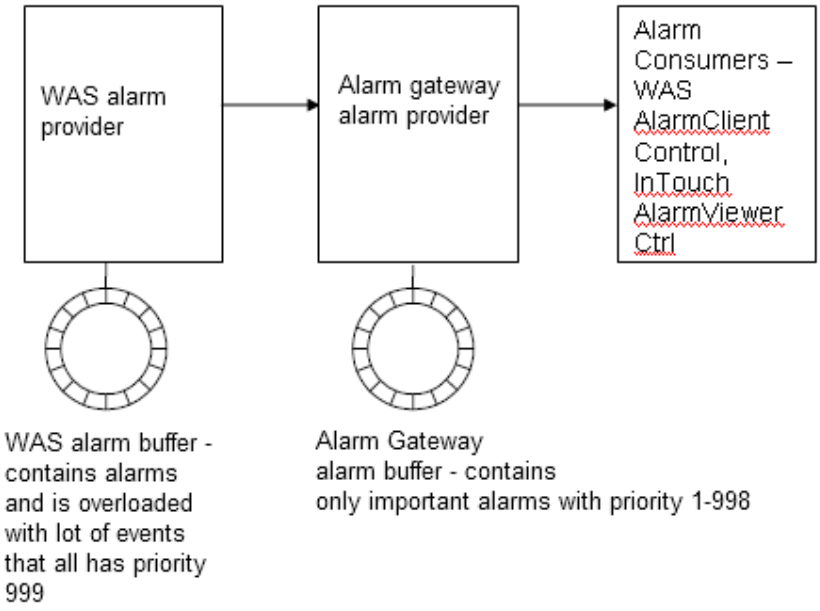
In case included in Wonderware Finland **Alarm Extension Pack UReason Edition**, the Alarm Gateway Object provides also the functionality to send/receive alarms to/from Wonderware alarming system from/to **UReason alarming system**.

The Alarm Gateway can be used to solve the following tasks:

Avoid alarm loss in high loaded systems:

WAS Historical alarms and events are stored in a circular buffer, where the oldest entries are discarded to make room for new ones, so in case there generated a lot of events then important alarms can be lost.

By using the Alarm Gateway, it is possible to store all important alarms in separate Alarm Gateway buffer - that can be done by querying alarms/events only with priorities from 1 to 998:



Note: Alarm Gateway alarm buffer can contain about 6000-7000 alarms. The total number of stored alarms depends on size of alarms.

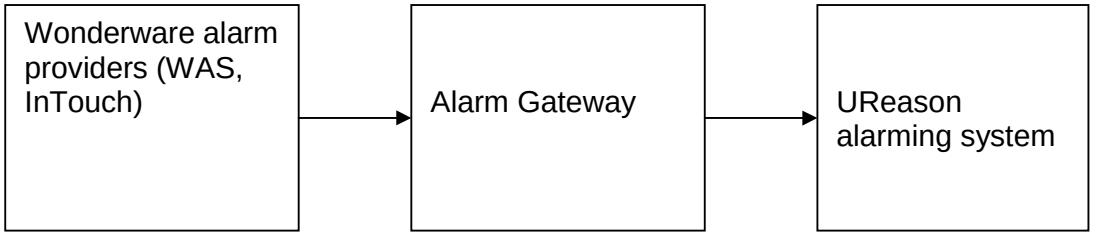
Change the event priority:

WAS alarming system does not provide possibility to configure event priority - all events have built-in priority 999.

By using Alarm Gateway, it is possible to change the event priority by using the setPriority custom attribute .For more information see the “Custom attributes” section “setPriority” later in this User Guide.

Connect to UReason alarming system:

Alarm Gateway can send alarms/events from Wonderware alarming system to UReason alarming system. For more information see “UReason gateway” section later in this User Guide.



Configuration

For general information about objects (including relationships, deployment and alarm distribution) - see the Wonderware Integrated Development Environment (IDE) documentation.

For information on configuration options for object information, scripts, user-defined attributes (UDAs), or attribute extensions, click **Extensions Help** in the Help file header.

General Configuration

The following section describes the Object Editor options for configuration and the associated attributes.

Use the **General** tab to configure and tune the behavior of the Alarm Gateway Object:

Consumer:

Editor Option	Associated Attribute	Description
Alarm Query	Consumer.AlarmQuery	Consumer Alarm Query
From Priority	Consumer.FromPriority	Enter the starting value of the alarm priority range
To Priority	Consumer.ToPriority	Enter the ending value of the alarm priority range
Query Type	Consumer.QueryType	Alarm query type.

Provider:

Editor Option	Associated Attribute	Description
Name	Provider.Name	Alarm provider name
Alarm Historical Buffer Size	Provider.AlarmBufSize	Alarm buffer size.
Alarm Group Hierarchy XML	Provider.AlarmHierarchyFile	Path to WAS generated Alarm (Area) hierarchy file Default value: c:\Program Files\ArchestrA\Framework\Bin\GlobalDataCache\AreaHierarchy.xml
Alarm Backup XML Location	Provider.AlarmBackupLocation	Alarm Backup XML files Location on disk

Run-Time Object Attributes

All object attributes are grouped into following groups by prefix:

AlarmGateway - defines attributes for Alarm Gateway general configuration and status**.**
Provider_ - defines attributes for Alarm Provider configuration
Consumer_ - defines attributes for Alarm Consumer configuration.
Licence_ - defines attributes for licensing
Set - defines custom attributes – see section “Custom attributes” for more information

The following table describes the run-time only attributes for the Alarm Gateway Object.

Note: Configurable run-time attributes are described in the configuration sections. For more information, see **Configuration** section above.

Attribute	Description	Run-Time Access
AlarmGateway_Started	If true Alarm Gateway is Started and running.	Read-Only
AlarmGateway_LastErrorMessage	Last Error Message	Read-Only
AlarmGateway_LastErrorCode	Last Error Code (No errors = 0)	Read-Only
AlarmGateway_Restart	Trigger – if set to True then restarts Alarm Gateway.	User
Consumer.Status	Current status of Alarm Gateway	Read-Only

Note: It is highly recommended to run any Alarm Gateway Object in separate Engine since Alarm Gateway uses scan interval for reading the alarms. Recommended Engine scan interval for Alarm Gateway is at least 1000 ms.

Custom attributes

By using custom attributes, it is possible to change following alarm data fields in Wonderware alarm system or in UReason alarm system:

Custom Attribute	Alarming system	Description
SetUser1	Wonderware	User-defined field number 1.
SetUser2	Wonderware	User-defined field number 2.
SetUser3	Wonderware	User-defined field, string.
setPriority	Wonderware	Alarm/Event Priority.
setSource	UReason	Alarm Source
setClass	UReason	Alarm Class

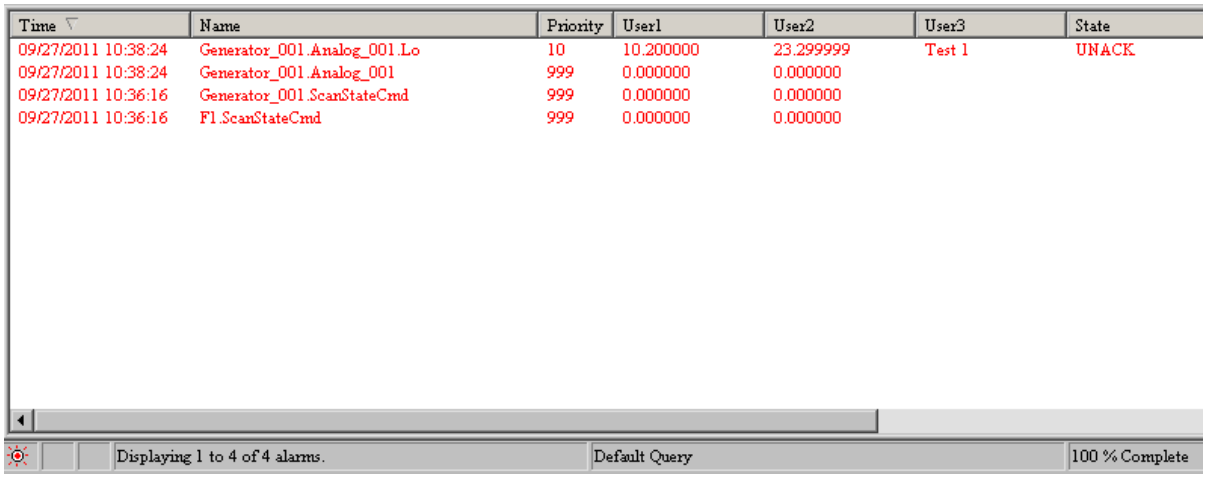
Custom attributes can be set from WAS scripts with following command:

Syntax: objectName.CustomAttribute = “Alarm/Event name = value”

setPriority

Following command sets Wonderware alarming system alarm priority to 10 for alarm Generator_001.Analog_001.Lo:

```
AlarmGateway_001.setPriority =  Me.Tagname + ".Analog_001.Lo=10";
```



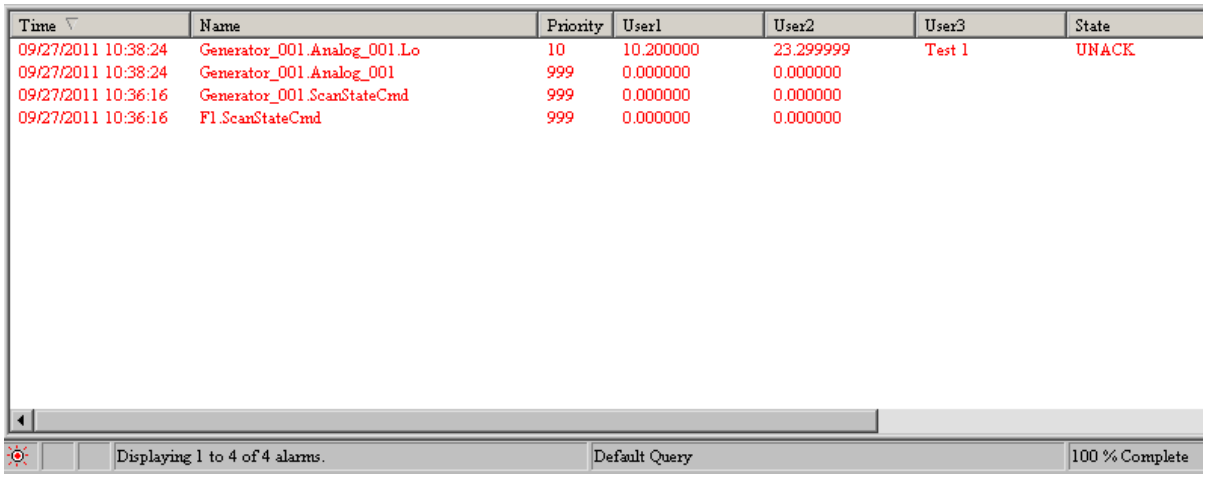
Time	Name	Priority	User1	User2	User3	State
09/27/2011 10:38:24	Generator_001.Analog_001.Lo	10	10.200000	23.299999	Test 1	UNACK
09/27/2011 10:38:24	Generator_001.Analog_001	999	0.000000	0.000000		
09/27/2011 10:36:16	Generator_001.ScanStateCmd	999	0.000000	0.000000		
09/27/2011 10:36:16	F1.ScanStateCmd	999	0.000000	0.000000		

Displaying 1 to 4 of 4 alarms. | Default Query | 100 % Complete

setUser1

Following command sets Wonderware alarming system alarm User 1 field to 10.2 for alarm Generator_001.Analog_001.Lo:

```
AlarmGateway_001.setUser1 =  Me.Tagname + ".Analog_001.Lo=10.2";
```



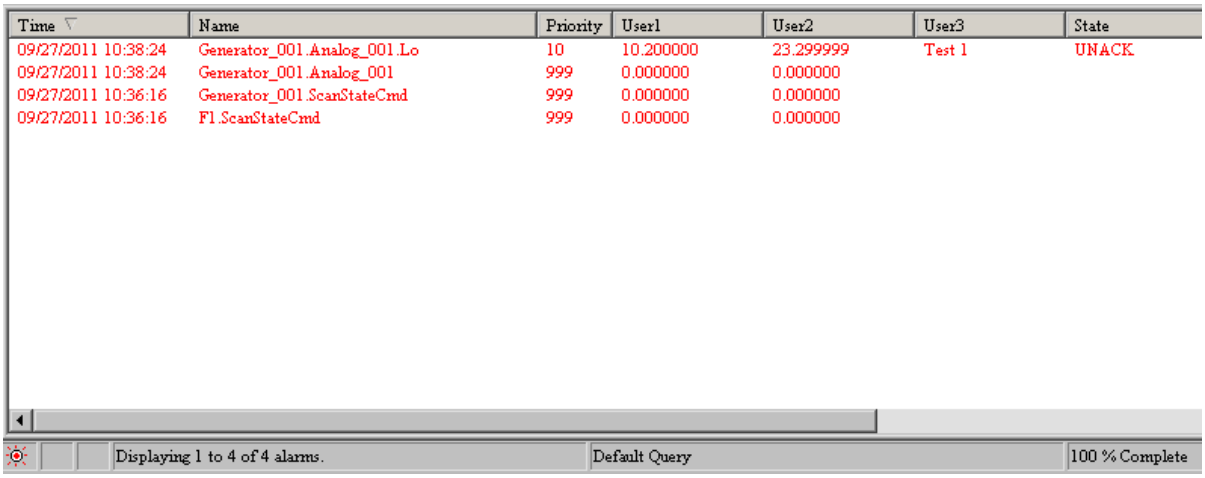
Time	Name	Priority	User1	User2	User3	State
09/27/2011 10:38:24	Generator_001.Analog_001.Lo	10	10.200000	23.299999	Test 1	UNACK
09/27/2011 10:38:24	Generator_001.Analog_001	999	0.000000	0.000000		
09/27/2011 10:36:16	Generator_001.ScanStateCmd	999	0.000000	0.000000		
09/27/2011 10:36:16	F1.ScanStateCmd	999	0.000000	0.000000		

Displaying 1 to 4 of 4 alarms. | Default Query | 100 % Complete

setUser2

Following command sets Wonderware alarming system alarm User 2 field to 23.3 for alarm Generator_001.Analog_001.Lo:

```
AlarmGateway_001.setUser2 =  Me.Tagname + ".Analog_001.Lo=23.3";
```

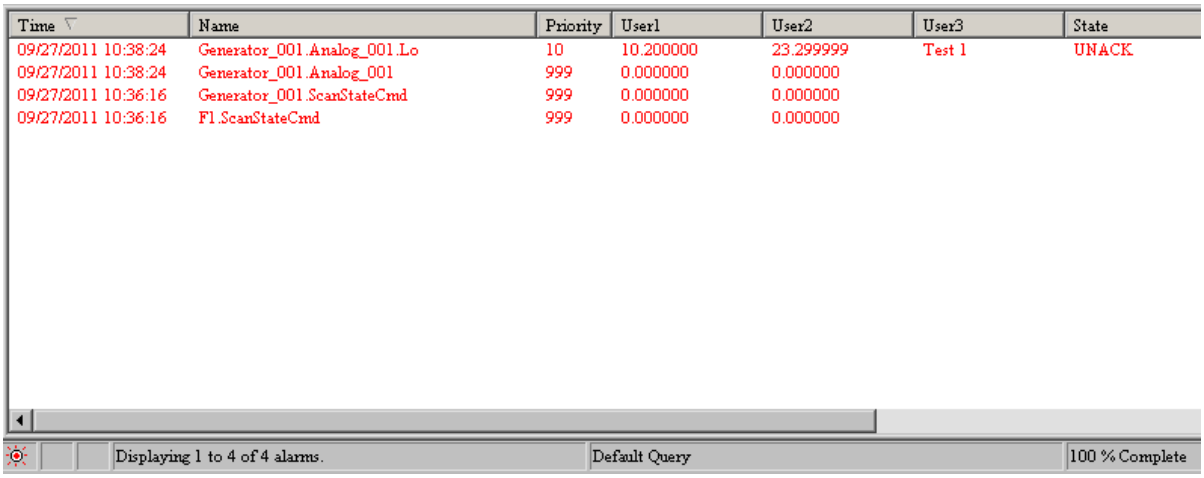


Time	Name	Priority	User1	User2	User3	State
09/27/2011 10:38:24	Generator_001.Analog_001.Lo	10	10.200000	23.299999	Test 1	UNACK
09/27/2011 10:38:24	Generator_001.Analog_001	999	0.000000	0.000000		
09/27/2011 10:36:16	Generator_001.ScanStateCmd	999	0.000000	0.000000		
09/27/2011 10:36:16	F1.ScanStateCmd	999	0.000000	0.000000		

setUser3

Following command sets Wonderware alarming system alarm User 3 field to ‘Test 1’ for alarm Generator_001.Analog_001.Lo:

```
AlarmGateway_001.setUser3 =  Me.Tagname + ".Analog_001.Lo=Test 1";
```

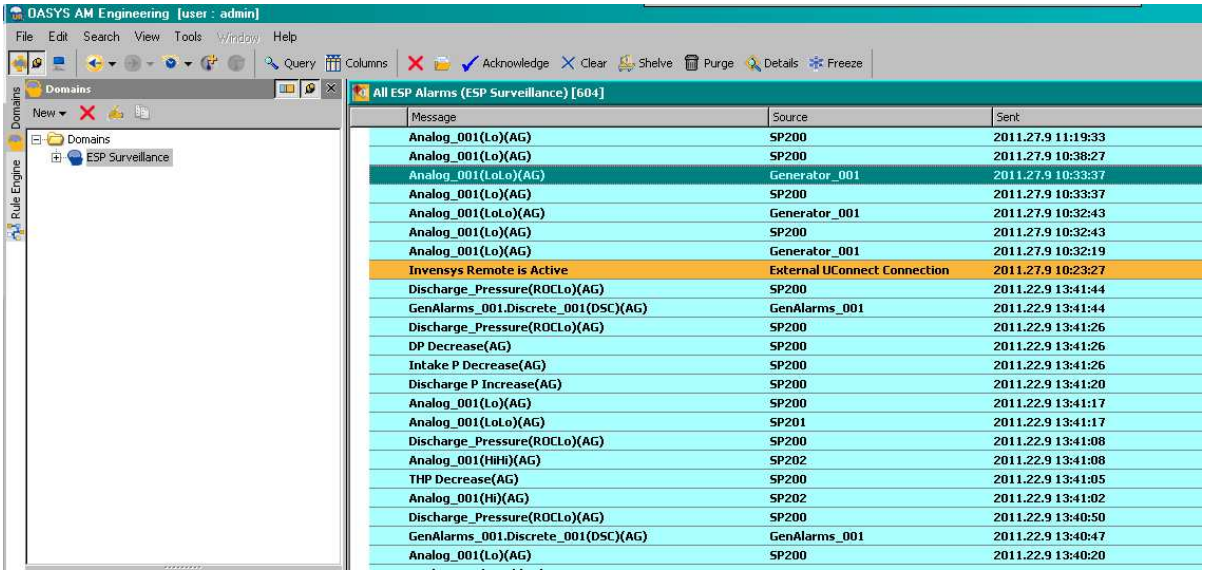


Time	Name	Priority	User1	User2	User3	State
09/27/2011 10:38:24	Generator_001.Analog_001.Lo	10	10.200000	23.299999	Test 1	UNACK
09/27/2011 10:38:24	Generator_001.Analog_001	999	0.000000	0.000000		
09/27/2011 10:36:16	Generator_001.ScanStateCmd	999	0.000000	0.000000		
09/27/2011 10:36:16	F1.ScanStateCmd	999	0.000000	0.000000		

setSource

Following command sets UReason alarm parameter Source to ‘SP200’ for alarm Generator_001.Analog_001.Lo:

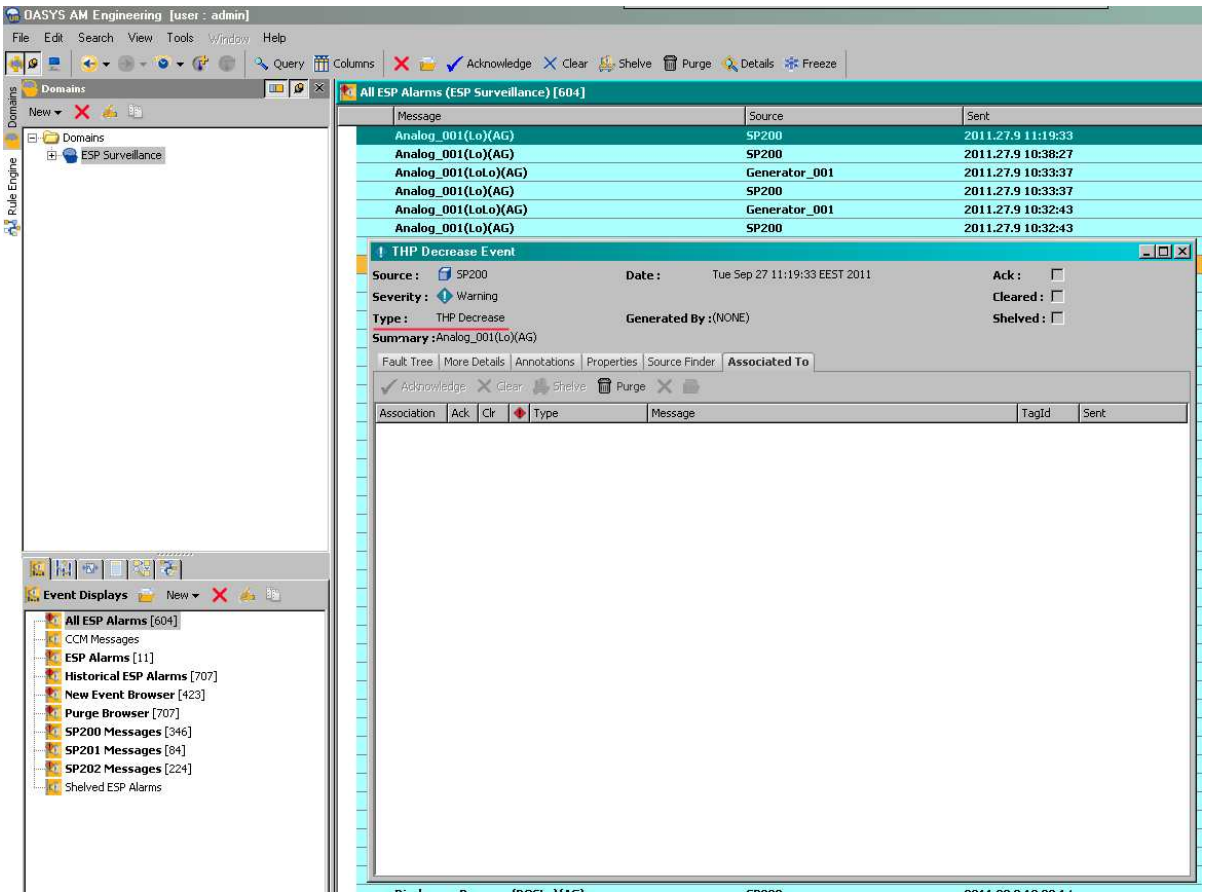
```
AlarmGateway_001.setSource = Me.Tagname + ".Analog_001.Lo=SP200";
```



setClass

Following command sets UReason alarm parameter Class (Type) to ‘THP Decrease’ for alarm Generator_001.Analog_001.Lo:

```
AlarmGateway_001.setClass = Me.Tagname + ".Analog_001.Lo=THP Decrease";
```

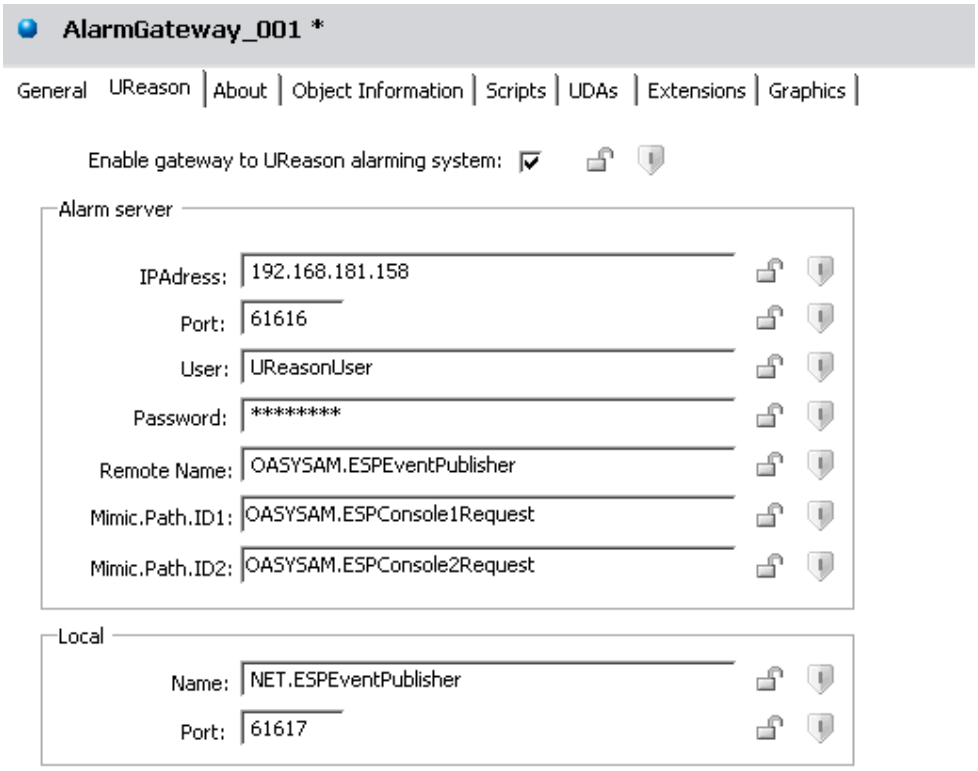


UReason gateway

Alarm Gateway Object provides functionality to send/receive alarms to/from Wonderware alarming system from/to UReason alarming system. The following functionality is supported:

1. Send new and acknowledged alarms to UReason alarm system.
2. UReason functionality to show Mimic InTouch windows.
3. UReason Shelved alarms functionality.
4. Acknowledge Wonderware alarms from UReason alarm system.

The following configuration is required for UReason gateway functionality:



Please, refer to UReason documentation for more information about UReason alarming system.

Alarm gateway UReason Mimic functionality

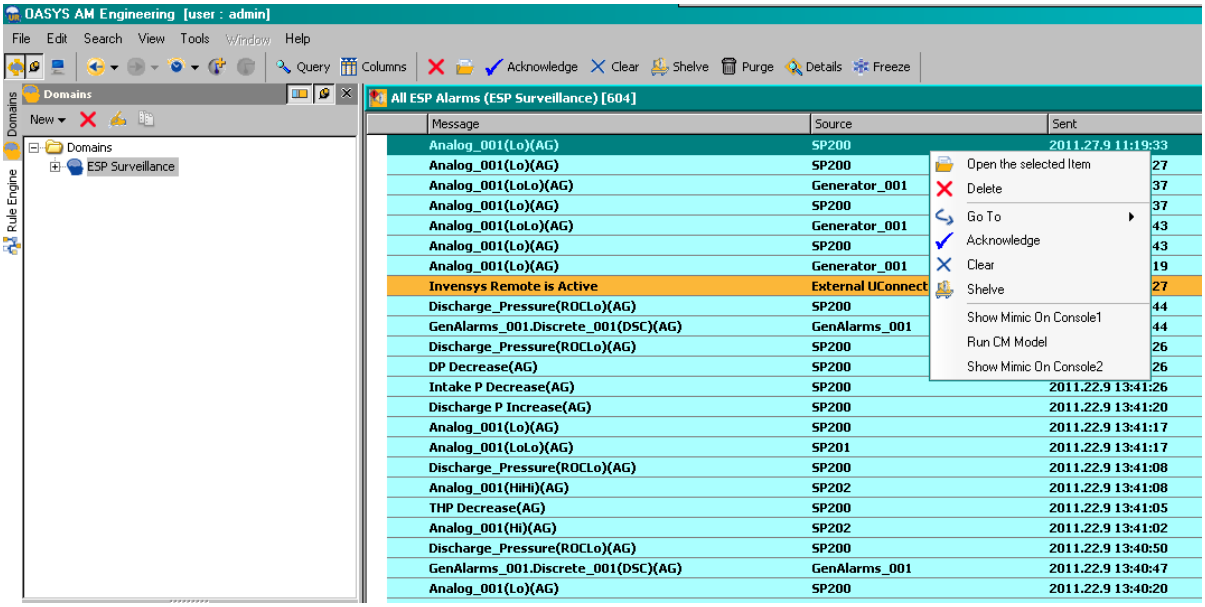
Alarm gateway supports UReason Mimic functionality.

Following object attributes are used for Console1 and Console2:

- AlarmGateway_001.UReason.Mimic.Path.Console1
  If user selects “Show Mimic On Console1” from UReason alarm menu, this attribute is changed to UReason Source value (for Alarm Analog_001.Lo it is SP200, see picture below).

- AlarmGateway_001.UReason.Mimic.Path.Console2

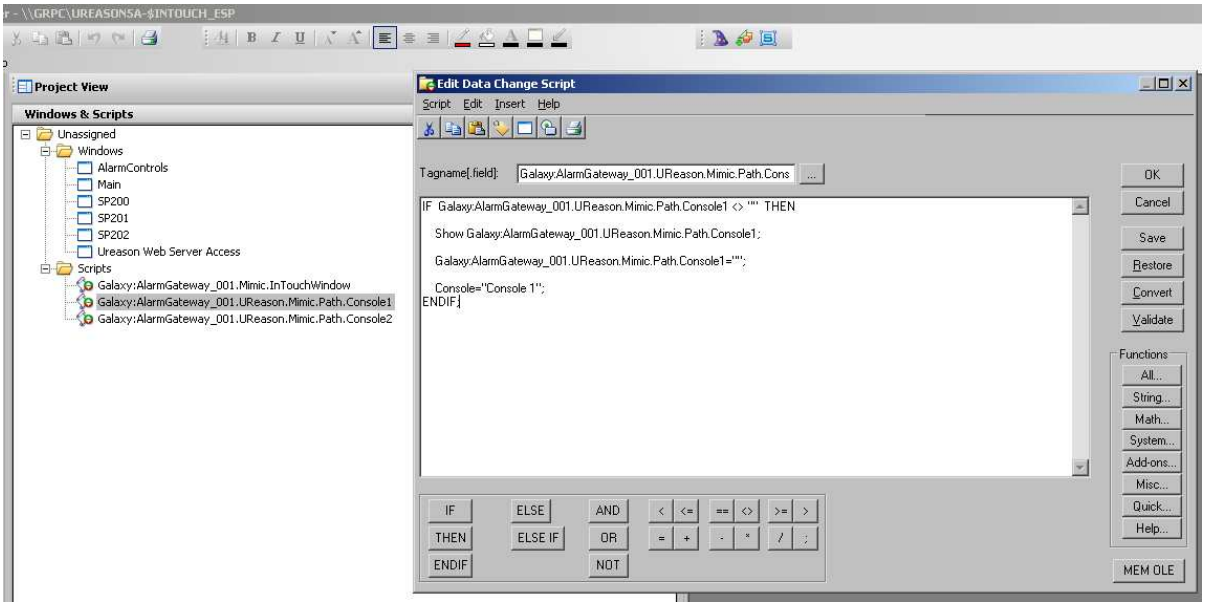
If user selects “Show Mimic On Console2” from UReason alarm menu, this attribute is changed to UReason Source value (for Alarm Analog_001.Lo it is SP200 see picture below).



Mimic functionality can be used for opening specific InTouch windows that are tied to UReason alarm by the Source value.

Sample InTouch script:

```
IF  Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console1 <> ""  THEN

    Show Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console1;

    Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console1="";

    Console="Console 1";
ENDIF;


IF  Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console2 <> ""  THEN

    Show Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console2;

    Galaxy:AlarmGateway_001.UReason.Mimic.Path.Console2="";

    Console="Console 2";
ENDIF;
```



Mimic functionally without UReason alarming system

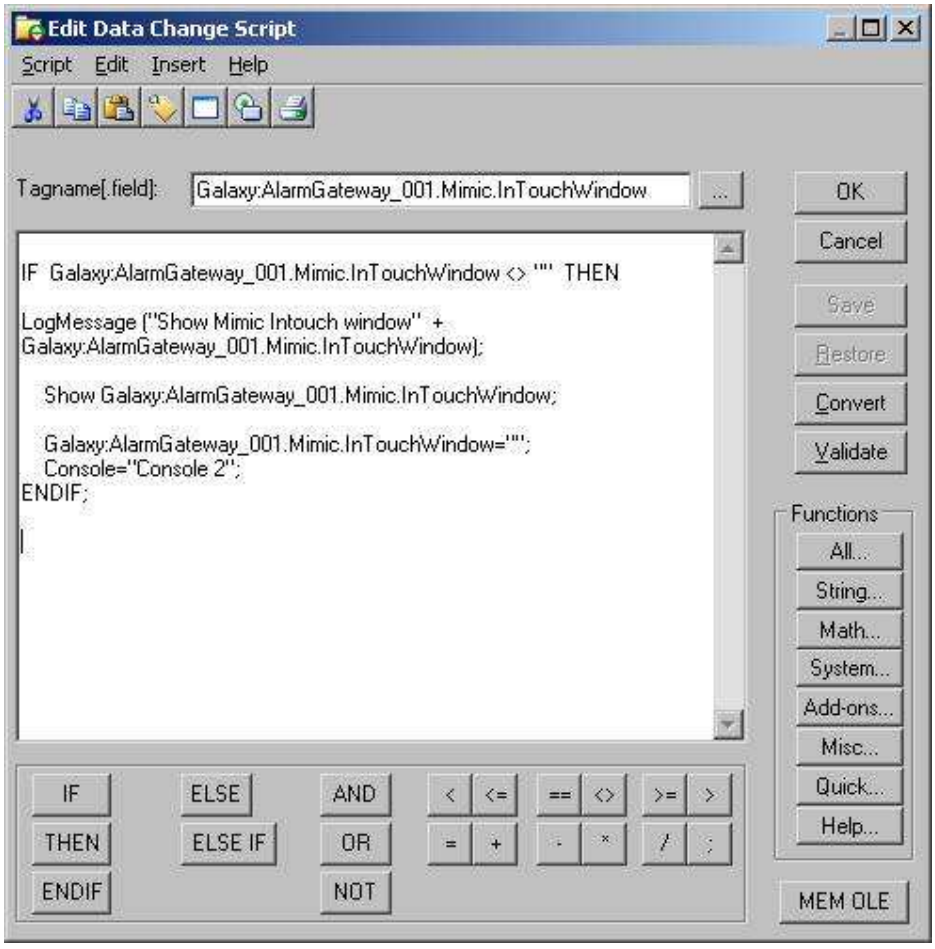
For Alarm Gateway UReason Mimic functionality only for Wonderware alarm system (without UReason), the following string attributes are needed:

- **AlarmGateway_001.Mimic.Alarmname** – input AlarmName from provider alarms list (max length 32 characters)
  Sample: SP200.Intake_Pressure_Decrease

- **AlarmGateway_001.Mimic.InTouchWindow** - returns default (WAS object name) or user-defined (set in attribute setSource) value, e.g. SP200

Sample script:

```
InTouch data change script Galaxy:AlarmGateway_001.Mimic.InTouchWindow

IF  Galaxy:AlarmGateway_001.Mimic.InTouchWindow <> ""  THEN

LogMessage ("Show Mimic Intouch window"  +
Galaxy:AlarmGateway_001.Mimic.InTouchWindow);

   Show Galaxy:AlarmGateway_001.Mimic.InTouchWindow;

   Galaxy:AlarmGateway_001.Mimic.InTouchWindow="";
   Console="Console 2";
ENDIF;
```


Edit Data Change Script
Script Edit Insert Help
Tagname[.field]:
Galaxy:AlarmGateway_001.Mimic.InTouchWindow
OK
Cancel
Save
Restore
Convert
Validate
IF Galaxy:AlarmGateway_001.Mimic.InTouchWindow <> "" THEN
LogMessage ("Show Mimic Intouch window" +
Galaxy:AlarmGateway_001.Mimic.InTouchWindow);
Show Galaxy:AlarmGateway_001.Mimic.InTouchWindow;
Galaxy:AlarmGateway_001.Mimic.InTouchWindow="";
Console="Console 2";
ENDIF;
Functions
All...
String...
Math...
System...
Add-ons...
Misc...
Quick...
Help...
IF
ELSE
AND
THEN
ELSE IF
OR
ENDIF
NOT
MEM OLE

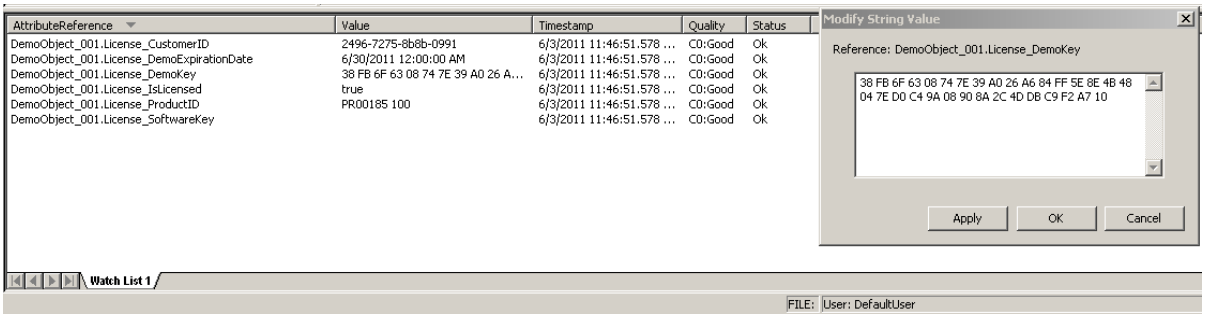
Licensing

Demo License installation

The **demo license** is for free and provides an unlimited functionality, but it is valid only for a limited time period. After demo license expiration, the Alarm Gateway will stop to provide the alarms. The demo license can be obtained by sending inquiry to info@wonderware.fi.

To activate the received demo License key, you need to set it to object attribute **License_DemoKey**:

If demo license is valid (correct key is installed) attribute **License_IsLicensed** is true and in attribute **License_DemoExpirationDate** is displayed expiration date after that product stops working.



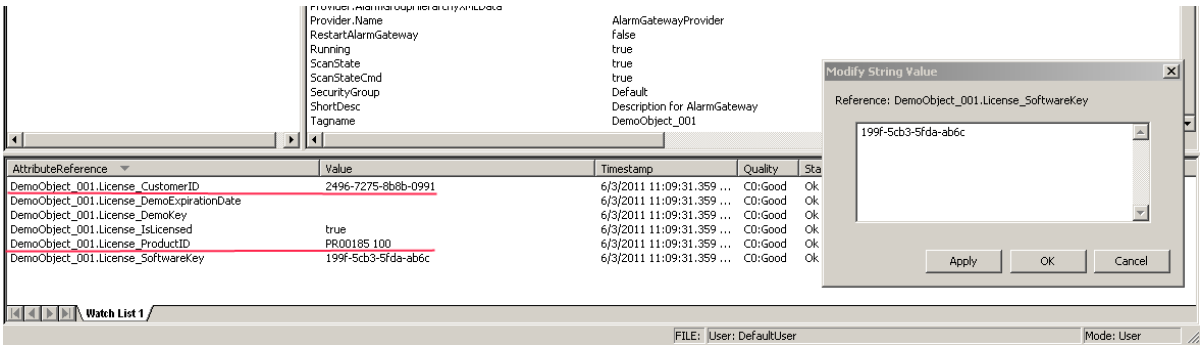
Software key installation

The **software key** enables the Alarm Gateway Object unlimited full time running without any restrictions.

To get and enable the **software key**:

- get “Product ID” from object attribute **License_ProductID** (e.g. PR00185 100);
- get “Customer ID” from object attribute **License_CustomerID**;
- copy/paste it to e-mail (or text file or similar) and provide this “Customer ID” string when ordering the Alarm Gateway Object;
- when product is purchased, copy the received “Software Key” to object attribute **License_SoftwareKey**:

If license ket is valid (correct key is installed) attribute **License_IsLicensed** is set to true and product is ready for use.



Licensing run-time attributes:

Attribute	Description	Run-Time Access
License_CustomerID	Unique generated customer ID	Read-Only
License_DemoExpirationDate	Demo license expiration date	Read-Only
License_DemoKey	Demo license key	User
License_IsLicensed	If True then product is licensed	Read-Only
License_ProductID	Product ID	Read-Only
License_SoftwareKey	Product software key	User

WONDERWARE FINLAND
Alarm Gateway Object
Revision History

Jun 2011	Rev 1.0	First Release
Jun 2011	Rev 1.1	Alarm Group Hierarchy XML “Associated Attribute” and “Description” changed
Sep 2011	Rev 1.2	“Custom attributes” and “UReason gateway” added.
Sep 2011	Rev 1.3	“Custom attributes” for “UReason gateway” added. Mimic windows functionality added.