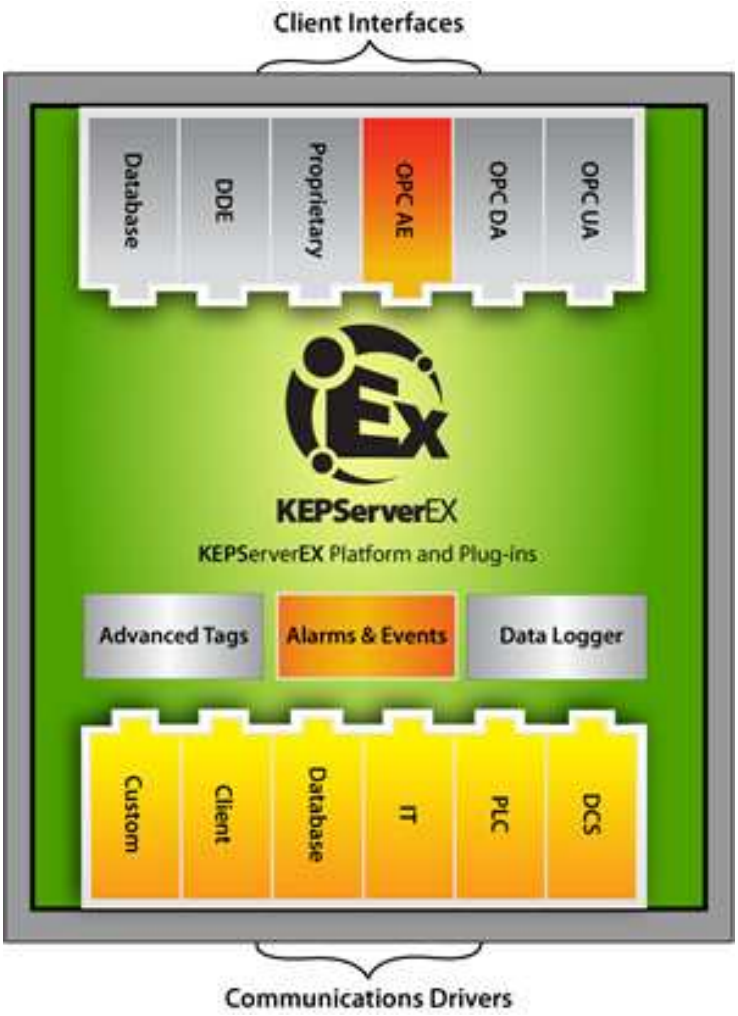
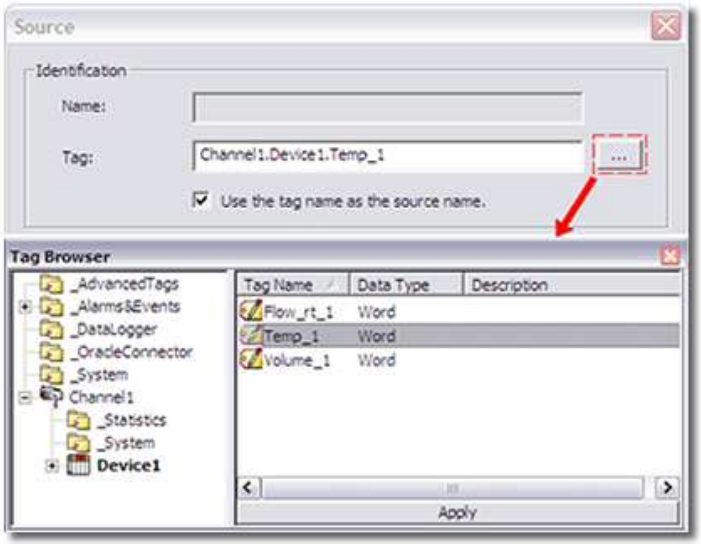
OPC Alarms and Events (OPC A&E)

Kepware's Alarms and Events plug-in for KEPServerEX can help reduce costs and improve performance. OPC AE clients can receive and monitor process alarms, operator actions, informational messages and tracking/auditing messages directly from KEPServerEX's Alarms and Events Plug-in. Monitor areas of a process that may require operator attention when defined thresholds are met, such as; safety limits of equipment, event detection, and abnormal situations. The Alarms and Events plug-in can also be used to help identify faulty equipment, create maintenance work orders and improve on operator's effectiveness. In addition to the operators handling of Alarms and Events, the plug-in can also be used to collect and record alarm and event information for audits or used in correlation with other historical data.

The OPC Alarms and Events is a plug-in module to our industry leading communications server, KEPServerEX and works in conjunction with KEPServerEX's free AE (Alarms and Events) Client Interface. Creating an alarm is as simple as browsing the existing tags within KEPServerEX and selecting the item that will be used as the alarm. Once an item is chosen, a condition and sub condition need to be set for the item. A trigger is then set comparing the current data value and the threshold.



When the condition's trigger is met an alarm will be sent to the corresponding Alarms and Events Client application providing the user with unique alarm input, output and acknowledgement messages.



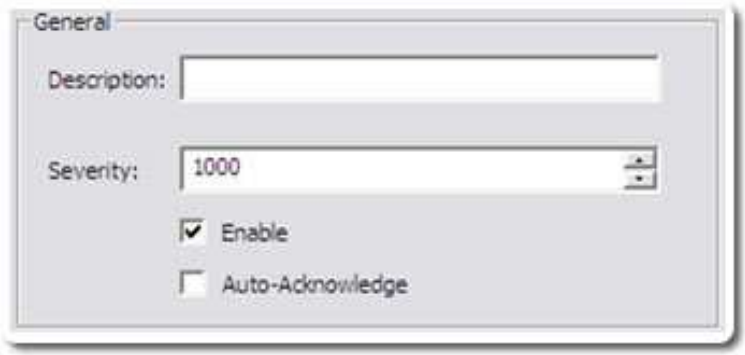
Plug-in Option Features

Item Browsing and importing

Browse KEPServerEX and the available tags and import the items to be tested. Tags can represent specific areas and equipment on the plant floor. To make 3rd party OPC DA and OPC UA Servers available for use with the Alarm and Event plug-in you will need to use and configure the OPC DA and/or OPC UA Client drivers.

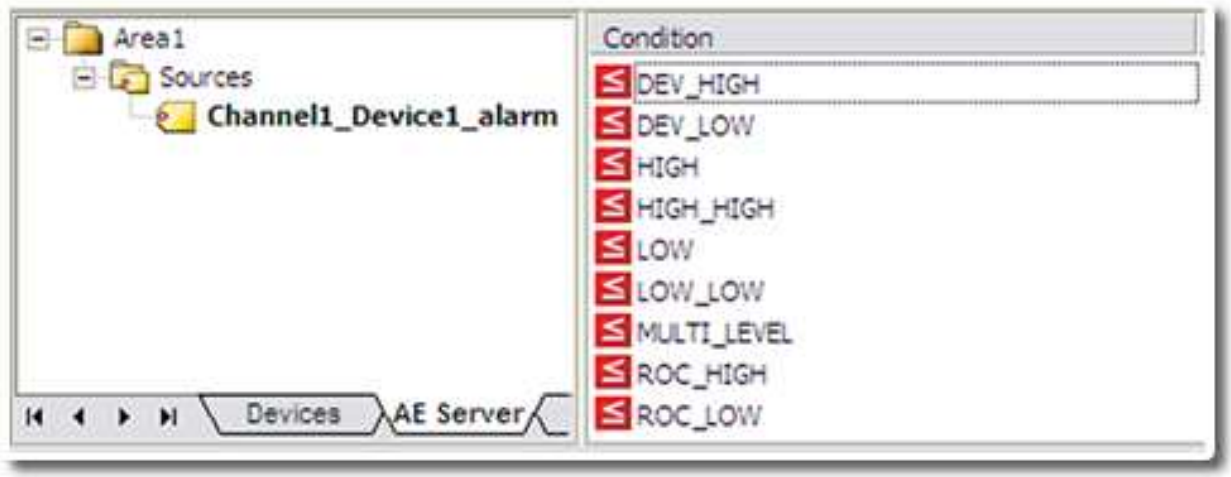
Utilizes Full OPC AE Client Severity Support

The severity value is an indication of the urgency of the sub-condition. This is also commonly called 'priority', especially in relation to process alarms. Values range from 1 to 1000, with 1 being the lowest severity and 1000 being the highest. Typically, a severity of 1 would indicate an event which is informational in nature, while a value of 1000 would indicate a disastrous event.



Extensive Alarms and Events Condition Support

KEPServerEX supports nine OPC AE standard conditions providing flexibility in how Alarms and Events Conditions are calculated and prioritized. Each condition has a unique name and unique set of sub-conditions.



- **MULTI_LEVEL**
  The multilevel condition supports multiple sub-conditions. This condition is used if the source has multiple states of interest and there is a need to know the transition between the condition states. For example, if you have a temperature tag with multiple temperatures of interest, use this condition. The HIGH_HIGH sub-condition has the highest priority and the LOW_LOW sub-condition has the lowest.

- **HIGH_HIGH, HIGH, LOW, LOW_LOW**
  These are single level conditions with a sub-condition that matches the condition name. These conditions are used if a single state of a source is of interest. For example, if you have a temperature tag with a single temperature of interest, use this condition. Note: use HIGH_HIGH for higher priority states and LOW_LOW for lower priority states.

- **ROC_HIGH, ROC_LOW**
  The Rate of Change (ROC) condition compares the source data to a static or dynamic ROC. For example, if you have a source tag that represents production output and you want to trigger the condition if the output falls below 100 units a minute, use this condition. Note: use ROC_HIGH for high priority conditions and ROC_LOW for low.

- **DEV_HIGH, DEV_LOW**
  The Deviation conditions are used to monitor the deviation of the source data. The condition is triggered if the condition of the source is outside the limits set. The limits can be either a percentage or a static value. For example if you have a source that monitors power consumption and you want to trigger the condition if the power consumption is outside of 100W ±20%, use a deviation condition.

Event Log Data Support

Delivered as a standard feature, KEPServerEX exposes event log data (Events) to OPC AE Client applications. The Event server works in runtime and service modes supporting 3 Event categories (Information, Warning, Error). The Alarm and Event Condition Plug-in expands this interface to include Alarm and Event Conditions

OPC AE Client Filtering

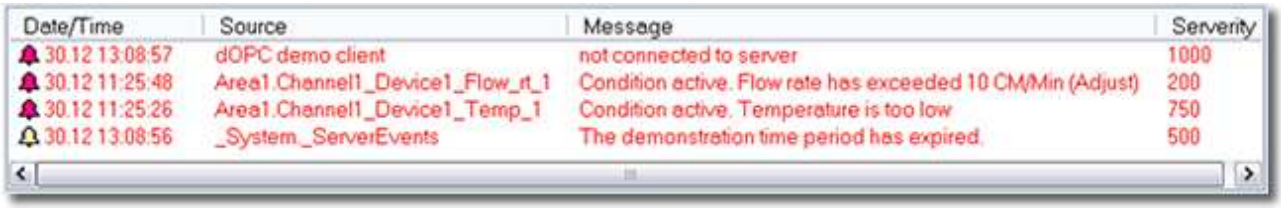
Filter by area, source, event type (simple and conditional), severity, and category.

Enabling/Disabling Sources and Conditions

Ability to enable and disable communication areas, sources and conditions through the AE user interface.

Define Alarm Inputs, Outputs and Acknowledgements

Create unique alarm input, output and acknowledgement messages. Also create acknowledgment rules for Alarms.



Date/Time	Source	Message	Serverity
30.12 13:08:57	dOPC demo client	not connected to server	1000
30.12 11:25:48	Area1.Channel1_Device1_Flow_rt_1	Condition active. Flow rate has exceeded 10 CM/Min (Adjust)	200
30.12 11:25:26	Area1.Channel1_Device1_Temp_1	Condition active. Temperature is too low	750
30.12 13:08:56	_System._ServerEvents	The demonstration time period has expired.	500

Definitions:

An alarm is an abnormal condition and is thus a special case of a condition.

A condition is a named state of the Event Server, or of one of its contained Items (if it is also an OPC Data Access Server), which is of interest to its Client. An alarm is merely a special case of a condition, which is deemed to be abnormal and requiring special attention.

An event is a detectable occurrence which is of significance to the Event Server, the device it represents, and it's OPC Clients. An event may or may not be associated with a condition, such as set point changes, informational messages, logins and operator requests.

An area is a grouping of plant equipment configured by the user, typically according to areas of operator responsibility.

Protocol

OPC AE v1.10

Additional Information and Resources:

- KEPServerEX OPC Server Features
- OPC AE Plug-in Revision History
- KEPServerEX Revision History
- Connecting Visual Basic to Alarms and Events
- System Requirements
- OPC Compliancy Testing
- KEPServerEX v5 Licensing
- Upgrade Pricing

Related Products:

- Manufacturing Suite
- OPC UA Client Driver
- OPC DA Client Driver
- LinkMaster OPC Bridging Software
- DataLogger Option for KEPServerEX
- Advanced Tag Option for KEPServerEX
- RedundancyMaster OPC Redundancy Software
- Support and Maintenance Agreement
- Support and Maintenance Pricing

Drivers "Plug-in" to KEPServerEX

The Alarms and Events OPC Server is a plug-in device driver for KEPServerEX. A "Plug-in" is a software program (.dll) that extends the capabilities of KEPServerEX to fit the communication requirements of a specific device or system. The plug-in driver handles all of the proprietary communications between the device/system and the OPC layer, KEPServerEX. The KEPServerEX core then handles all OPC and Proprietary Client communications between the plug-in driver and the Client application. For a complete list of features and capabilities please visit the KEPServerEX overview page.

- OPC Foundation Certified - The Best of OPC on the Market
- High Performance - Multi Threaded - Runtime Configurable
- Detailed Protocol Diagnostics - Communications Trace
- Detailed OPC Diagnostics - Communications Trace
- Native Interfaces - Client Connectivity Beyond the OPC Standards
- Stratus High Availability Computing - Certified
- Marathon High Availability Computing - Certified
- Kepware 2 Hour Demonstration Mode on all Products