DIGITAL

PROFICY CIMPLICITY HMI/SCADA

Alarms and Messages

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Contents

Chapter 1. Alarm Configuration

About Alarms

CIMPLICITY software generates alarms for:

- Alarm messages about system events, such as device failures, program terminations, system startups, and system shutdowns. You create and modify system event alarms in the Alarm Definition dialog box through the Alarms folder.
- Points that are in an alarm state. You create point alarms in the Point Properties dialog box. You can modify them in the Point Properties dialog box or through the Alarms folder.

> **Note:**
> CIMPLICITY comes with several configured Event alarms.

CIMPLICITY alarm features in the Workbench left-pane include the following:
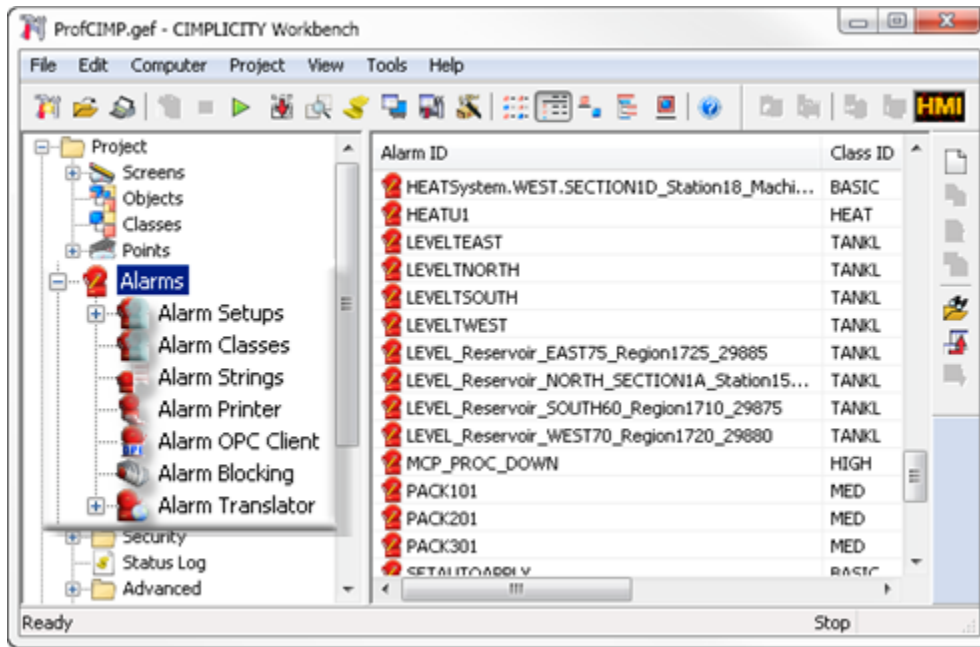
Other features of alarming include:

Feature	Description
Alarm classes *(on page 6)*	Group alarms with similar characteristics.

Feature	Description
Alarm strings *(on page 35)*	Name alarm states.
Alarm printer *(on page 55)*	Print alarms and/or events as they occur.
Alarm OPC client *(on page 188)*	Send and receive data through an Alarm and Event OPC server.
Alarm blocking *(on page 47)*	Configure a hierarchy of alarms to receive the most important alarms first.
Alarm translator *(on page 70)*	Offer language and text string options for configuration.

CIMPLICITY Event Alarms

A set of CIMPLICITY event alarms is included in your base configuration. These alarms are not associated with any single CIMPLICITY point ID during configuration. CIMPLICITY event alarms may be modified, but they should never be deleted. They are:

CIMPLICITY Event Alarms	Function During Runtime
$ACAL_ADD_OV	Event added alarm generated by the Action Calendar.
$ACAL_CFG_ERROR	Configuration error alarm generated by the Action Calendar.
$ACAL_DAYTYPE_OV	Day type override alarm generated by the Action Calendar.
$ACAL_EVENT	Setpoint event occurred successfully generated by the Action Calendar.
$ACAL_TIME_OV	Event time override alarm generated by the Action Calendar.
$ALARM_DISABLED	Alarm is disabled for the specified point.
$ALARM_ENABLED	Alarm is enabled for the specified point
$ALARM_MODIFIED	Alarm limits are modified for the specified point.
$ALARM_RAWLIM	Range limits exceeded for the specified point.
$ALARM_RESTORED	Alarm limits restored for the specified point.
$AM_STATUS	Alarm Management status message used to analyze system performance. This message is issued every half-hour and shows the number of alarms generated, the count of alarms

CIMPLICITY Event Alarms	Function During Runtime
	acknowledged, reset and deleted, and the average number of seconds required to log an alarm. **Note:** Alarms generated is also incremented when an alarm is reset. In the case of reset, the message must be re-sent to clients to change state. Alarms Deleted is only incremented when a manual delete is performed.
$DEVICE	Indicates if the device is up (able to communicate) or down. When the device is up Normal displays. When the device is down is in Alarm State. Configure a separate resource for each device. This helps separate the alarms, which would get stacked with the same resource.
$DEVICE_DOWN	Device failure message for specified device.
$DEVICE_FAILOVER	Reserved for future use.
$DL_FILE_FULL	Log file full message for specified log file.
$DOWNLOAD	Setpoint was downloaded to specified device.
$DYN_CFG	The specified entity has been changed dynamically.
$EM_OUTOF_MEMORY	An out of string space error has occurred.
$HIST_COLLECTOR	Indicates that the Historian Collector has stopped collecting data.
$HIST_SERVER	Indicates that CIMPLICITY cannot connect to the Historian server.
$LOGIN_FAILURE	Specified user failed to log in to the specified CIMPLICITY project.
$LOGON	Specified user has logged in to a specified CIMPLICITY project.
$LOGOUT	Specified user has logged out from a specified CIMPLICITY project.
$OPC_MODEL_EVENT	Generates alarms from OPC events.

CIMPLICITY Event Alarms	Function During Runtime
	Note: Alarms that are logged to the event log are treated as OPC A&E events by the OPC server. OPC events received by the OPC client are logged to the event log by default.
$REDUND_DEV_DOWN	Alarm message for PLC redundancy.
$RTR_LINK_DOWN	Router link has been lost to specified node.
AMSI_ALARM	AMSI_ALARM is generated when a XASMGR (External Alarm State Manager) stops unexpectedly; the alarm is cleared when XASMGR restarts.
DB_CONN_DOWN	Process has lost connection to specified logging database.
DB_START_FORWARD	Process is forwarding data to specified logging database.
MCP_PROC_DOWN	Specified CIMPLICITY process has terminated unexpectedly.

Event Alarm Configuration

Event Alarm Configuration

In most cases you will create and configure alarms through the Point Propertiesdialog box or through scripting. CIMPLICITY places the alarms in the Alarms folder, where you can conveniently modify them.

It is recommended that you do not create event alarms. In almost all cases, CIMPLICITY creates and configures these alarms for you.

These steps are available if there is some reason that you must create or configure an event alarm.

Step 1 *(on page 10)*	Open an Alarm Definition dialog box.
Step 2 *(on page 13)*	Configure an event alarm.

Step 3 (on page 15)	Configure alarm routing.
Step 4 (on page 16)	Configure alarm options.
Step 5 (on page 17)	Set global alarm settings.

Step 1. Open an Alarm Definition Dialog Box

Step 1. Open an Alarm Definition Dialog Box

Option 1.1 (on page 10)	Create a new event alarm.
Option 1.2 (on page 12)	Open an existing Alarm Definition dialog box.

Option 1.1. Create a new Event Alarm

CIMPLICITY provides several methods to open a new Alarm Definition dialog box.

1. Select **Project>Alarms** in the Workbench left pane.
2. Do one of the following.

A	Click File>New>Object on the Workbench menu bar.	
B	Click the New Object button on the Workbench toolbar.	
C	In the Workbench left pane:	
	Either	Or
	Double click **Alarms**.	a. Right-click **Alarms**. b. Select New on the Popup menu.

D	In the Workbench right pane:
	    a. Right-click any alarm.
	    b. Select New on the Popup menu.	

E	Press Ctrl+N on the keyboard.	

The New Alarm dialog box opens when you use any method.

3. Enter the name of the new event alarm in the **Alarm ID** field.
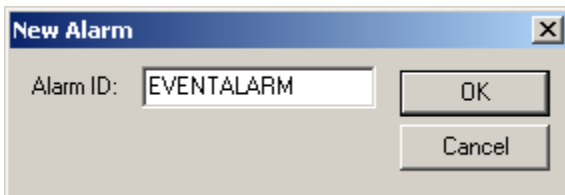
4. Click **OK**.

The system verifies that the Alarm ID does not already exist, and that no invalid characters have been used.

If the Alarm ID you entered is valid, the Alarm Definition dialog box for the new alarm opens.

Option 1.2. Open an existing Alarm Definition Dialog Box

CIMPLICITY provides several methods to open an existing Alarm Definition dialog box.

1. Select **Project>Alarms** in the Workbench left pane.
2. Select an alarm in the Workbench right pane.
3. Do one of the following.
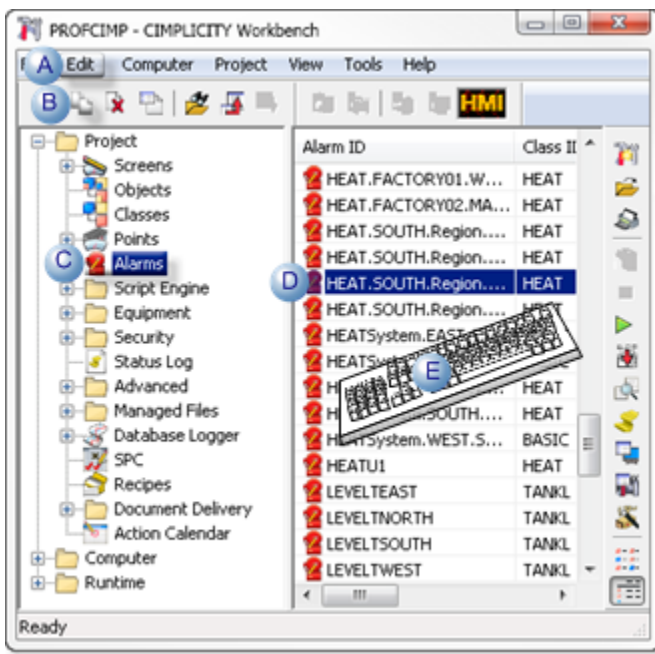
A	Click Edit>Properties on the Workbench menu bar.	
B	Click the Properties button on the Workbench toolbar.	

C	In the Workbench left pane:
	
	    a. Right-click **Alarms**.
	    b. Select Properties on the Popup menu.	

D	In the Workbench right pane:	
	Either	Or

	Double click an alarm.	a. Right-click an alarm. b. Select Properties on the Popup menu.
E	Press Alt+Enter on the keyboard.	

The selected alarm's Alarm Definition dialog box opens when you use any method.

Step 2. Configure an Event Alarm

1. #unique_10_Connect_42_Description *(on page 14)*
2. #unique_10_Connect_42_stacked *(on page 15)*
3. #unique_10_Connect_42_Logging *(on page 15)*
4. #unique_10_Connect_42_AlarmClass *(on page 14)*
5. #unique_10_Connect_42_AlarmType *(on page 14)*
6. #unique_10_Connect_42_HelpFile *(on page 14)*
7. #unique_10_Connect_42_Severity *(on page 14)*
8. #unique_10_Connect_42_AlarmMessage *(on page 15)*

Fill in the fields as follows.

Field	Description
Description	Describes the alarm so a user can identify it more easily. Can display in the Workbench and the Alarm Viewer.
Alarm Class *(on page 20)*	Selection groups this alarm with alarms that have similar characteristics.
Alarm type	Identifies the application with which the alarm is associated.
Help file	A text help file that users can display when they click the Help button in the Alarm Viewer.
Severity	A number from 1 through 1000. The higher the number the more severe the alarm is considered. CIMPLICITY treats more severe alarms with a higher priority. **Note:** The Severity for the Alarm String Index must conform to the OPC UA specification guidelines. If you are using Operations Hub with CIMPLICITY, be sure to read the "Alarm Microservice" topic or search for "alarm severity" in the Operations Hub documentation. It's important to configure this severity correctly so that you get the results that you want to see in Operations Hub. For example, events of high urgency can be mapped into the OPC severity range of 667-1000, events of medium urgency can be mapped into the OPC severity range of 334 to 666, and events of low urgency can be mapped into the OPC severity of 1 to 333.

Field	Description
Alarm message	Message that displays in the Alarm Viewer when the alarm displays.
Alarm Logging	Check if and when you want an event alarm to be logged in the Alarm Logging box on the Alarm Definition tab. You can select any or all of the options: • Generate • Acknowledge • Delete • Reset When the configuration is applied, CIMPLICITY will add the point to its default EVENT_LOG.
Maximum stacked	Enter a number between 0 and 20. > **Note:** > Maximum stacked treats event alarms the same way as it does point alarms.

> **Note:**
> Many fields on the Alarm tab in the Alarm Definition dialog box is the same as the Advanced Alarm tab in the Point Properties dialog box.

Step 3. Configure Alarm Routing

Alarm Routing lets you select the roles that can view any alarms generated for the selected event alarm.

Configuration for Alarm Routing , which is done on the Alarm Routing tab in the Alarm Definition dialog box, is the same for event alarms and as alarm routing configuration for point alarms.
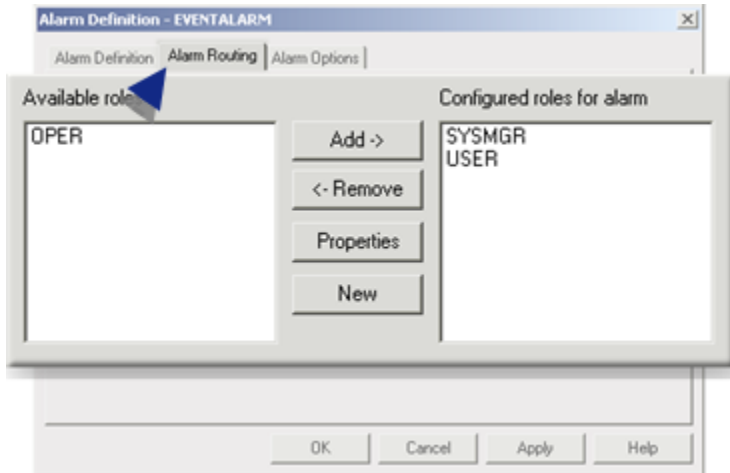
Step 4. Configure Alarm Options

Configuration for the features included on the **Alarm Options** tab in the **Alarm Definition** dialog box is the same for both event alarms and point alarms.

Change approval provides the functionality to maintain an audit trail of user performed alarm operations.
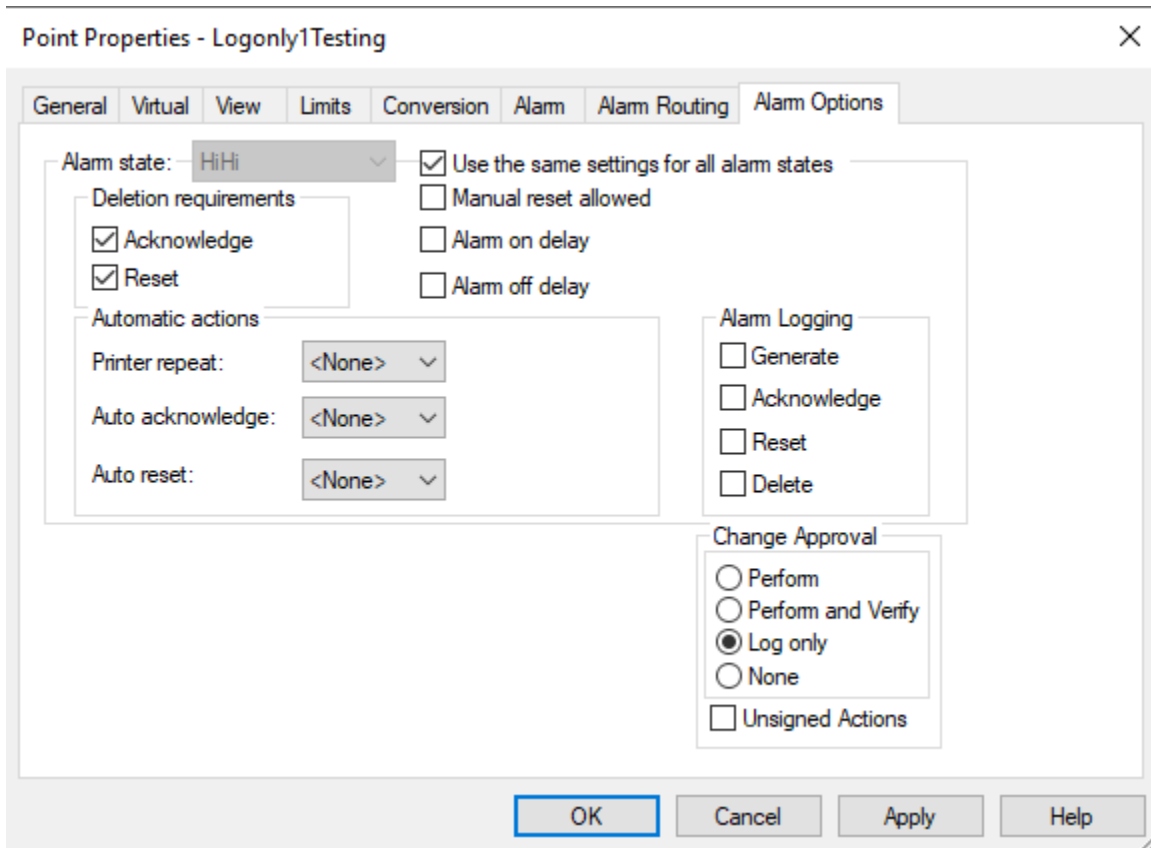
> ✏️ **Note:**
>
> CIMPLICITY v9.0 clients will not support acknowledging or resetting alarms from a CIMPLICITY v6.1 or earlier server. (CIMPLICITY v6.1 and earlier versions are no longer supported.)

Step 5. Set Global Alarm Settings

You can choose to store runtime alarm comments that a user enters while the alarm is being displayed in the Alarm Viewer. Normally, these comments are deleted when the alarm is deleted. CIMPLICITY saves the 20 most recent alarm comments in a file in the project's **alarm_help** directory.

- Guidelines for storing alarm comments
- Set global alarm settings

Guidelines for storing alarm comments

- Each comment can contain up to 720 characters.
- Up to 20 comments are stored in an alarm comment file. When the 21st comment is placed in the file, the first (oldest) comment is removed.
- If you intend to enable the **Store alarm comments** option, make sure that the `alarm_help` directory is writable.
- If you want a comment to be associated permanently with an alarm, put it in the alarm's help file.

Set Global Alarm Settings

1. Select **Project > Properties** on the Workbench menu bar.

   The Project Properties dialog box opens.
2. Select the Settings tab.
3. Select Alarms.
4. Click **Settings**.
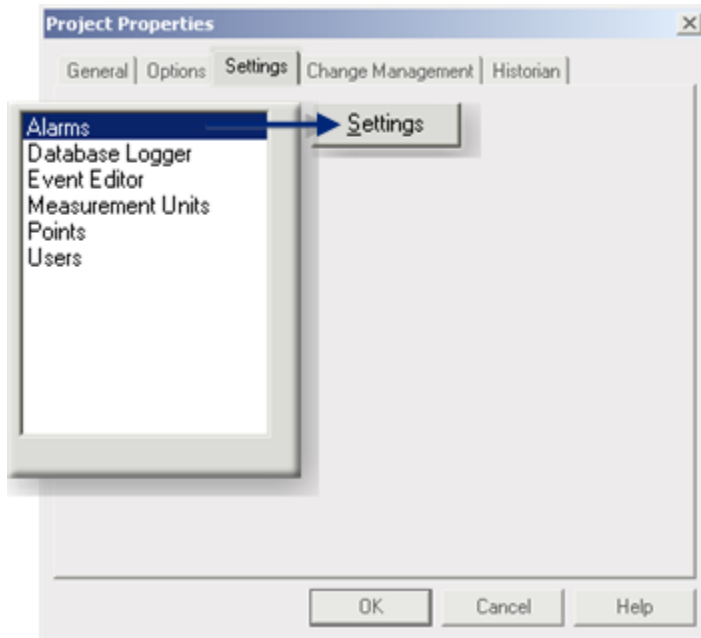
The Alarm Properties dialog box opens.

Options are as follows.
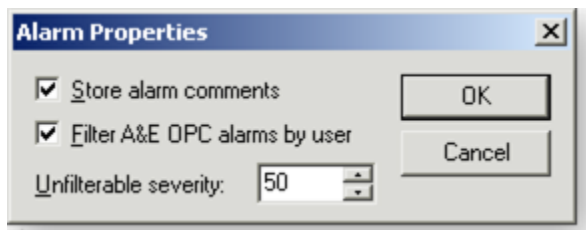
Check-box		Description
Store alarm comments	Check	Save up to 20 alarm comments beyond the life of alarms.
	Clear	Alarms comments are deleted when the alarm is deleted.
Filter A&E OPC alarms	Check	Filter alarms and events that go to the Alarm & Event OPC server. The filter is determined by the resources that are allotted to the Alarm & Event OPC server user. **Note:** The user is specified in the Alarm & Event OPC server's Project Properties *(on page 193)* dialog box.

Check-box	Description	
by user		
	Clear	All alarms and events go to the Alarm & Event OPC server.
Un-filter-able sever-ity	An alarm that has a severity *(on page 39)* that is equal to or greater than the entered value cannot be filtered out. Even if the value dips below the alarm severity threshold, the alarm will continue to display in the Alarm Viewer until it is deleted. Once deleted, the cycle will begin again. If the value again goes into an alarm state that is equal to or greater than the entered severity the alarm will display until it is deleted.	

5. Click **OK**.

> 📝 **Note:**
>
> Click **Cancel** to cancel the changes.

Up to 20 alarm comments are stored in a file in the project's `alarm_help` directory.

> 📝 **Note:**
>
> Configuration update will overwrite read-only files.

Chapter 2. Alarm Classes Configuration

About Alarm Classes

You can group Alarms with similar characteristics by Alarm Class.

You can then assign:

- An order or priority to each Alarm Class. The order is a number from 0 to 99, where **0** is the highest priority and **99** is the lowest priority.
- Colors and blinking that provide immediate visual recognition of different levels in the alarm class state.

  For example, an alarm class may be defined as a high priority alarm. The alarm state may be in a High state.

- Audio support that provides immediate recognition when an alarm in the class is generated.

> ❗ **Important:**
> The default number of alarm classes is **550**. This number can be changed by adding a MAX_ALARM_CLASSES parameter to a globals.ini file.

Alarm Class Configuration

Alarm Class Configuration

Step 1 *(on page 21)*	Open the Alarm Class Configuration dialog box.
Step 2 *(on page 24)*	Enter alarm class specifications.
Step 3 *(on page 28)*	Configure sound for an alarm class.

Step 1. Open the Alarm Class Configuration Dialog Box

Option 1.1 *(on page 21)*	Create a new alarm class.
Option 1.2 *(on page 22)*	Open an existing Alarm Class Configuration dialog box.

Option 1.1. Create a new Alarm Class

CIMPLICITY provides several methods to open a new Alarm Class configuration dialog box.

1. Select **Project**>**Alarms**>**Alarm Classes** in the Workbench left pane.
2. Do one of the following:
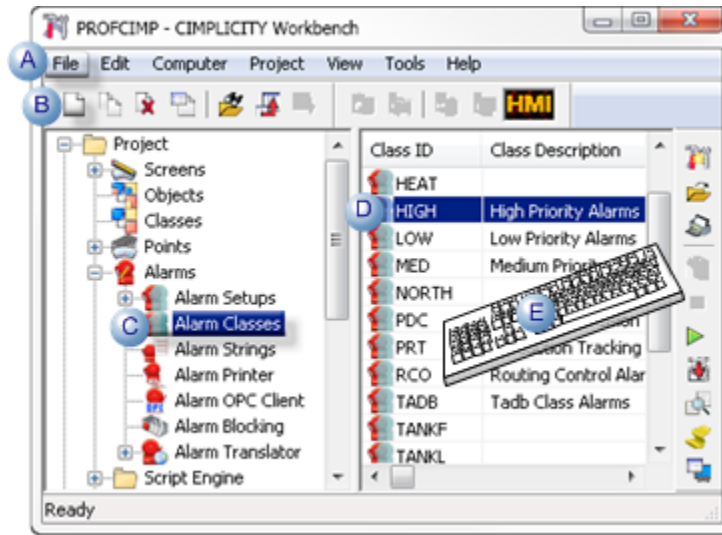
A	Click **File > New > Object** on the Workbench menu bar.
B	Click the **New Object** button on the Workbench toolbar.
C	In the Workbench left pane, do the following:
	Either	Or

	Double click **Alarm Classes**.	a. Right click **Alarms**. b. Select **New** on the Pop-up menu.
D	In the Workbench right pane, do the following: a. Right-click any alarm. b. Select **New** on the Popup menu.	
E	Press Ctrl+N on the keyboard.	

An Alarm Class Configuration dialog box that includes information for the selected alarm class opens when you use either method.
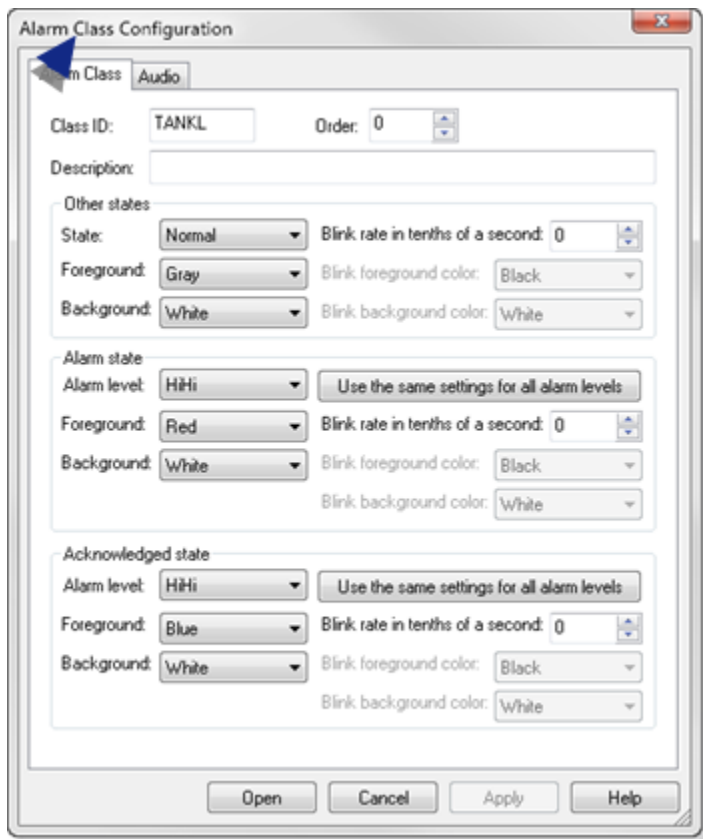
Option 1.2. Open an existing Alarm Class Configuration Dialog Box

CIMPLICITY provides several methods to open an existing Alarm Class configuration dialog box.

1. Select **Project>Alarms>Alarm Classes** in the Workbench left pane.

2. Select an alarm class in the Workbench right pane.

3. Do one of the following:

A	Click Edit>Properties on the Workbench menu bar.
B	Click the Properties button on the Workbench toolbar.

C	In the Workbench left pane:
	    a. Right-click **Alarm Classes**.
	    b. Select Properties on the Popup menu.

D	In the Workbench right pane:

Either	Or
Double click an Alarm Class.	a. Right click an alarm. b. Select **Properties** on the Popup menu.

E	Press Alt+Enter on the keyboard.

The Alarm Class Configuration dialog box for the selected alarm class opens when you use either method. The Class ID field is read-only.
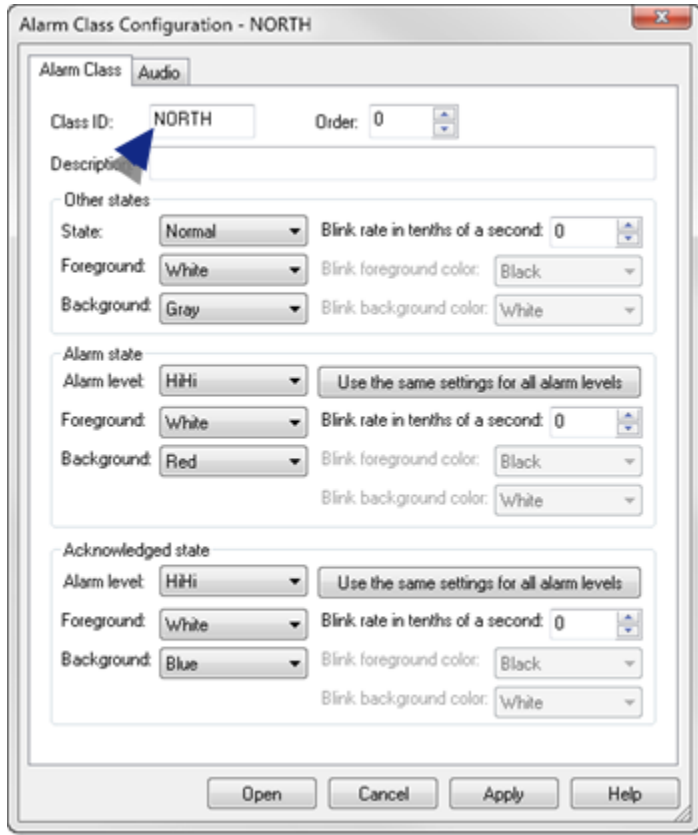
Step 2. Enter Alarm Class Specifications
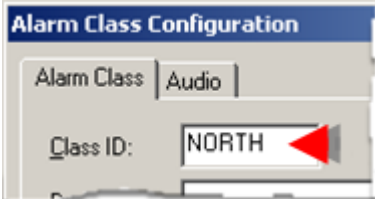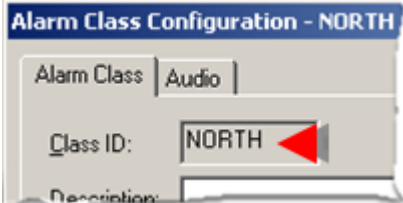
Step 2.1 *(on page 24)*	Enter alarm class general specifications.
Step 2.2 *(on page 26)*	Select colors and blink rates for the alarm states.

Step 2.1. Enter Alarm Class General Specifications

General specifications on the Alarm Class tab in the Alarm Class Configuration dialog box include the following.

Field	Description

Class ID	Alarm class name.
	
	• New alarm class
	
	The **Class ID** field is read/write when the alarm class is created. The class ID:
	
	  ◦ Can be up to 5 characters in length.
	  ◦ Must be unique.
	  ◦ Cannot include the **$** or | characters.
	
	• Previously created alarm classes
	
	The **Class ID** field is read-only for previously created alarm classes.

Field	Description
Description	• Can be up to 64 characters in length • Displays in the **Class Description** field in the Workbench right pane.
Order	Priority number • Alarms with a 0-order number have the highest priority. The higher the number, the lower the priority. • Alarms use these priorities internally and to prioritize occurrences, such as alarm sound. • If you assign the same order to more than one class, the classes are alphabetized within the order. **Example** You assign order **0** to **High, Medium** and **Low** alarm classes. When you select to sort classes in the CIMPLICITY AMV Control Properties dialog box, the Alarm Viewer will sort by the selected order, descending or ascending. 　◦ High 　◦ Low 　◦ Medium

Step 2.2. Select Colors and Blink Rates for Alarm States

Selected foreground (font) and background colors display in the Alarm Viewer for each of the following states and levels.

Other States

Field	Description
State	**Normal** **Unavailable**
Foreground	Font color
Background	Background color
Blink rate in tenths of a second	Alarms in either or both Other states can blink when the state is active.

Field	Description
	Blink rates for each **Other** state include: <table><tr><td>**Value**</td></tr><tr><td>0</td></tr><tr><td>1</td></tr><tr><td>2</td></tr><tr><td>20</td></tr><tr><td>N</td></tr></table>
Blink foreground color	Font blink color. The second color is the **Foreground** color for the selected state.
Blink background color	Blackground blink color. The second color is the **Background** color for the selected state.

Alarm state

Field	Description
Alarm level	Levels map to the point alarm limits defined in the Point Properties dialog box, which use the alarm string indices.
Foreground	Font color. A different color can be selected for each level.
Background	Background color. A different color can be selected for each level.
Use the same settings for all alarm levels	When clicked, uses the Foreground and Background for the selected Alarm level. 1. Select an **Alarm level**. 2. Select a **Foreground**.

Field	Description
	3. Select a **Background** color.
	4. Click **Use the same settings for all alarm levels**.
Blink rate in tenths of a second	
Blink foreground color	
Blink background color	

Acknowledged state

Specifications for alarm levels when the alarms are acknowledged.

Configuration options are the same as for Alarm State.

Step 3. Select Sound for an Alarm Class

You can configure an alarm class to use audio alarming on the Audio tab in the Alarm Class Configuration dialog box.

- Hardware and software requirements to generate an audio alarm.
- Steps to configure an audio alarm.

Hardware and software requirements to generate an audio alarm

Sound	Requirements
Wave file	• Sound card to generate the sound. • Sound system, such as a speaker or headset, to make the sound audible. • Appropriate `.wav` file on the computer being used.
Beep	• No requirements for: ◦ A beep ◦ (Supported Windows versions) the frequency, duration and number of beeps • Sound card for: A beep, the frequency, duration and number of beeps.

Steps to configure an audio alarm

Step 3.1 *(on page 29)*	Display the Audio tab in the Alarm Class Configuration dialog box.
Step 3.2 *(on page 29)*	Configure sound for selected alarm levels.

> ⚠️ **Important:**
> Sounds only play if the CIMPLICITY® Alarm Sound Manager is running.

Step 3.1. Display the Audio Tab

Select the Audio tab in the Alarm Class Configuration dialog box.
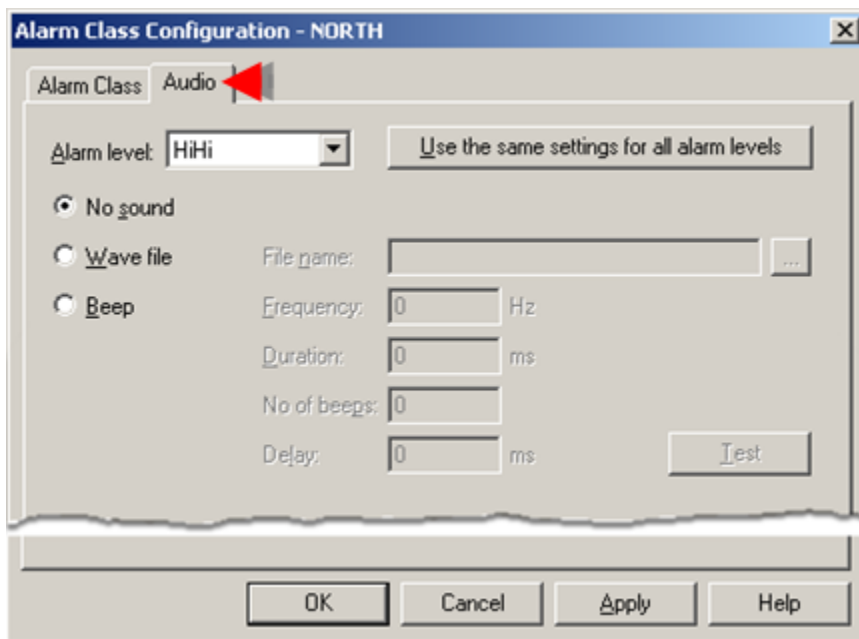
> 📝 **Note:**
> You can open the Alarm Class Configuration dialog box and configure the audio for a point alarm through the Point Properties dialog box.

Step 3.2. Configure .wav Files for an Alarm Class Sound

1. Select an Alarm level.

> ✏️ **Note:**
>
> map to the point alarm limits defined in the Point Properties
> dialog box, which use the alarm string indices.

Alarm levels for sound use the alarm conditions and sub-conditions as follows.
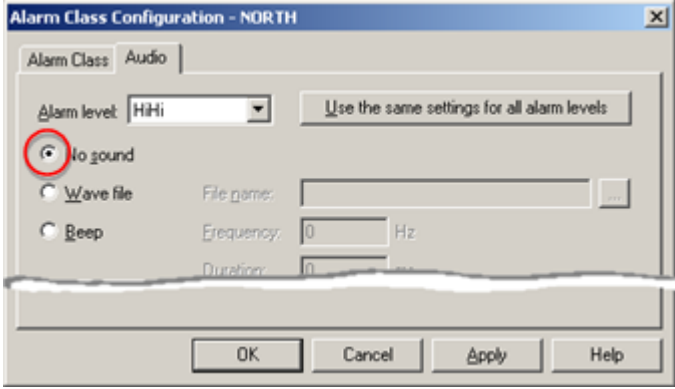
HiHi
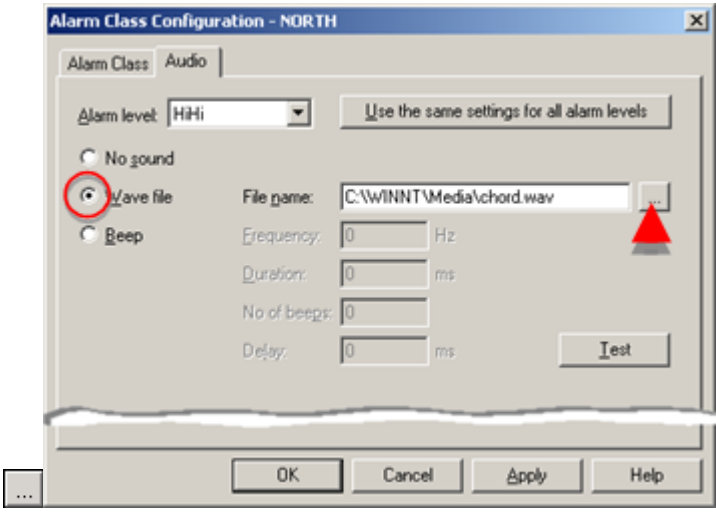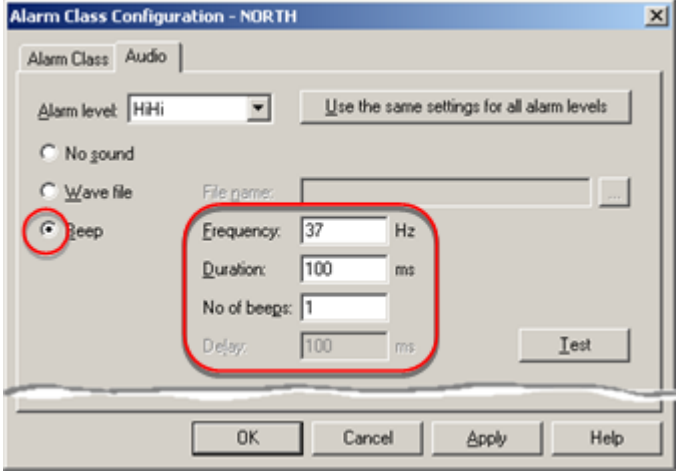
Hi

Lo

LoLo

2. Select a sound option for the selected level.

Option	Description
No sound	There is no sound when the selected level is reached. ![Alarm Class Configuration - NORTH dialog box showing the Audio tab. Alarm level is set to HiHi with a "Use the same settings for all alarm levels" button. The "No sound" radio option is selected (circled in red). Options below include Wave file with File name field, and Beep with Frequency (0 Hz) and Duration fields. Buttons at bottom: OK, Cancel, Apply, Help.]
Wave file	The sound from the `.wav` file plays when the selected level is reached. Enter the path and .wav file you want to use as the sound for the selected level. > ℹ️ **Tip:** > You can specify logical names in the file name, such as **SITE_ROOT** and **BSM_-ROOT** in the path name for the wave file. These are expanded into actual directory names when the file is used. For example, **SITE_ROOT: \sounds\high.wav** refers to the file **high.wav** in the **sounds** directory within the project's directory.

Op-tion	Description
Beep	A defined beep sounds when the selected level is reached. **Frequency** **Duration** **No of** **beeps** **Delay**
Test	Click to test the sound.

3. Do one of the following:

  ◦ Repeat the above steps for the Alarm Viewer to play the selected sound for the active alarm state level.

  ◦ Click **Use the same settings for all alarm levels** for the Alarm Viewer to play the selected sound for all levels when the point is in an alarm state.

Alarm Class Color Assignments

Alarm Class, alarm state animation and color index animation use indexes 0 through 15 in the **rgb.dat** file as the default colors.

If you define an **rgb.dat** file and change the colors in indexes **0** through **15** of the, you need to change colors displayed in the Alarm Class dialog box to match them.

Reasons to define an **rgb.dat** file include:

  • Change any of the default colors (0 through 95)
  • Add more colors to the default table (indexes 96 through 255 are available for this purpose)
  • Import screens from a CIMPLICITY System-I/U, -D/V, -H/U or -RS/U system that do not use the default color mappings.

Default Alarm Color Mappings

The default mappings for Alarm Colors are:

Number	Red	Green	Blue	Color
0	0	0	0	Black
1	255	0	0	Red
2	0	255	0	Lime
3	0	0	255	Blue
4	128	0	0	Maroon
5	0	128	0	Green
6	128	0	128	Purple
7	255	255	255	White
8	0	128	128	Teal

Number	Red	Green	Blue	Color
9	128	128	128	Gray
10	128	128	0	Olive
11	32	64	64	Dark
12	224	176	160	Rose
13	255	0	255	Fuch-sia
14	0	255	255	Aqua
15	255	255	0	Yellow

Procedure to Map Alarm Class Colors in rgb.dat

1. Create an **am_colors.cfg** file in the same directory as your **rgb.dat** file.

   The first line in the file must contain only the **|-*** characters.

   Each succeeding line contains an index number (**0** through **15**) followed by a vertical bar (**|**) and the color name.

2. Use the same **rgb.dat** and **am_colors.cfg** files for all projects.

> ⚠ **Important:**
> The file that is used to display colors is the file for the project in which Alarm Viewer or CimView was started in, not the file for the project where the alarm classes or CimView screens were configured.

`am_colors.cfg` file

The colors listed in this sample file match the default colors.

|-*

0|Black

1|Red

2|Lime

3|Blue

4|Maroon

5|Green

6|Purple

7|White

8|Teal

9|Gray

10|Olive

11|Dark

12|Rose

13|Fuchsia

14|Aqua

15|Yellow

Chapter 3. Alarm Strings Configuration

About Alarm Strings

You use Alarm Strings to name alarm states. An alarm displays the string for its alarm state when **%State** is included in the alarm message.

Alarm messages are configured in the Point Properties and Alarm Definition dialog boxes.

- Analog point alarm strings.
- Digital point alarm strings.
- Alarm string sets.

Analog point alarm strings

For analog points, you can define up to four alarm values for a point. Each value corresponds to an alarm state; each state has a corresponding alarm string:

Point Value	Alarm State	%State field Display
Greater than or equal to **Alarm High**.	Alarm High	**Alarm High Msg**
Greater than or equal to **Warning High** and Less than **Alarm High**.	Warning High	**Warning High Msg**
Less than or equal to **Warning Low** and Greater than **Alarm Low**.	Warning Low	**Warning Low Msg**
Less than or equal to **AlarmLow**.	Alarm Low	**Alarm Low Msg**
Less than **Warning High** and Greater than **Warning Low.**	Normal	**Normal Msg**

Digital point alarm strings

For digital points, only one alarm state can be defined. That is, a digital point is in alarm state when it is either 1 or 0. Otherwise, the point's value is in the Normal state. Also, note the following:

Point Value	Alarm State	%State field Display
1	Alarm state	**Alarm High Msg**
0	Alarm state	**Warning High Msg**

Alarm string sets

An index number, which is specified when a set is defined, identifies each set of alarm strings. You can configure up to 99 alarm string sets, numbered 1 through 99. When you configure a point you can select the set that applies to the point for inclusion in the point's alarm message.

The CIMPLICITY default configuration includes a set of alarm strings for Index number 1. The Index number 1 alarm string is the default when you add a device point. This string may be modified but should never be deleted.

Alarm String Configuration

Alarm String Configuration

The Workbench displays a project's existing alarm strings (message groups) in the right pane.

Steps to configure an alarm string include:

Step 1 (on page 36)	View existing alarm strings.
Step 2 (on page 37)	Open the Alarm String Index dialog box.
Step 3 (on page 39)	Configure an Alarm String Index Set

Step 1. View Existing Alarm Strings

Select **Project > Alarms > Alarm Strings** in the Workbench left-pane.

The Workbench right pane displays the following fields for each Alarm String Index:

- HiHi (alarm high) Msg
- LoLo (alarm low) Msg
- Hi (warning high) Msg
- Lo (warning low) Msg
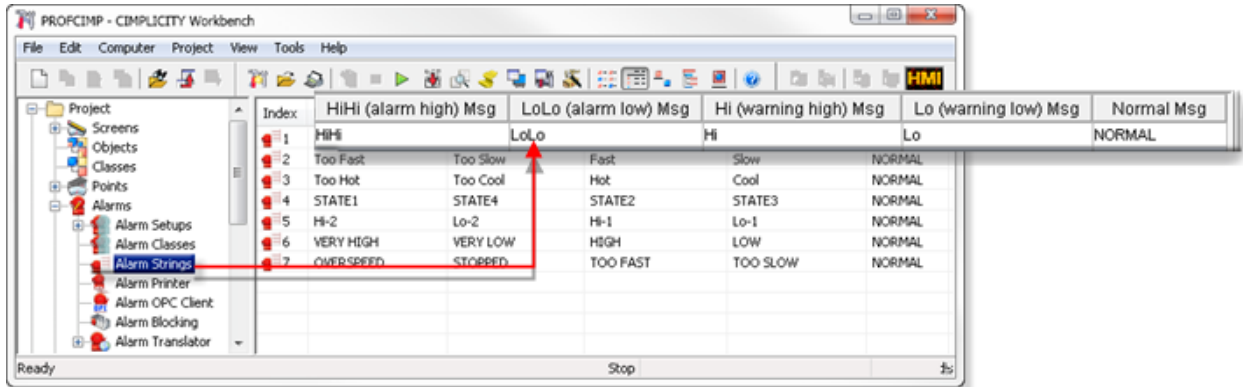
> **Note:**
>
> Use the Workbench Field Chooser to remove or re-display any of the fields, except the Index. The Index is required.

The Alarm Definition list is initially sorted by Index. You can click on any of the other column titles at the top of the list to sort the list by that attribute.

Step 2. Open the Alarm String Index Dialog Box

Option 2.1 *(on page 37)*	Create a new alarm string set.
Option 2.2 *(on page 38)*	Open an existing Alarm String Index dialog box.

Option 2.1. Create a new Alarm String Set

CIMPLICITY provides several methods to open a new Alarm String Definition dialog box.

1. Select **Project>Alarms>Alarm Strings** in the Workbench left-pane.
2. Do one of the following:

A	Click File>New>Object on the Workbench menu bar.
B	Click the New Object button on the Workbench toolbar.
C	In the Workbench left-pane:

	Either	Or
	Double click **Alarm Strings**.	a. Right-click **Alarm Strings**. b. Select **New** on the Popup menu.

D	In the Workbench right-pane.
	    a. Right-click any alarm string.
	    b. Select New on the Popup menu.

E	Press Ctrl+N on the keyboard.

An Alarm String Index dialog box that displays the next highest number opens when you use any method.

Option 2.2. Open an existing Alarm String Index Dialog Box

CIMPLICITY provides several methods to open an existing Alarm String Index dialog box.

1. Select **Project>Alarms>Alarm Strings** in the Workbench left-pane.
2. Select an alarm string in the Workbench right-pane.
3. Do one of the following:

A	Click Edit>Properties on the Workbench menu bar.	
B	Click the Properties button on the Workbench toolbar.	

C	In the Workbench left-pane:
	
	    a. Right-click **Alarm Strings**.
	
	    b. Select Properties on the Popup menu.	

D	In the Workbench right-pane:	
	Either	Or
	Double click an alarm string.	a. Right-click an alarm string. b. Select **Properties** on the Popup menu.
E	Press Alt+Enter on the keyboard.	

An Alarm String Index dialog box associated with the selected alarm string opens when you use any method. The Alarm string index field is read-only.

Step 3. Configure an Alarm String Index Set
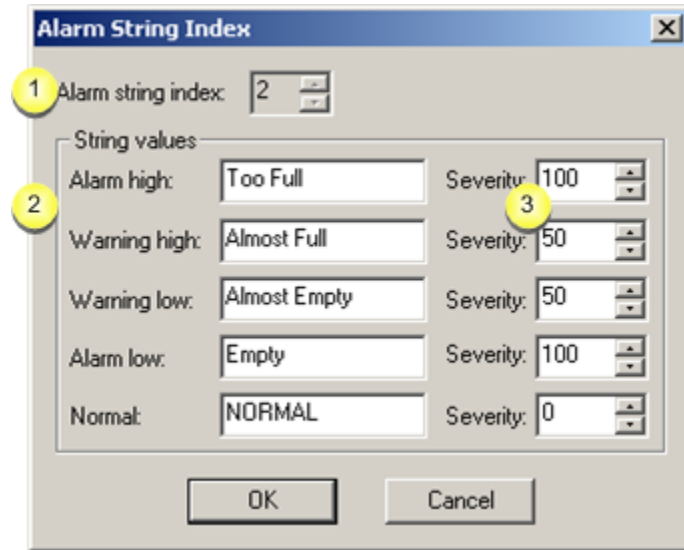
1 *(on page 40)*	Alarm string index
2 *(on page 41)*	String values
3 *(on page 41)*	Severity
4 *(on page 42)*	Example 1
5 *(on page 44)*	Example 2

1. Alarm String Index

Alarm string identification.

- New alarm string sets

   The next available number displays in the **Alarm string index** field when the alarm string is created. The field is read/write.

If the default number is changed, the new alarm string index number:

  ◦ Must be from 1 to 99 and

  ◦ Cannot conflict with an existing Alarm String Index.
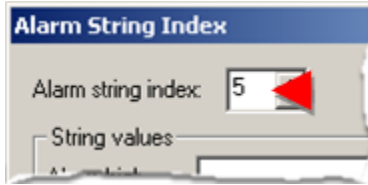
• Existing alarm string sets

The Class ID field is read-only for previously created alarm string sets.
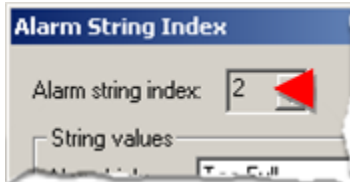
The index number is selected for an alarm to associate an alarm string set with that alarm.

2. String Values

Values for each of the following fields can contain up to 16 characters.

Alarm high

Warning high

Warning low

Alarm low

Normal

The value you enter for an alarm string index:

  • Corresponds to Normal and Alarm State levels in the Alarm Class Configuration dialog box.
  • Displays on the Alarm tab in the Point Properties dialog box when the string index is selected.
  • Displays when specified as `%STATE` in a point's alarm message when the point is in the related alarm state.

3. Severity

A number from 1 through 1000. The higher the number the more severe the alarm is considered. CIMPLICITY treats more severe alarms with a higher priority.

> **Note:**
>
> The Severity for the Alarm String Index must conform to the OPC UA specification guidelines. If you are using Operations Hub with CIMPLICITY, be sure to read the "Alarm Microservice" topic or search for "alarm severity" in the Operations Hub documentation. It's important to configure this severity correctly so that you get the results that you want to see in Operations Hub. For example, events of high urgency can be mapped into the OPC severity range of 667-1000, events of medium urgency can be mapped into the OPC severity range of 334 to 666, and events of low urgency can be mapped into the OPC severity of 1 to 333.

> **Note:**
>
> You can select and display the Severity in the Alarm Viewer.

This example shows how the alarm string value for alarm string index 2 displays in the Alarm Viewer
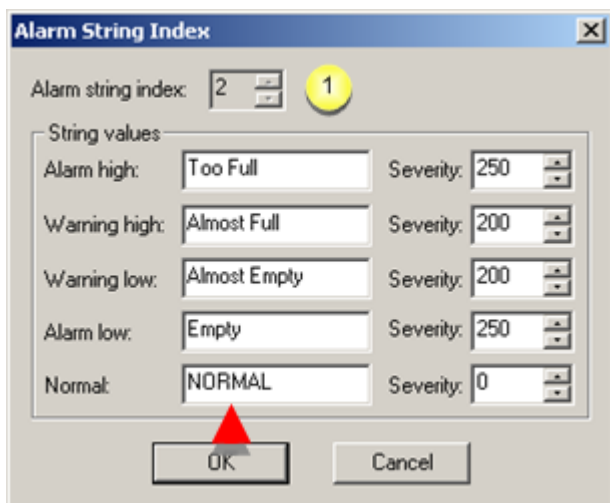
Message field.

1	String values are entered in the Alarm String Index dialog box.	
	String field	**Value**
	Alarm high	Too Full
	Warning high	Almost Full
	Warning low	Almost Empty
	Alarm low	Empty

Normal	NORMAL
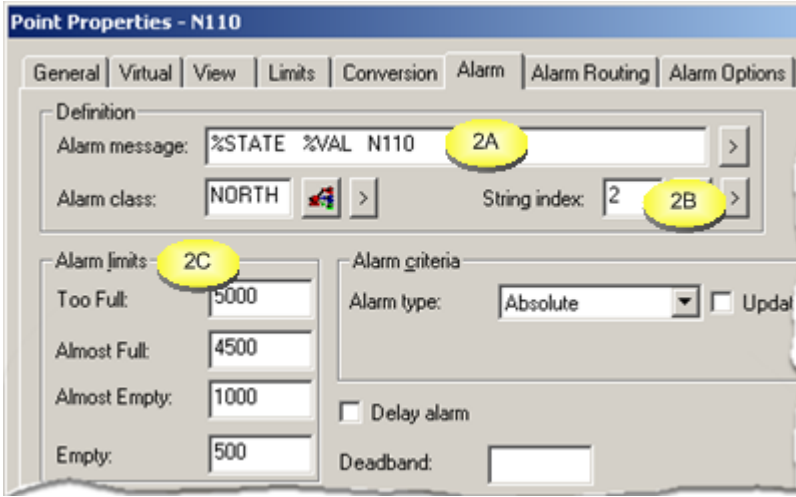
2	A		%STATE in the Alarm message displays the string values for the selected alarm string
	B		String index 2 is selected.
	C		Alarm limit fields correspond to the selected string index values.
		String Value	**Alarm**
		Too Full	Too Fu
		Almost Full	Almos
		Almost Empty	Almos
		Empty	Empty

3		**Message** is selected as a field in an Alarm Viewer configura-
		tion.
		The Alarm Viewer displays the alarm string values for every point that includes %STATE alarm message.
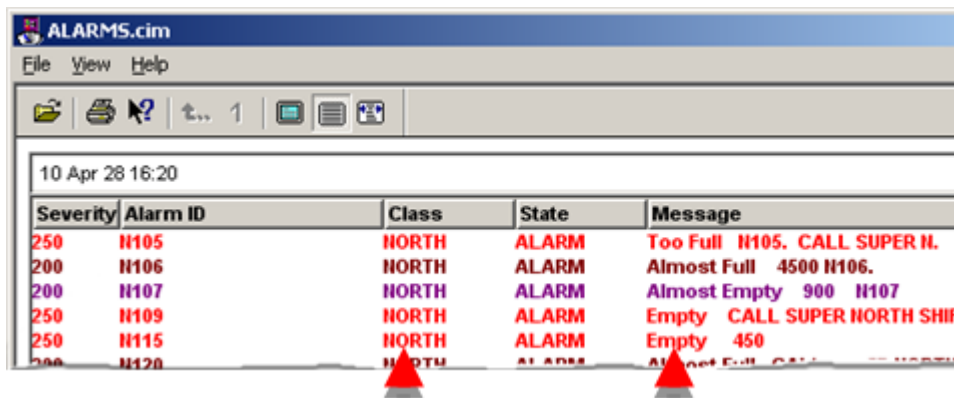
This example shows configurations for the Alarm String 2 index severity displays in the Alarm Viewer.

1	An alarm severity is entered for each string value in the Alarm String Index dialog box.
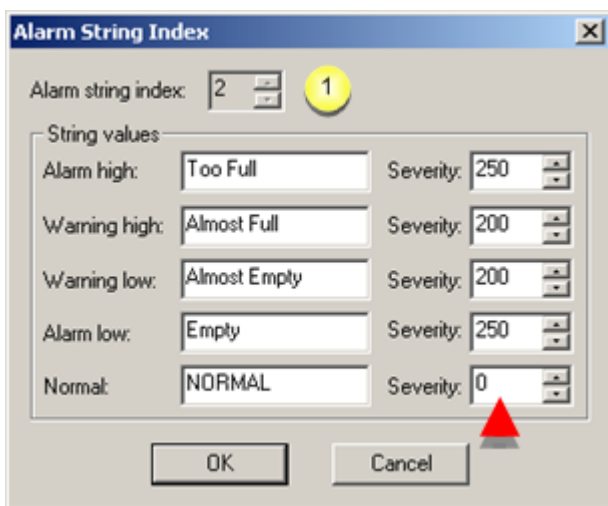
String value	Severity
Too Full	250
Almost Full	200
Almost Empty	200
Empty	250
NORMAL	0

2	The selected string index is 2.
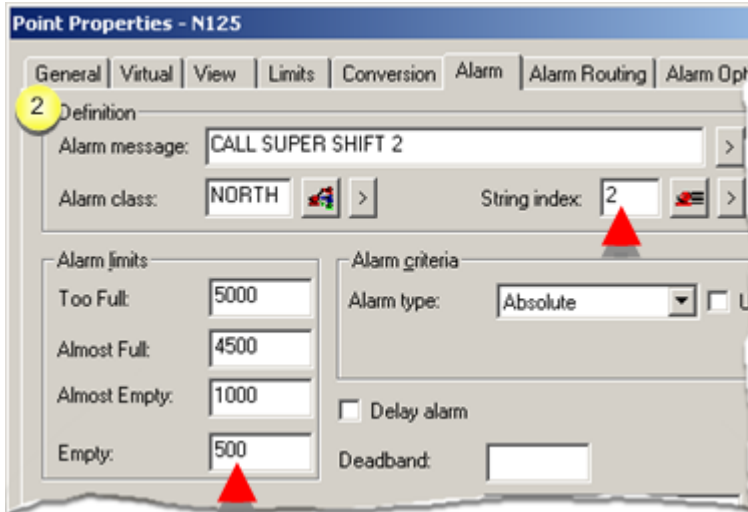
The alarm limits fields correspond to the string index 2 values.

The fields inherently include the severity levels defined for the alarm string set.

String value	Alarm limit
Too Full	Too Full
Almost Full	Almost Full
Almost Empty	Almost Empty
Empty	Empty

3	**Class** and **Severity** are selected as fields in an Alarm Viewer configuration.
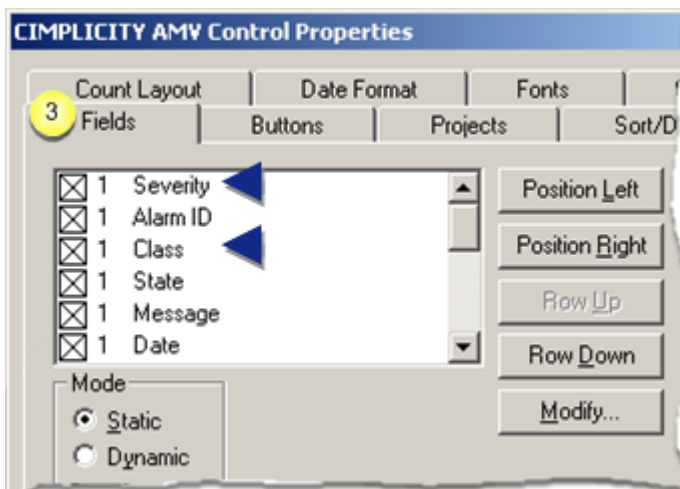
4	The Alarm Viewer displays the class and severity.

Class	NORTH
Severity	Value corresponds to each level.

Severity value	Corresponds to
275	HiHi and LoLo
200	Hi and Lo

> **Note:**
>
> Foreground and background colors for each alarm correspond to the alarm class configuration.

Chapter 4. Alarm Blocking Configuration

About Alarm Blocking

- Overview
- Assign alarms
- Choose blocking modes
- Assign alarm priorities
- Alarm blocking guidelines

Overview

Monitoring and control systems do an excellent job of informing operators of problem conditions through alarms. However, there are times when operators can be overwhelmed by numerous alarms that are the result of one major problem. For example, when a process conveyor stops, it affects all machines feeding into it. The operator needs to know that the major problem is the stopped conveyor and not waste valuable time looking through all the other resulting alarms. Alarm Blocking lets you configure a hierarchy of alarms for your process so users see the important alarms first.

Alarm Blocking lets you:

- Logically group alarms into blocking groups.
- Select a runtime blocking mode for each blocking group.
- Assign a priority level to each alarm in a blocking group.

Each Alarm Blocking group works independently. This means that the high priority alarms in one group do not block the high priority alarms in another group.

Before you implement Alarm Blocking, you need to plan how you want to group and prioritize your alarms for your project. You need to decide:

- The number of blocking groups you need.
- Which alarms are to be assigned to each blocking group.
- How the alarms are to be prioritized in each blocking group.
- How to handle the display of equal priority alarms in each blocking group.

Alarms that you do not assign to Alarm Blocking groups are not affected by Alarm Blocking.

Assign alarms

CIMPLICITY software generates two types of alarms; point alarms and system alarms. Each point alarm is uniquely identified by its Alarm ID. Each system alarm is uniquely identified by its Alarm ID and Resource ID.

For example:

- For point XYZ, the unique Alarm ID is XYZ.
- Each unique instance of the $ALARM_MODIFIED system alarm is identified by the Alarm ID and the Resource ID of the affected device.

> ✏️ **Note:**
> A possible exception is for $DEVICE_DOWN. You can use the Global parameter **DEVICE_DOWN_DEVICE_REF** to put only the Device ID as the alarm reference.

For Alarm Blocking, you can assign a uniquely identified alarm to only one group. This means:

- You can assign a point alarm to only one blocking group.
- You can assign a uniquely identified system alarm to only one blocking group.

This means that you can have more than one instance of a system alarm in a blocking group or you may have system alarms in more than one blocking group, provided that the Resource ID you assign to each instance is unique across all Alarm Blocking groups.

Choose blocking modes

You can select one of two blocking modes for each Alarm Blocking group that you create.

- Peer Blocking mode: Only the first alarm in a set of alarms with equal priority displays.

- Non-Peer Blocking mode: All alarms in a set of alarms with equal priority display.

Assign alarm priorities

You need to assign each alarm in an Alarm Blocking group a number from 0 to 32767. The higher the number you enter, the higher the priority of the alarm. For example, alarm XXX with priority 100 blocks alarm YYY with priority 10. You can assign the same priority number to more than one alarm in an Alarm Blocking group. The priority of an alarm and the blocking mode of the group determine whether the alarm is blocked or not.

Alarm blocking Guidelines

When an alarm that is assigned to an Alarm Blocking group is generated:

- If there is a current alarm with higher priority in the group, the newly generated alarm is blocked.
- For Peer Blocking, if there is a current alarm with equal priority in the group, the newly generated alarm is blocked. In other words, only one alarm in a set of alarms with equal priority displays at any given time.
- For Non-Peer Blocking, all current alarms with equal priority display at any given time.

When the blocking alarm returns to Normal state or is deleted:

- For Peer Blocking, if alarms of equal priority exist, the oldest one displays and becomes the new blocking alarm.
- For Non-Peer Blocking, all alarms with the next lower priority display and become the new blocking alarms.

If lower priority alarm is the current blocking alarm and a higher priority alarm is generated, the lower priority alarm remains on the list of alarms and the higher priority alarm becomes the new blocking alarm.

If an alarm already exists in Normal state and it returns to Alarm state, the alarm is not blocked.

Alarm Blocking Configuration

Alarm Blocking Configuration

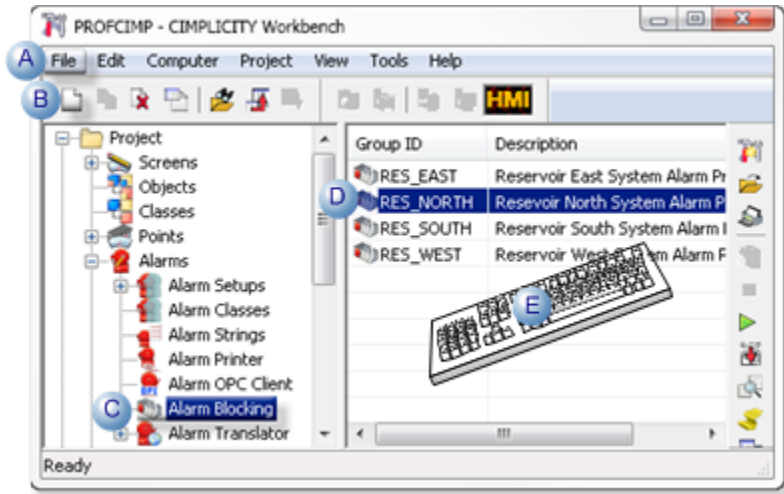|	
1 *(on page 50)*	Create a new alarm blocking group.
2 *(on page 50)*	Open an existing Alarm Blocking dialog box.
3 *(on page 51)*	Configure an alarm blocking group.
4 *(on page 53)*	Add/remove/modify alarms.

1. Create a new Alarm Blocking Group

CIMPLICITY provides several methods to open a new Alarm Blocking dialog box.

1. Select **Project**>**Alarms**>**Alarm Blocking** in the Workbench left pane.
2. Do one of the following.

A	Click File>New>Object on the Workbench menu bar.	
B	Click the New Object button on the Workbench toolbar.	
C	In the Workbench left-pane:	
	Either	Or
	Double click **Alarm Blocking**.	a. Right-click **Alarm Blocking**. b. Select New on the Popup menu.
D	In the Workbench right pane. 　　a. Right-click any Alarm Blocking group. 　　b. Select New on the Popup menu.	
E	Press Ctrl+N on the keyboard.	

A new Alarm Blocking dialog box opens when you use any method.

2. Open an Existing Alarm Blocking Dialog Box

CIMPLICITY provides several methods to open an existing Alarm Blocking dialog box.

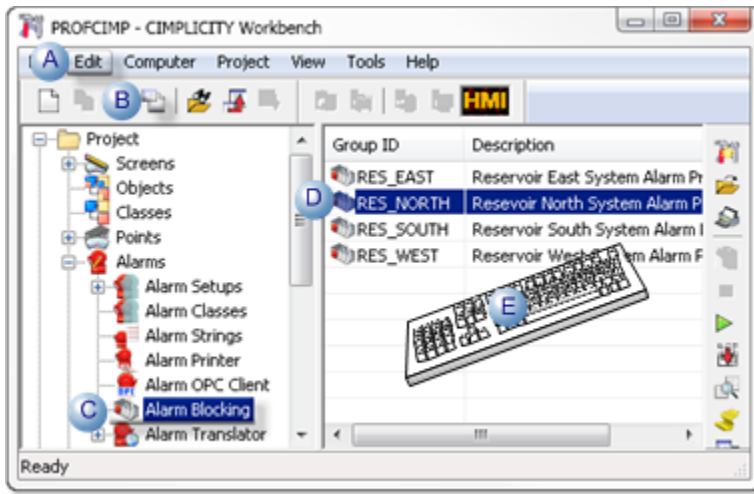1. Select **Project>Alarms>Alarm Blocking** in the Workbench left pane.
2. Select an Alarm Blocking group in the Workbench right pane.
3. Do one of the following.

A	Click Edit>Properties on the Workbench menu bar.
B	Click the Properties button on the Workbench toolbar.

C	In the Workbench left pane:
	
	    a. Right-click **Alarm Blocking**.
	    b. Select Properties on the Popup menu.

D	In the Workbench right pane:

	Either	Or
	Double click an Alarm Blocking group.	a. Right-click an Alarm Blocking group. b. Select Properties on the Popup menu.

E	Press Alt+Enter on the keyboard.

An Alarm Blocking dialog box associated with the selected alarm blocking group opens when you use any method.

3. Configure an Alarm Blocking Group

Enter the following information to create a new Alarm block group:
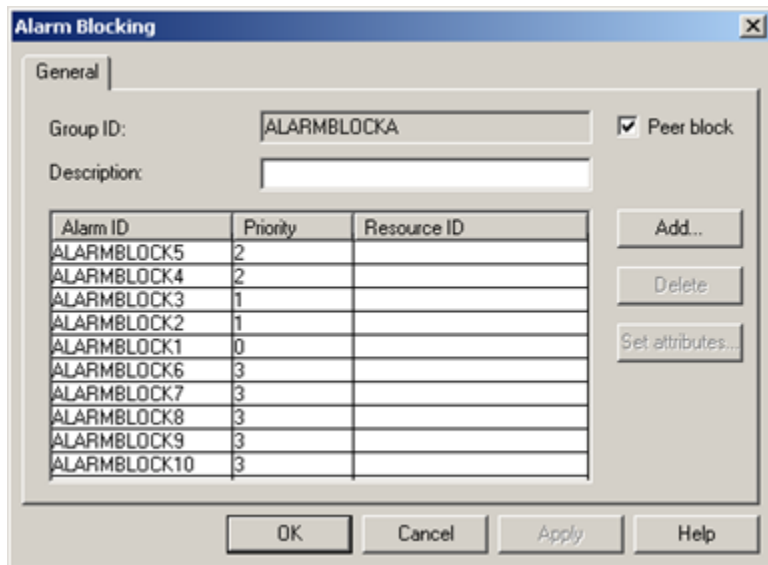
Field	Description
Group ID	Enter a new, unique Alarm group name. The group name can be up to **32** characters long.
De-scrip-tion	Enter a description of the Alarm group. The description can be up to **40** characters long.
Peer block	• Check to enforce Peer Blocking mode *(on page 48)* for this group. • Clear if you want to use Non-Peer Blocking mode *(on page 48)*. The Blocking Mode and alarm priorities determine the alarm blocking hierarchy at run-time.
Alarms	Displays the current list of alarms in the Alarm block group; Alarm ID, Priority *(on page 48)* and Resource ID. Change an alarm on the list by directly editing its Alarm ID, Priority or Re-source ID or by selecting the Alarm ID and clicking Set attributes .

> **Note:**
> You can resize the width of the Alarm ID, Priority and Resource ID fields to suit your needs.

Click one of the following:

Button	Description
Add	Select an Alarm ID from the Browser dialog box.

Button	Description
Delete	Delete an alarm from the list.
Set Attribute *(on page 53)*	Open the Set Attributes dialog box for a selected alarm ID.
OK	Close the Alarm Blocking dialog box and save the configuration.
Cancel	Cancel the configuration done while the Alarm Blocking dialog box was open.

4. Add/Remove/Modify Alarms

- Add an alarm.
- Remove an alarm.
- Modify an alarm.

Add an alarm

You can enter the name of an Alarm ID in the **Alarm ID** field in the Alarm Blocking dialog box in any of the following ways:

- Click **Add** to open the Browser dialog box and browse for the Alarm ID you want.
- Click the **Browser** button to the right of the input field to open the Browser dialog box and browse for the Alarm ID you want.
- Click the **Popup menu** button to the right of the input field to create a new Alarm ID, modify the current Alarm ID or browse for an Alarm ID.

Enter the priority of the Alarm ID in the **Priority** field. This can be a number from 0 to 32767. The higher the number you enter, the higher the blocking priority for the alarm. For example, if you have alarm XXX with priority set to 10 and alarm YYY with priority set to 100 in the same group, when alarm YYY generates, it blocks alarm XXX.

If the Alarm ID does not have a Point ID, you must assign a **Resource ID** to the alarm. You can click the Browser button to the right of the input field to open the Browser dialog box and browse for the Resource ID you want. You can also use the Pop-up menu button to create a new Resource ID, modify the current Resource ID or browse for a Resource ID. Remember that each Alarm ID/Resource ID combination must be unique within a group and across all groups.

Remove an alarm

1. Select the alarm from the list in the group's Alarm Blocking dialog box.
2. Click **Delete**.

Modify an alarm

**To modify an alarm's name, priority and Resource ID in the list:**

1. Select the alarm ID you want to edit in the selected group's Alarm Blocking dialog box.
2. Type in your changes.

If you are changing an Alarm ID or Resource ID, you can also use the Browser and Popup menu buttons in the field to search for a new one.

To set a number of alarms to the same priority and/or Resource ID at the same time:

1. Select the alarms whose priority and/or Resource ID you want to set. You can use the **Shift** and **Ctrl** keys while making your selection.
2. Click **Set Attributes**.

   The Set Attributes dialog box opens.
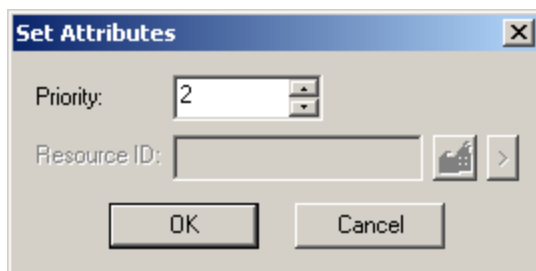
3. Enter the new priority and/or Resource ID for the alarms.
4. Click **OK**.

All the selected alarms will be assigned the new priority. Non-point alarms will be assigned the new Resource ID.

Chapter 5. Alarm Printer Configuration

About Alarm Printer Configuration

You can configure a serial or parallel printer in CIMPLICITY software that prints alarms and/or events as they occur. You may also configure an alarm printer to write to a file, rather than to a device. You may configure a local or network printer as the alarm printer. If your project includes the Host Redundancy option, you may configure a redundant alarm printer.

> ⚠️ **Important:**
> Before you start, make sure that the printer is not configured in Windows.

Alarm Printer configuration.

Alarm Printer Configuration

The Alarm Printer dialog box enables you to define the device, and the types of alarms handled by it. You can configure local and network printers.

> 📝 **Note:**
> You can also configure redundant alarm printers if your project supports the Host Redundancy option.

When you are finished defining the alarm printer properties, click **OK** to close the Alarm Printer dialog and create the new alarm printer, or click **Cancel** to close the property sheet without creating the new alarm printer.

Step 1 (on page 56)	Open an Alarm Printer dialog box.
Step 2 (on page 59)	Configure General Alarm Printer Properties
Step 3 (on page 61)	Configure Alarm Printer Layout Properties

|	
Step 4	Configure Alarm Printer Date/Time Format
Step 5	Continue for Serial, Redundant or Network Printers

Step 1. Open an Alarm Printer Dialog Box

Step 1. Open an Alarm Printer Dialog Box

Option 1.1	Add an alarm printer.
Option 1.2	Modify an existing alarm printer.

Option 1.1. Add an Alarm Printer

CIMPLICITY provides several methods to open a new Alarm Printer dialog box.

1. Select **Project > Alarms > Alarm Printer** in the Workbench left pane.
2. Do one of the following:
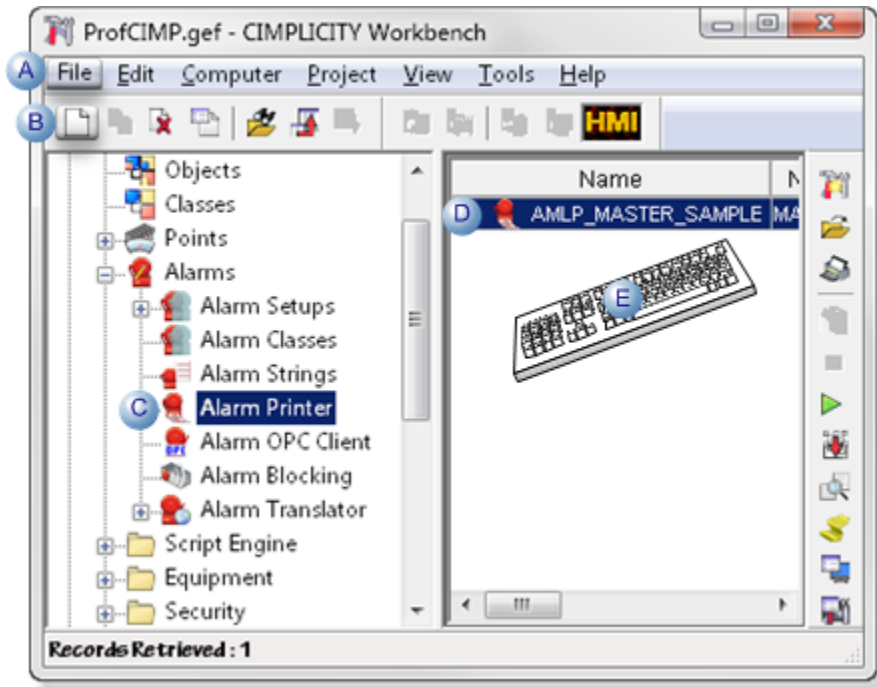
A	Click **File > New > Object** on the Workbench menu bar.
B	Click the New Object button on the Workbench toolbar.
C	In the Workbench left pane, double click **Alarm Printer**.

D	In the Workbench right pane:
	
	    a. Right-click any alarm printer.
	    b. Select New on the Popup menu.

E	Press Ctrl+N on the keyboard.

The New Alarm Log Printer dialog box opens when you use any method.

3. Enter the name of the new alarm printer, or the name of the file you want to write alarms to in the **Name** field.

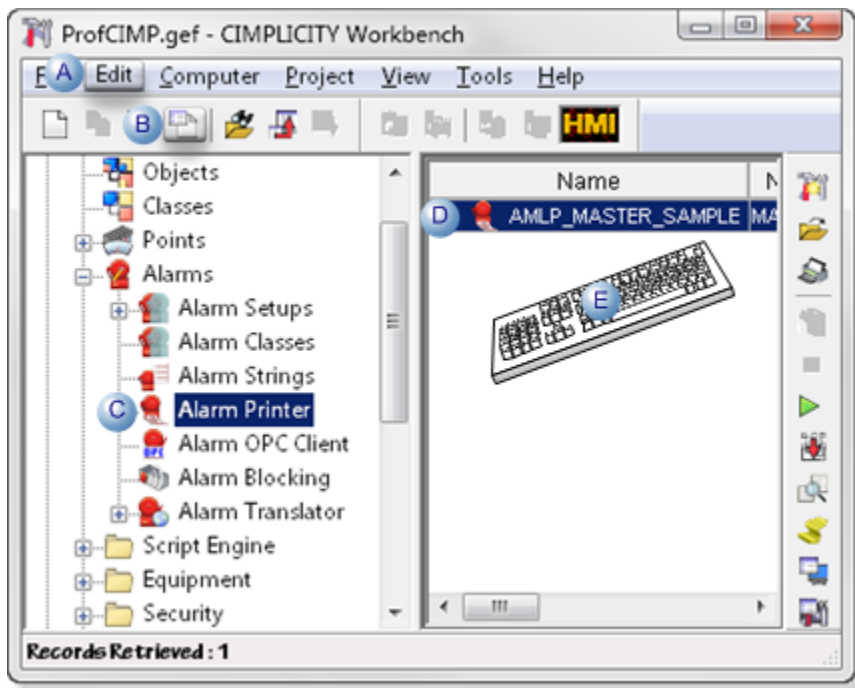You may enter a maximum of 11 characters.
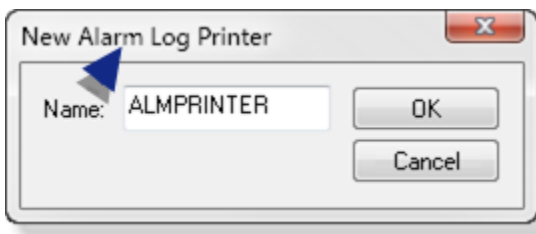
4. Click **OK**.

The system verifies that the alarm printer name does not already exist, and that no invalid characters have been used.

If the alarm printer name you entered is valid, the Alarm Printer dialog box for the new alarm printer opens.

Option 1.2. Open the Dialog Box for an Existing Alarm Printer

CIMPLICITY provides several methods to open an existing Alarm Printer dialog box.

1. Select **Project>Alarms>Alarm Printer** in the Workbench left pane.
2. Select an alarm printer in the Workbench right pane.
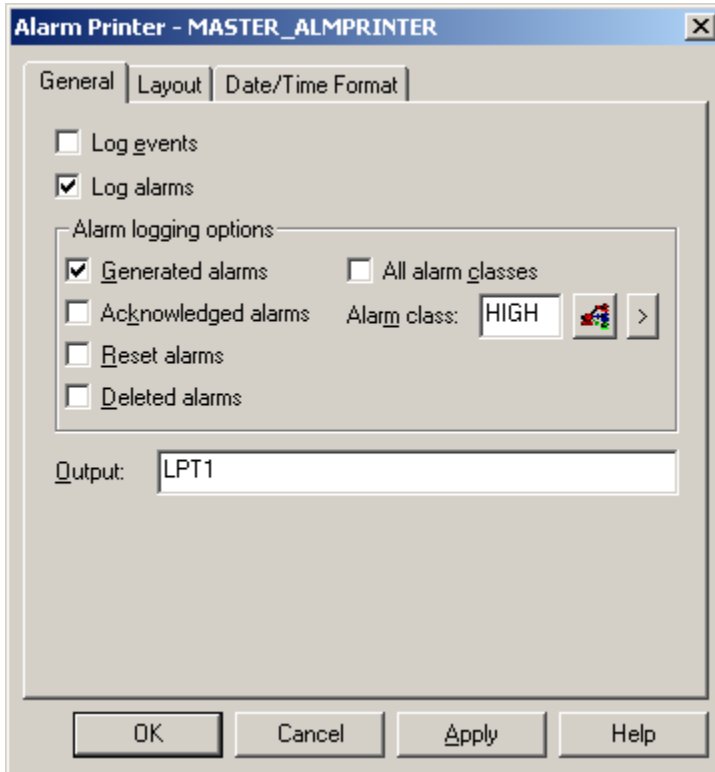3. Do one of the following:

A	Click Edit>Properties on the Workbench menu bar.
B	Click the Properties button on the Workbench toolbar.

C	In the Workbench left pane:
	
	    a. Right-click **Alarm Printer**.
	
	    b. Select Properties on the Popup menu.

D	In the Workbench right pane, double click an alarm printer.

| E | Press Alt+Enter on the keyboard. |

An Alarm Printer dialog box associated with the selected alarm string opens when you use any method.

Step 2. Configure General Alarm Printer Properties

1. Enter specification using the following check boxes.

Check box	Description
Log Events	Check to log events to the printer.
Log Alarms	Check if you want to log alarms to the printer. **Note:** If you clear this check box, the **Alarm logging** are dimmed.

Check box	Description
Alarm Logging Options	These options are available only when you select the Log alarms check box. Use these fields to specify the types of alarms, and alarms classes that will be printed on this alarm printer:
Generated alarms	Check to log messages when alarms are generated.
Acknowledged alarms	Check to log messages when alarms are acknowledged.
Reset alarms	Check to log messages when alarms are reset.
Deleted alarms	Check to log messages when alarms are deleted.

> ❗ **Important:**
> You must either check **All alarm classes** or select an **Alarm Class**.

All alarm classes	Check to log messages for all alarm classes. When you do, the **Alarm Class** field will be dimmed.
Alarm Class	This field is available when you uncheck the **All alarm classes** check box. If you want log alarms for a particular Alarm Class, enter that class name in this field. You can also: ◦ Display the Select Alarm Class browser and use it to select the Alarm Class. ◦ Click the **Popp Menu** button to create a new Alarm Class, edit the current Alarm Class, or browse for an Alarm Class.

2. Enter the device name for the alarm printer in the **Output** field. You can do any of the following:
   ◦ Enter the name of a local port on the project's computer (e.g. **LPT1** or **COM1**) where you have attached the alarm printer.

> ✏️ **Note:**
> If you are connecting to serial port **COM10** and above, the format is **\\.\COM<n>**.

- Enter a file name to write alarms to a file. If you wish, you may also enter a period followed by a three character file extension (e.g. **alarms.fil**).

  If you do not enter a file extension, none is automatically provided. The file is placed in the project directory (not in the project's log directory) .

  Example

  If a project name is systest, the file is placed in the systest folder:

  I:\testplans\systest

- Enter the path for a network printer (e.g. **\\M_005ad4\d5prn1**).

  > ✏️ **Note:**
  >
  > If the printer is connected locally on your computer, use the local port name instead of the network path.

- Enter the path for a file on a network disk (e.g. **\\nt001\proj1\alarms**).
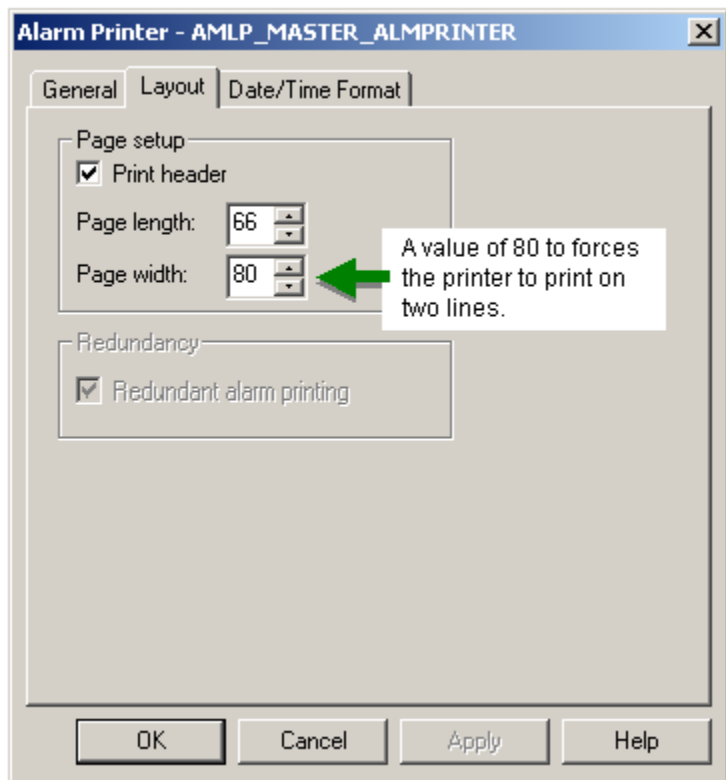
> ⓘ **Tip:**
>
> You can associate more than one alarm printer with a network printer or file on a network disk. If you use a network printer or file, clear the **Print header** field in the Layout tab of the Alarm Printer dialog box.

Step 3. Configure Alarm Printer Layout Properties

The Layout tab of the Alarm Printer dialog box enables you to determine whether a header should be printed at the top of a page.
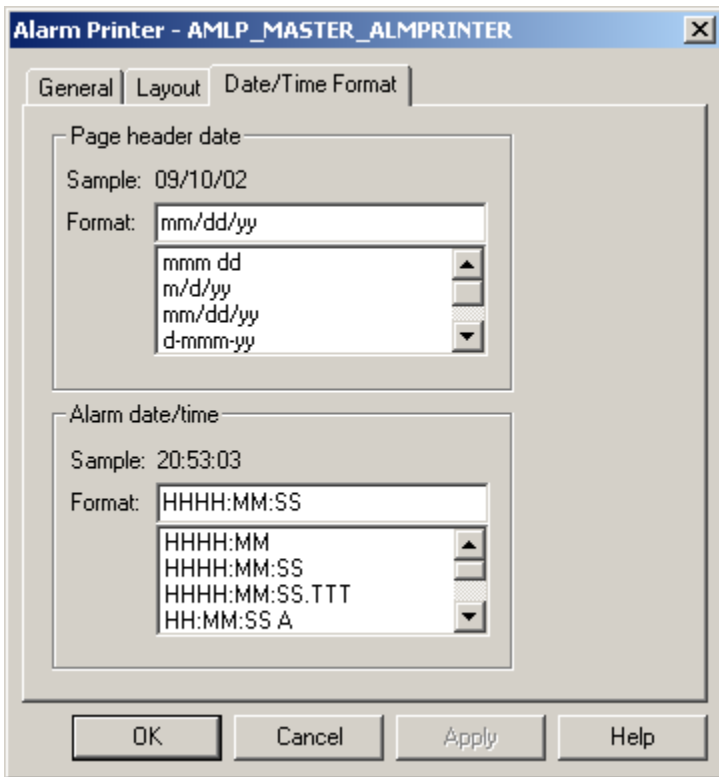
Specifications include:

Field	Description
Print Headers	Check to print a header at the top of each page. If you have more than one alarm printer process sending messages to the same printer or file, uncheck this check box. When you uncheck the check box, the **Page length** field is disabled.
Page Length	Enter the number of lines per page that can be printed. The number must be an integer between 1 and 999.
Page Width	Enter the number of characters that can be printed on a line. The number must be an integer between 80 and 157. ⚠️ **Important:** If the printer is configured as 80 characters wide then AMLP will print on two lines regardless of the actual width of the printer.
Redundant	This field is enabled if your project has the Host Redundancy option.

Field	Description
Alarm Printing *(on page 66)*	• Check for both the Active and Standby computers to print alarms. • Uncheck for only the Active computer to print alarms.

Step 4. Configure Alarm Printer Date/Time Format

Use the Date/Time Format tab on the Alarm Printer dialog box to choose how the alarm printer will print the date and time.

You can define the following:

Header Date	Select the format you want to use to print the date on the alarm printer page header. This field is not available if you are not printing a page header. A sample for the format you choose displays in the **Sample** field in this box. You may select one of the formats from the list, or construct your own format.

Alarm Date/Time	Select the format you want to use to print the date and time of each alarm. A sample for the format you choose displays in the **Sample** field in this box. You may select one of the formats from the list, or construct your own format.

To construct month/day/year formats, use the following information.

m	Numeric month with no leading zero.
mm	Numeric month with leading zero.
mmm	Short text month.
mmmm	Long Text month.
d	Numeric day with no leading zero.
dd	Numeric day with leading zero.
ddd	Short text day of the week.
dddd	Long text day of the week.
y	Last two digits of year. For digits 00 through 09, only the last digit is displayed.
yy	Last two digits of year. For digits 00 through 09, both digits are displayed.
yyyy	All four digits of year

If you enter **dddd dd mmmm yyyy**, the sample date will be **Saturday 05March 1994**.

You may use spaces, dashes, slashes or any other delimiter of your choice to separate the date fields.

To construct time formats, use the following information:

H	Hours based on a twelve-hour clock with no leading zero.
HH	Hours based on a twelve-hour clock with leading zero.
HHH	Hours based on a 24-hour clock with no leading zero.
HHHH	Hours based on a 24-hour clock with leading zero.
M	Minutes with no leading zero.

MM	Minutes with leading zero.
S	Seconds with no leading zero.
SS	Seconds with leading zero.
T	Hundredths of seconds with no leading zero.
TT	Hundredths of seconds with leading zeros.
P, A, p, or a	AM/PM indicator.

If you enter **HHHH:MM:SS:TT p**, the sample time will be **13:05:06:08PM**.

You may use colons, spaces or any other delimiter of your choice to separate the time fields.

Step 5. Continue for Serial, Redundant or Network Printers

Option 5.1 *(on page 65)*	Continue for serial printers.
Option 5.2 *(on page 66)*	Continue for redundant alarm printers.
Option 5.3 *(on page 68)*	Continue for network printers.

Option 5.1. Continue for Serial Alarm Printers

If you are configuring a serial printer, its printer baud rate, parity, and data length will have to be set each time your system is rebooted. You can do this by creating a file called **cimp_port.bat** in the top-level directory on the disk where your project is located. The file will be called by the Alarm Printer program when it initiates printing on the printer. The file contains:

```
@echo off

mode <port> baud=<rate> parity=<set> data=<n> stop=<m>
```

Where

<port>	Is the serial port to which the printer is connected.
<rate>	Is the baud rate of the printer.
<set>	Is the parity used by the printer.
<n>	Is the number of data bits.
<m>	Is the number of stop bits.

Example

If you have a printer on COM1: port that communicates at 9600 baud, no parity, 8 data bits and 1 stop bit, the file would look like this:

```
@echo off

mode COM1: baud=9600 parity=n data=8 stop=1
```

If you have more than one serial printer, you will need one mode line per printer.

To create a mode line file:

1. Open a Notepad window.
2. Enter the printer configuration information according to the above template.
3. Save the file called **cimp_port.bat** in the top-level directory on the disk where your project is located.

Option 5.2. Continue for Redundant Alarm Printers

In a redundant configuration, both the active and standby computer have the same configuration. When you perform a Configuration Update, the configuration data for the project on the active computer is copied to the project on the standby computer.

The information you enter in the **Redundant alarm printing** and **Output** fields determine where alarms will be printed.

Configuration for the following computer setups is as follows:

1. For a redundant configuration where each computer has a local line printer (LPT1) configured.

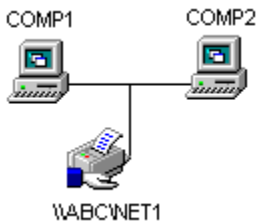   The primary computer is COMP1 and the secondary computer is COMP2.
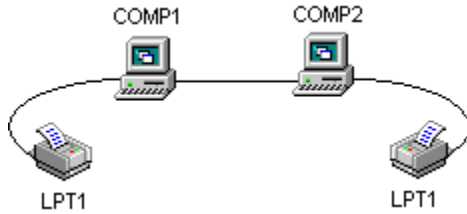
- ◦ If you enter **LPT1** in the **Output** field and check **Redundant alarm printing**, the active project on COMP1 sends alarm messages to LPT1 on COMP1 and the standby project on COMP2 sends alarm messages that it generates while in standby mode to LPT1 on COMP2.

  When the project on COMP2 becomes the active project, it continues to send alarm printer messages to LPT1 on COMP2.

- ◦ If you enter **LPT1** in the **Output** field and uncheck **Redundant alarm printing**, the active project on COMP1 sends alarms to LPT1 on COMP1. The standby project on COMP2 sends no alarms until it becomes the active project.

  When the project on COMP2 becomes the active project, it sends alarm messages to LPT1 on COMP2.

2. For a redundant configuration with a network line printer **(\\ABC\NET1)**. The primary computer is COMP1 and the secondary computer is COMP2.

- ◦ If you enter **\\ABC\NET1** in the **Output** field and check **Redundant alarm printing**, the active project on COMP1 sends alarm messages to **\\ABC\NET1** and the standby project on COMP2 sends alarm messages that it generates while in standby mode to **\\ABC\NET1**.This may result in duplicate messages.

  If you select this option, disable the **Print header** field.

◦ If you enter **\\ABC\NET1** in the **Output** field and uncheck **Redundant alarmprinting**, the active project on COMP1 sends alarms to the network device. The standby project on COMP2 sends no alarms until it becomes the main project.

When the project on COMP2 becomes the main project, it sends alarm messages to **\\ABC \NET1**.

> ✎ **Note:**
>
> Check **Redundant alarm printing** on the Layout tab in the Alarm Printer dialog box if you want both the active and standby computers to print alarms.

Option 5.3. Continue for Network Alarm Printers

When you print directly to a network printer the Alarm Page functionality does not print alarm messages as they happen, by default. Instead, it waits until there is a full page of alarms to send to the printer.

To print the current set of unprinted alarms:

1. Click **Tools > Command Prompt** on the Workbench menu bar.
   A DOS window opens in the CIMPLICITY project directory.
2. Enter **amlp_flush.exe**.

The alarms will be printed.

> ✎ **Note:**
>
> You can also initiate **amlp_flush.exe** from scripts within the CIMPLICITY environment. This will trigger printing whenever the specified conditions (for example an alarm going off) are met.

Alarm Printer Global Parameters

1. The Alarm Line Printer program (AMLP) assumes that there is no restriction for the size of the alarm message queue. If the output device is disabled, a virtual memory overflow can result. You can use the **AMLP_MAX_QUEUE** global parameter to restrict the size of the alarm message queue.

2. The Alarm Line Printer program (AMLP) assumes that the time to be printed when an alarm is acknowledged or deleted is the time the alarm was generated.
   You can use the **AMLP_USE_GEN_TIME** global parameter to select whether you want the generation time or the action (acknowledge or delete) time to be printed.

Chapter 6. CIMPLICITY Language Mapper

About CIMPLICITY Language Mapping

CIMPLICITY Language mapping can speed up configuration and offer language and text string options during runtime when you have Alarm Viewers and/or CimView screens that:

- Will be viewed in different languages during runtime.
- Require only text string modification to be used for different situations.

> **ⓘ Tip:**
> CIMPLICITY Language Mapping also provides an efficient method for using the same screen in different locations when it will require different text strings for the same messages, e.g. Call the North Tank supervisor or Call the South Tank Supervisor instead of Call the Tank Supervisor. Text strings for each screen version can be mapped as a different language.

The following steps demonstrate CIMPLICITY language mapping configuration and runtime use.

Step 1 *(on page 72)*	Review alarm messages that are available for translation.
Step 2 *(on page 77)*	Make CimEdit text available for translation.
Step 3 *(on page 99)*	Translate keys into other languages or English strings.
Step 4 *(on page 111)*	Work with keys in the CIMPLICITY Language Mapper.
Step 5 *(on page 116)*	Print a translation file configuration.
Step 6 *(on page 119)*	Configure translation options for runtime.

CIMPLICITY Language Mapper Window Overview

The CIMPLICITY Language Mapper window is the central location for viewing the translation files and is where you translate the keys (selected strings) in the translation files. It also offers other administrative tools for maintaining the files.

1	Title bar displays the active translation file name.
2	Menu bar
3	Toolbar
4	Status bar
5	Primary strings that are available for translation
6	Translated strings

Step 1. Review Alarm Messages that are Available for Translation

Step 1. Review Alarm Messages and Strings that are Available for Translation

The CIMPLICITY Language Mapper automatically makes all of a project's alarm messages available for translation.

Step 1.1 *(on page 72)*	Open the CIMPLICITY Language Mapper Window to View Existing Alarms
Step 1.2 *(on page 75)*	Make new point alarms available for translation.
Step 1.3 *(on page 76)*	Make a new alarm string available for translation

Step 1.1. Open the CIMPLICITY Language Mapper Window

- Open the CIMPLICITY Language Mapper window.
- CIMPLICITY Language Mapper window just opened.

Open the CIMPLICITY Language Mapper window

1. Select **Project > Alarms > Alarm Translator** in the Workbench left pane.
2. Select Alarm Translator in the Workbench right pane.
3. Do any of the following:

A	Click Edit>Properties on the Workbench menu bar.
B	Click the Properties button on the Workbench toolbar.

C	In the Workbench left pane:
	
	    a. Right-click **Alarm Translator**.
	
	    b. Select Properties on the Popup menu.

D	In the Workbench right pane, double-click **Alarm Translator**.
E	Press Alt+Enter on the keyboard.

CIMPLICITY Language Mapper window just opened

The CIMPLICITY Language Mapper window opens displaying the project's default file, AlarmTranslation.clm.
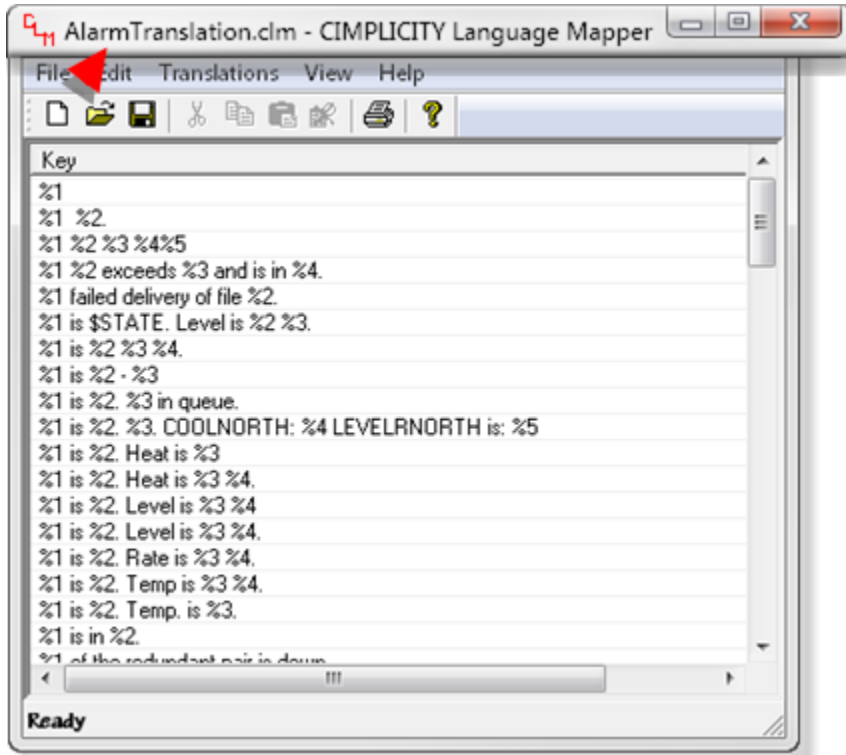
The following are automatically entered as keys in AlarmTranslation.clm:
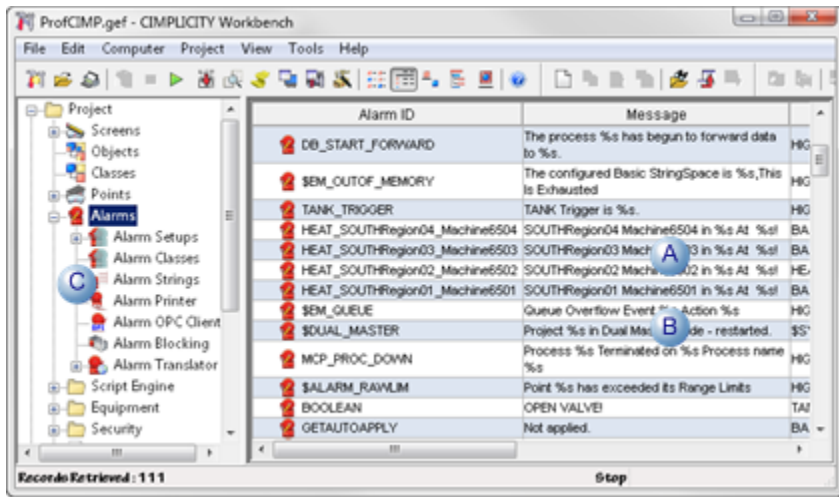
A (on page 75)	Point alarm messages
B	System alarm messages

	Alarm strings

> **Note:**
>
> The alarm manager uses `%s` to substitute strings into the alarm message. This is changed in a key to **%1, %2, ... %n** so that a fixed order of substitution parameters can be passed but the actual order they appear in the message can be dictated by the location of the substitution.
>
> This allows for different orders that are dependant on the needs for a specific language.

> **CAUTION:**
>
> Do not change the name or location of the AlarmTranslation.clm file. If you do, before it is restored, the CIMPLICITY Language Mapper will not be able to find the translations. The next time you open the CIMPLICITY Language Mapper window, a new AlarmTranslation.clm will be automatically created and your translation configuration will be lost.

Step 1.2. Make New Point Alarm Messages Available for Translation

Point alarm messages that were created after the last project configuration update will be automatically entered into the AlarmTranslation.clm file when the next project configuration update is performed.

1. Create a new point or select an existing point that does not have an alarm.
2. Open the Point Properties dialog box.
3. Select the Alarm tab.
4. Enter an alarm message and configure the alarm.
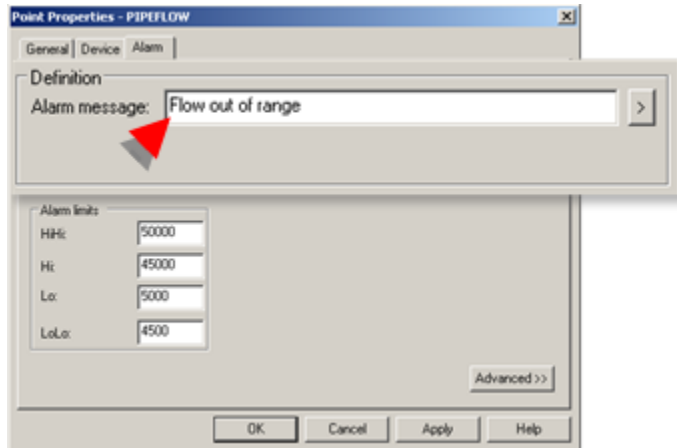
5. Close the Point Properties dialog box.

6. Make sure project configuration is updated.

7. Open the CIMPLICITY Language Mapper window.

   The default AlarmTranslation.clm file is loaded.

The message you entered in the Alarm message field in the Point Properties dialog box displays in the
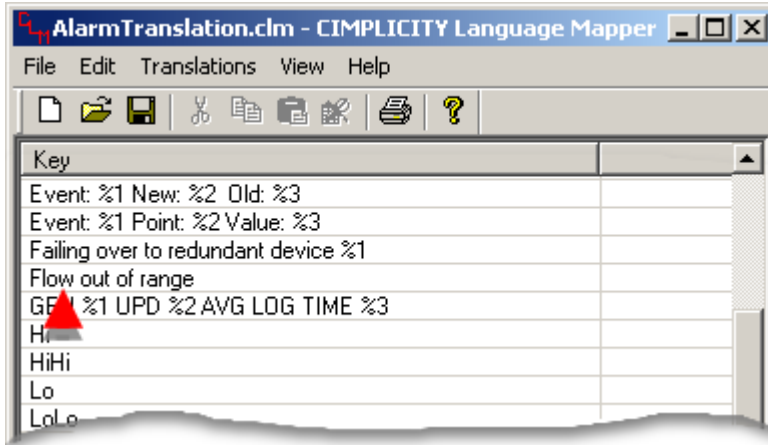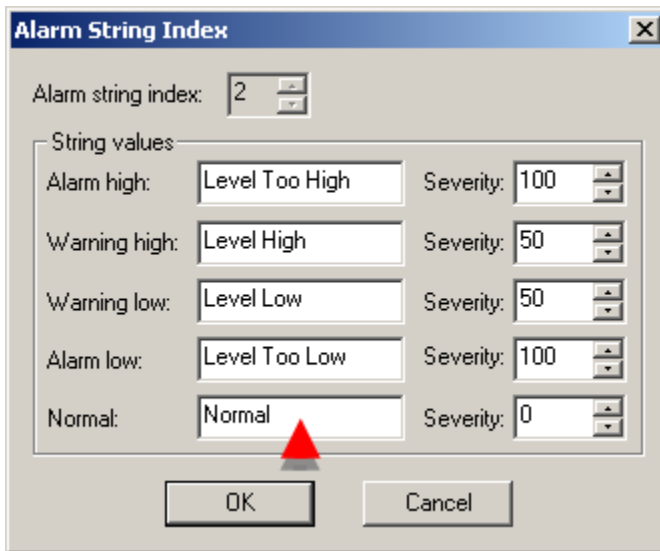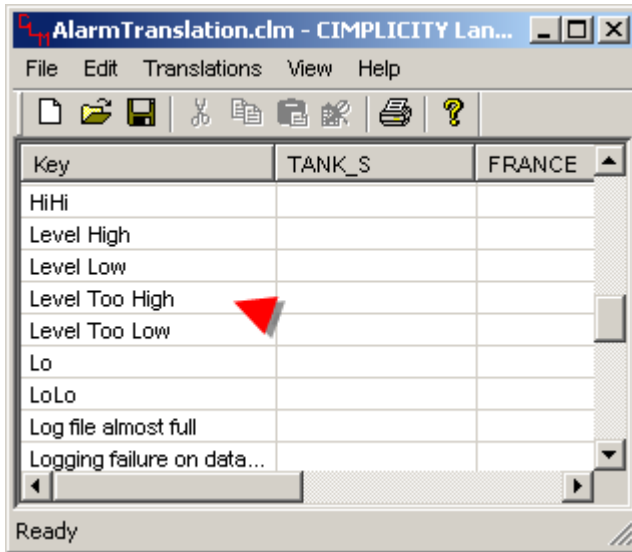

Key list.

Step 1.3. Make a New Alarm String Available for Translation

Alarm strings that were created after the last project configuration update will be automatically entered into the AlarmTranslation.clm file when the next project configuration update is performed.

1. Create a new alarm string set *(on page 37)*.

2. Perform a project configuration update.

3. Open the CIMPLICITY Language Mapper window.

The default AlarmTranslation.clm file is loaded.

The string values you entered in the String values fields in the Alarm String Index dialog box displays in

the Key list.

Step 2. Make CimEdit Text Available for Translation

Step 2. Make CimEdit Text Available for Translation

You add text to CimEdit translation files differently from how text is added to Alarm translation files.

Alarm messages are automatically entered into an automatically created translation file.

First, CimEdit text needs to be selected; second a translation file has to be created or opened through the Ambient Properties tab in the Properties - Screen dialog box for the text to be entered into the file.

This step shows the logical sequence for selecting the text, then adding it to a translation file.

Step 2.1 *(on page 78)*	Select text strings on CimEdit Screens.
Step 2.2 *(on page 92)*	Automatically enter CimEdit text strings into a translation file.

Step 2.1. Select Text Strings on CimEdit Screens

> ⚠️ **Important:**
> When you design your CimEdit screen make sure that you allow enough space to accommodate all selected languages for each text string.

For example, a message that will display is TANK LEVEL IS TOO HIGH.

Space required for different languages varies, as follows:

Language	Text String
Screen Original	TANK LEVEL IS TOO HIGH
French	LE NIVEAU DE RÉSERVOIR EST TROP ÉLEVÉ
Chinese	坦克水平是太高
Japanese	タンクレベルは余りに高い
TANK_S	TANK_S LEVEL IS TOO HIGH

Text string translation options are as follows.

Option 2.1.1 (on page 79)	Plain text
Option 2.1.2 (on page 82)	Text buttons
Option 2.1.3 (on page 85)	Animated text
Option 2.1.4 (on page 86)	Expressions

Option 2.1.1. Plain Text Available for Translation

1. Place or select a text object that is on a CimEdit screen.
2. Open the text's Properties - Object dialog box.
3. Select the Text tab.

   The following options make the text on the button available for translation.

A (on page 80)	String
B (on page 80)	Font
C (on page 81)	Translate
D (on page 81)	Multiline

A	String

Text that will display on the CimView screen and can be translated into selected languages.

B	Font

Opens the Font dialog box to select the font, style and size for this string in the CimEdit/CimView screen.
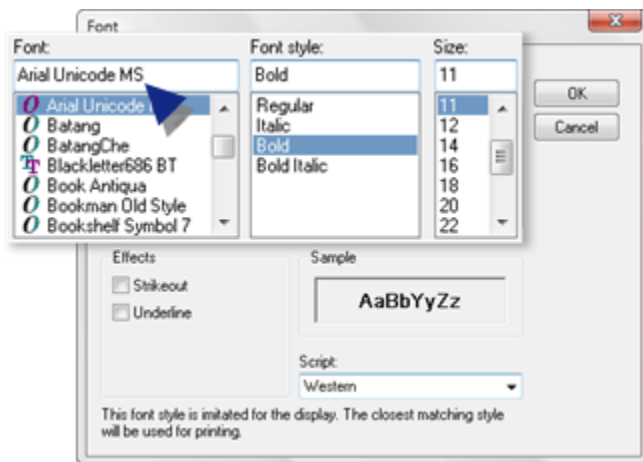
> **! Important:**
>
> Select a font that will accommodate the characters for the translated languages. For example, Arial Unicode MS is a very complete Unicode font.

C	Trans- late

Checked makes this string available for translation.

Default	Checked

D	Multiline

Multiline is checked by default when you create a new text entry.

Options are:

Clear Multiline

Enter text in the String field.

Check Multiline

Do the following.

1	Click the Text Box button to the right of the String field.
2	Enter the text in the Text Box.

4. Click **Apply** or **OK**.

> **Note:**
> If you want to emit this text selection (or selections) to a CimEdit translation file before you make other text selections, go to Step 2.2. Otherwise, continue with the Step 2.1 options.

The text string is available to be emitted to the .

Option 2.1.2. Text Buttons Available for Translation

1. Place or select a text button object that is on a CimEdit screen.
2. Open the text's Properties - Object dialog box.
3. Select Text Button.

The following options make the text on the button available for translation.
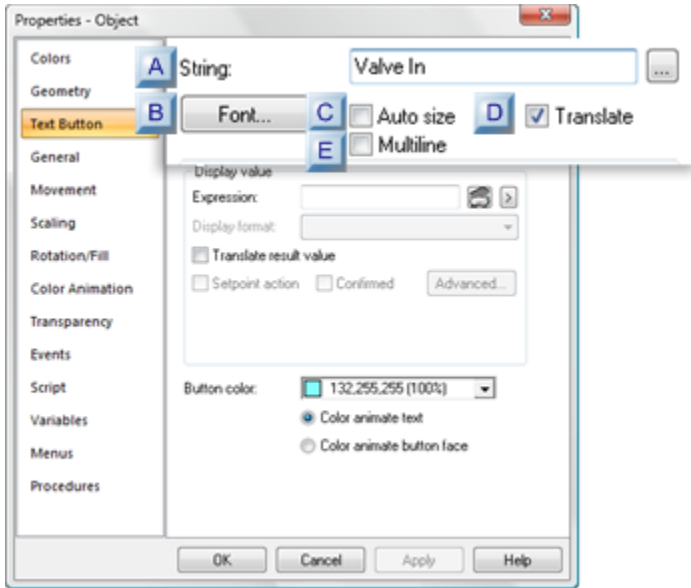
1. #unique_74_Connect_42_Multiline *(on page 84)*
2. #unique_74_Connect_42_Translate *(on page 84)*
3. #unique_74_Connect_42_Auto *(on page 83)*
4. #unique_74_Connect_42_Font *(on page 83)*
5. #unique_74_Connect_42_String *(on page 83)*

A *(on page 83)*	String
B *(on page 83)*	Font
C *(on page 83)*	Auto size

D *(on page 84)*	Trans-late
E *(on page 84)*	Multiline

A	String

String that will be available for translation

B	Font

Opens the Font dialog box and select the font, style and size for this string in the CimEdit/CimView screen.
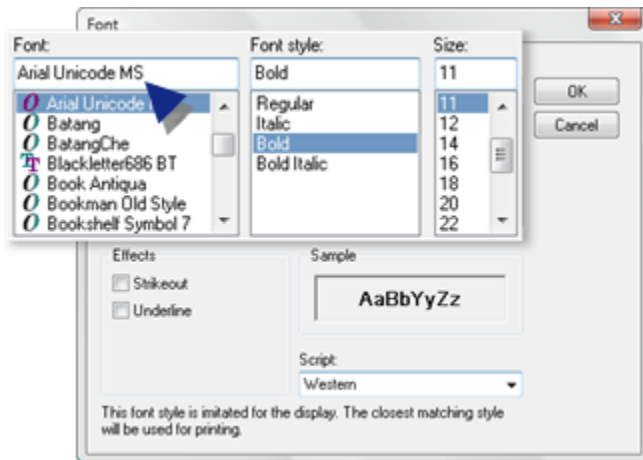
> **Note:**
> Select a font that will accommodate the characters for the translated languages. For example, Arial Unicode MS is a very complete Unicode font.

C	Auto size

It is recommended that you leave Auto size clear.

When checked, the button automatically resizes to fit the text length.

This can create a jagged affect if different languages are used on the CimView screen.

Give the button an exact length that will be able to fit the characters for any of the selected languages.

D	Trans-late

Checked makes the text string available for translation.

Default	Checked

E	Multiline

Multiline is checked by default when you create a new text entry.

Options are:

Clear Multiline

Enter text in the String field.

Check Multiline

Do the following.

1	Click the **Text Box** button to the right of the String field.
2	Enter the text in the Text Box.

The text entered as the button label is available to be emitted to the selected translation file *(on page 95)*.

Option 2.1.3. Animated Text Available for Translation

1. Create or select a text object; the object will display animated text during runtime.
2. Open the Properties - Object dialog box.
3. Open the Expression List Attribute Animation dialog box.

   The following options make animated text available for translation.
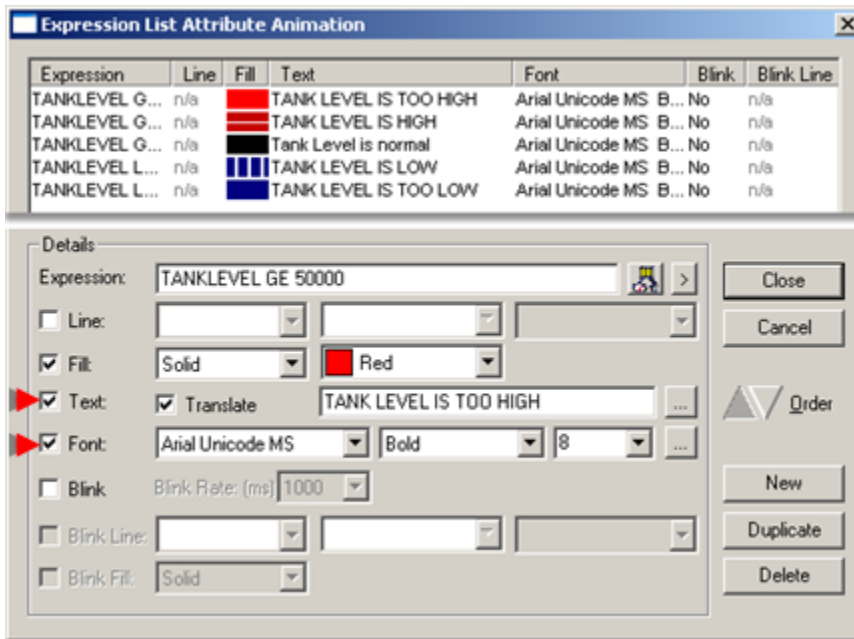
Option	Description
Text	Translate
	String
Font	Selections are
	◦ Font
	◦ Type
	◦ Size
	Note: If you make the text available for translation make sure that the selected font accommodates the languages in which

Option	Description
	📝 the string will display. Arial UNICODE MS can display all languages.

> 📝 **Note:**
> If you want to omit this text selection (or selections) to a CimEdit translation file before you make other text selections, go to Step 2.2. Otherwise, continue with the Step 2.1 options.

The text that is checked for translation is available to be emitted to the selected translation file. The text for each expression will display on a single line in the translation file *(on page 95)*.

Option 2.1.4. Expressions Available for Translation

Option 2.1.4.1 *(on page 86)*	Expression literals
Option 2.1.4.2 *(on page 87)*	Enumeration point values

Option 2.1.4.1. Expression Literals

1. Place or select a text or text button object that is on a CimEdit screen.
2. Open the text's Properties - Object dialog box.
3. Select one the following depending on the selected object.

Option	Tab
Text	Text
Text button	Text button

4. Enter an expression that contains string literals in the **Expression** field.

   Example

```
IF (TANKLEVEL GT 55000) Then "CLOSE Valve In. CALL MANAGER." Else "If alarm state, call
manager."
```

5. Check Translate result value.

> **Note:**
> The default is clear.
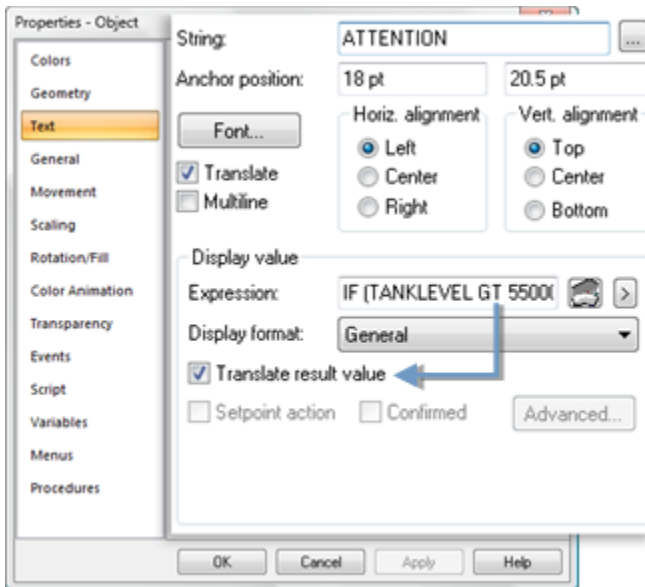
The text strings are available to be emitted to the selected translation file. Each string, surrounded by double-quotes, will be placed on a single line in the translation file *(on page 95)*.

Option 2.1.4.2. Enumeration Point Values

When you emit text *(on page 92)* for a CimEdit screen all values that have been configured for point enumerationare automatically entered in the selected translation file.

Example

An enumeration set named FLOW is configured to be available for selected pipe points.

Text values are:
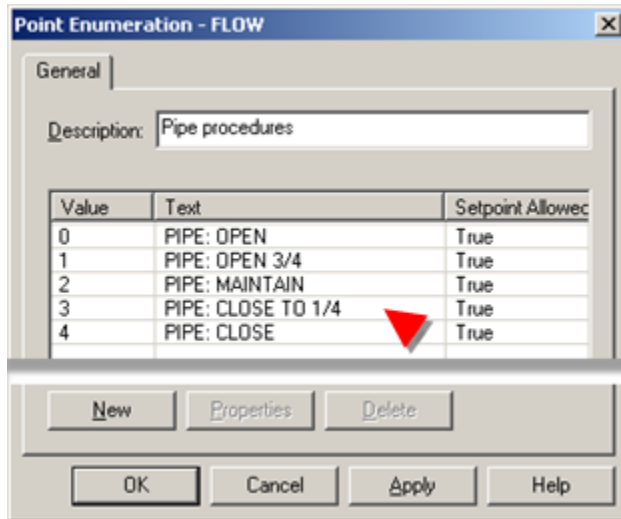
- PIPE: OPEN
- PIPE: OPEN 3/4
- PIPE: MAINTAIN
- PIPE: CLOSE TO 1/4
- PIPE: CLOSE

When text is emitted to a selected translation file *(on page 95)* the FLOW text values are emitted to that file.

Option 2.1.5. Execution Condition Messages

Open an Execution Condition dialog box for a:

- Text/text button object
- Slider action

The following options make an execution condition text message available for translation.
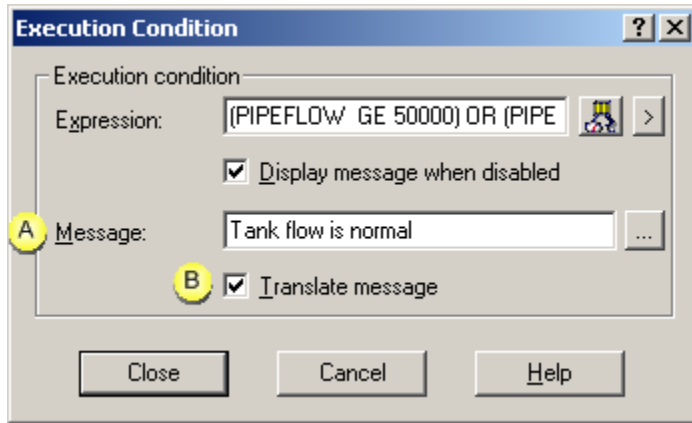
A	Message	String that will be available for translation.
B	Translate message	Checked makes the text string available for translation.

The text entered as the execution condition message is available to be emitted to the selected translation file *(on page 95)*.

Option 2.1.6. Advanced Procedure Messages Available for Translation

1. Select the screen or any object that is on a CimEdit screen.
2. Open the screen or object's Properties dialog box.
3. Select Procedures.
4. Open the Procedure Information dialog box for an existing or new procedure.
5. Select the Advanced tab.
6. Check the accompanying **Translate...** checkbox for text message entries that should be available for translation, as follows.

   > **Note:**
   > The default is checked.
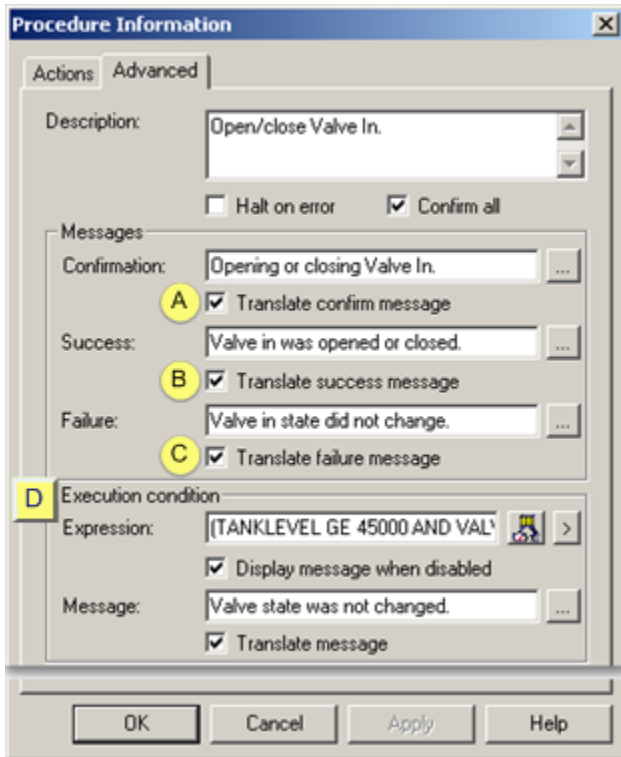
	Field	Check
A	Success	Translate success message
B	Failure	Translate failure message
C	Message	Translate message
D	Execution condition	

The text strings that are entered in checked message fields is available to be emitted to the translation file. Each message will display on a single line in the translation file *(on page 95)*.

Option 2.1.7. Popup Menu Items Available for Translation

These items are available for translation:

- Standard Popup menu items
- Customized Popup menu items

Standard Popup Menu Items

CimEdit automatically sends standard Popup menu items to the translation file when text is emitted.

Items include:

- Full Screen
- Help
- Menu
- Properties
- Point View
- Point Control Panel
- Quick Trends

Customized Popup Menu Items

1. Select the screen or any object that is on a CimEdit screen.
2. Open the screen or object's Properties dialog box.
3. Select Menu.

   The following options make the text on the Popup menu available for translation:
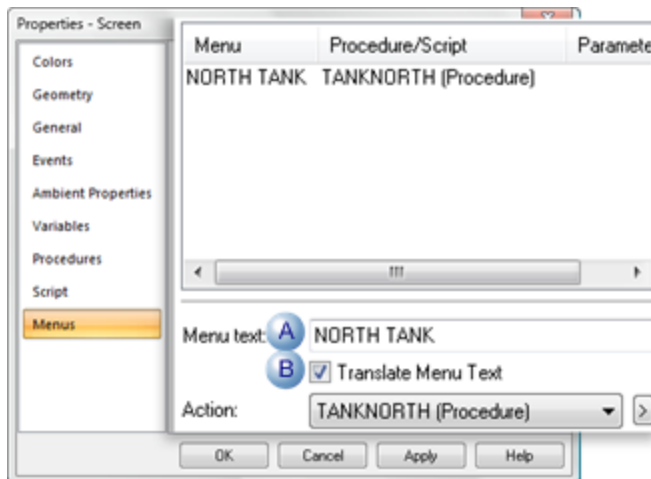
A	String that will be available for translation.
B	Checked makes the text string available for translation.

The text string that is entered in the Menu text field is available to be emitted to the translation file (on page 95).

Step 2.2. Automatically Enter CimEdit Text Strings into a Map File

Step 2.2. Automatically Enter CimEdit Text Strings into a Translation File

Step 2.2.1 *(on page 92)*	Emit text into a new file.
Step 2.2.2 *(on page 96)*	Emit text into an existing file.

Step 2.2.1. Emit Text into a New File

Follow this procedure if you are starting a Language Mapping file for your CimEdit screens or want to create a file exclusively for the screen you are working on.

1. Right-click the CimEdit screen to open the Properties- Screen dialog box.
2. Select the Ambient Properties tab.
3. Do the following:
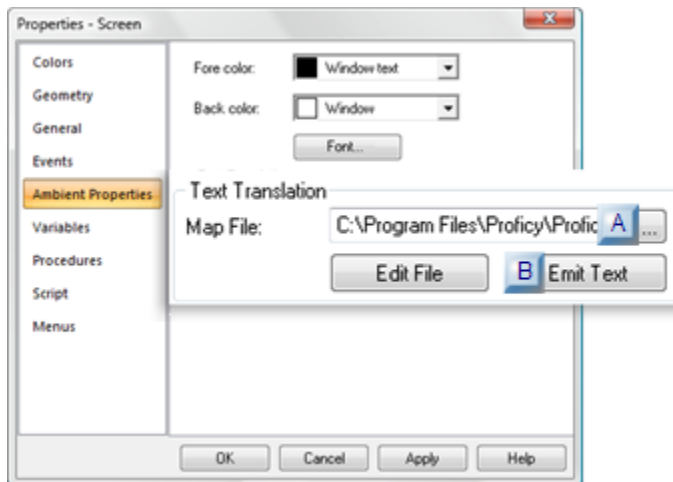
A	Map File

Enter the path and name of a new file that you want to have created.

> ℹ **Tip:**
>
> The Browser button to the right of the **Map File** field will help you specify the name and exact location.

a. Click the **Browser** button to the right of the **Map File** field.

A Pick a CIMPLICITY Language Map file browser opens.

b. Find the folder in which the file should be created.

c. Enter the filename in the **File name** field.

d. Click **Open**.
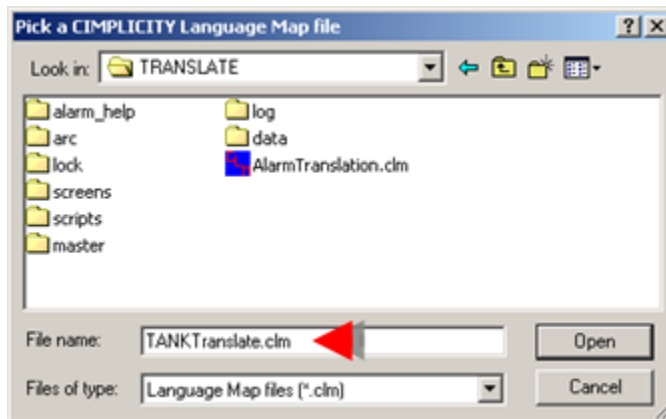
B	Emit Text

Click **Emit Text**.

Result:

a. CIMPLICITY Language Mapper creates the specified translation <filename>.clm in the
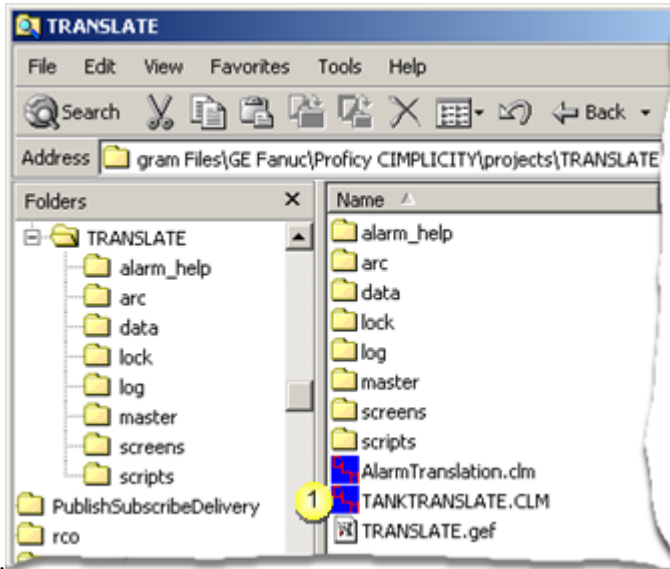
selected location.

b. CIMPLICITY Language Mapper exports the selected CimEdit text into the selected
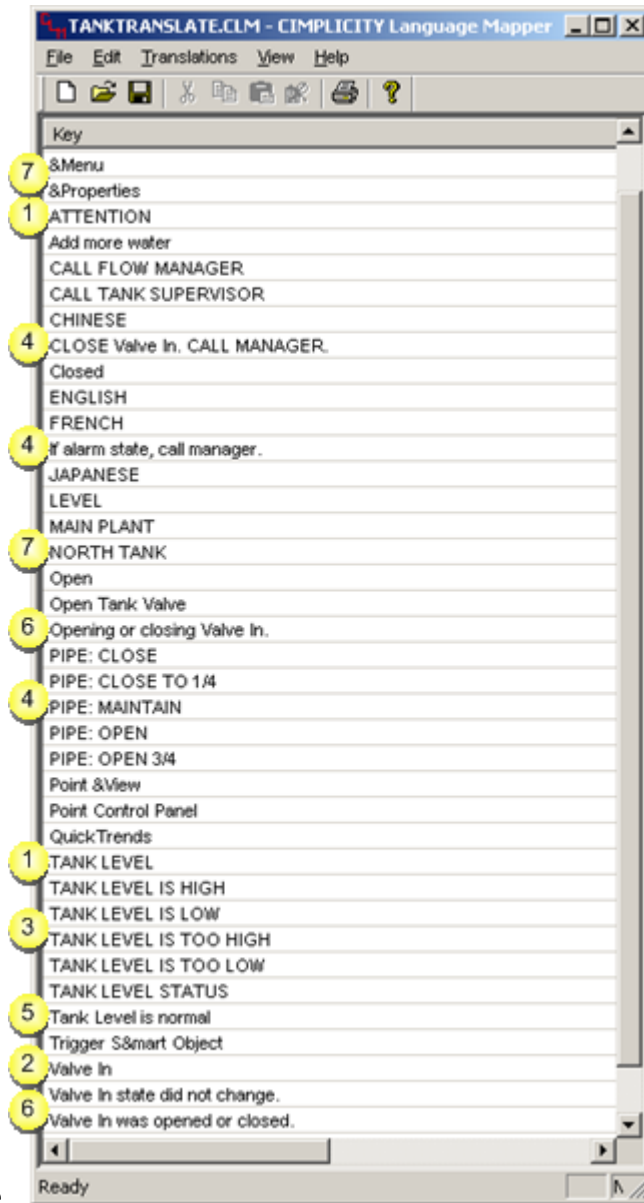
translation file.

1 *(on page 79)*	Plain text
2 *(on page 82)*	Text buttons

3 *(on page 85)*	Animated text
4 *(on page 86)*	Expressions
5 *(on page 88)*	Execution condition messages
6 *(on page 89)*	Advanced procedure messages
7 *(on page 90)*	Popup menu items

> **ⓘ Tip:**
> If you have several screens with unique static text performance may be improved if you use several translation files among your screens instead of just one.

Step 2.2.2. Emit Text into an Existing File

Use this procedure if you want to continue working in an existing translation file in order to share it with two or more of your CimEdit screens.

This enables sharing of common strings and makes translation for all screens the easiest to maintain.

1. Right-click the CimEdit screen to open the Properties- Screen dialog box.
2. Select Ambient Properties.
3. Do one of the following:
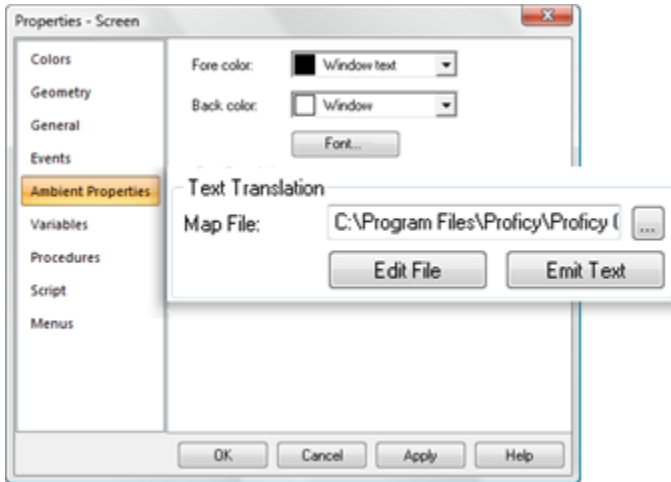
◦ Type in path and translation filename
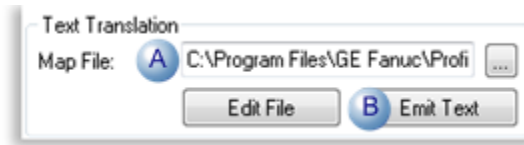
A	Enter the path and name of an existing file in the **Map File** field.
B	Click Emit Text.

◦ Find and select a translation file
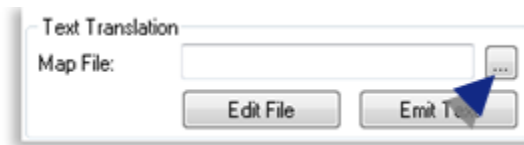
a. Click the **Browser** button to the right of the **Map File** field.

A Pick a CIMPLICITY Language Map file browser opens.

b. Select the file you want to use.

c. Click **Open**.
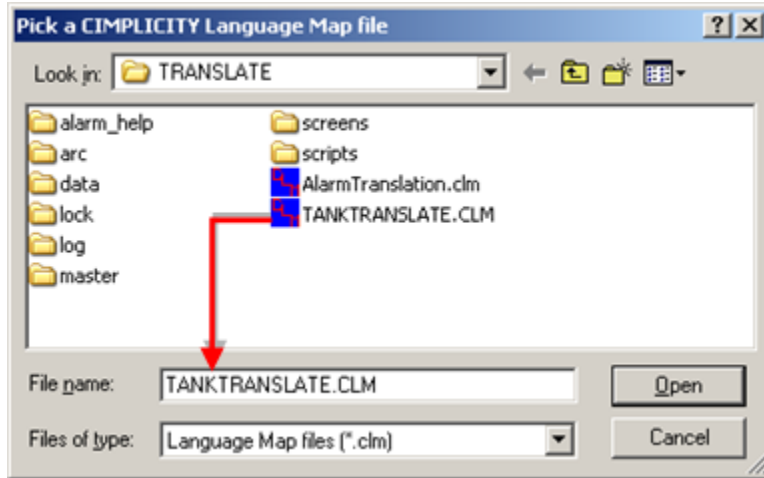
The select path and name display in the **Map File** field.

    d. Click Emit Text.

◦ Emit text without entering a path

    a. Click Emit Text without entering a path and name in the **Map File** field.

       Pick a CIMPLICITY Language Map file when the browser opens.

    b. Select the file you want to use.

       The select path and name display in the **Map File** field.

    c. Click **Emit Text**.

The text strings on the CimEdit screen that are checked for translation are created as keys in the selected translation file.

If the key is already in the file, it is not overwritten. This is particularly important because the existing key may already have associated translated strings.

A	New keys from text strings in current CimEdit screen that are not already in the translation file.
B	Keys from text strings from a previous CimEdit screen, already translated.

> **Note:**

- You can select the default AlarmTranslation.clm. However, if you anticipate that there will be several strings, or unique strings it may be more efficient to use a different translation file for your CimEdit/CimView screens. If you create an AMV Control on a CImEdit/CimView screen, you can copy strings, such as headings, buttons, from other CimEdit screens. You can also copy keys and translations from one translation file to another.
- If the source screen for a linked object has a translation file configured it will use that file at runtime, instead of the file defined in the destination screen. If both screens use the same file, this is not an issue.

Step 3. Translate Keys into other Languages or other English Strings

Step 3. Translate Keys into other Languages or other English Strings

|	
Step 3.1 *(on page 100)*	Open the CIMPLICITY Language Mapper window.
Step 3.2 *(on page 101)*	Select a translation file.
Step 3.3 *(on page 105)*	Select a font.
Step 3.4 *(on page 107)*	Select languages or other English strings.
Step 3.5 *(on page 109)*	Translate keys that should display in selected languages.

> ⚠️ **Important:**
> Alarm messages are loaded only when the Alarm Manager Resident Process (AMRP) starts. Therefore any configuration changes, e.g. a new translation, made after the AMRP start up will not show up in the Alarm Viewer. You will have to stop the AMRP and restart it for changes to take affect.

Step 3.1. Open the CIMPLICITY Language Mapper Window

Do one of the following:

- Open the CIMPLICITY Language Mapper Window through the Workbench *(on page 72)*.

  This method automatically opens the default AlarmTranslation.clm file.
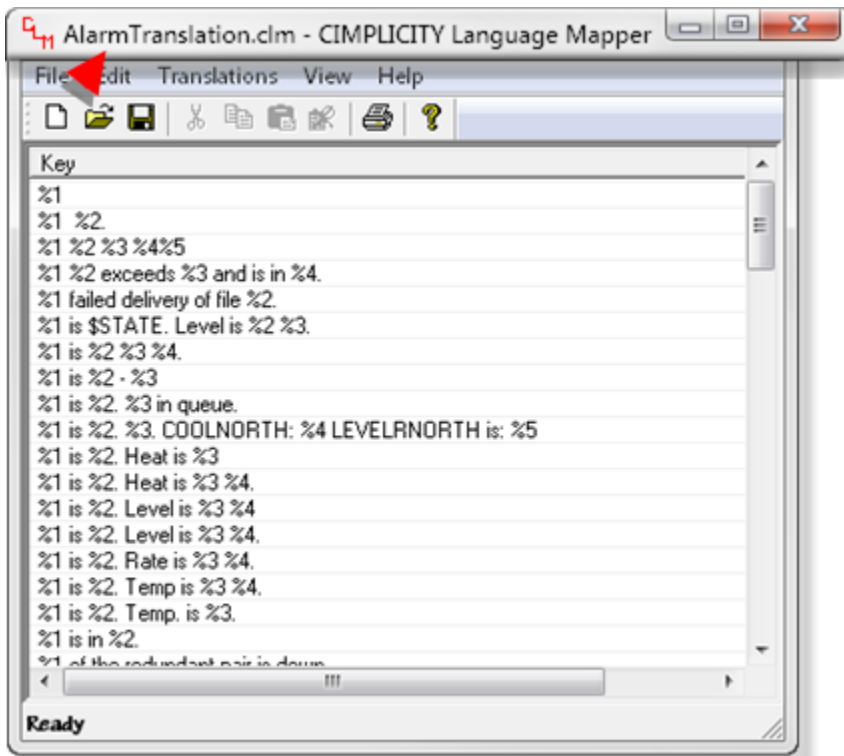
- Click Edit File on the Ambient Properties tab in CimEdit's Properties - Screen dialog box.

  This method will open a selected *.clm file.
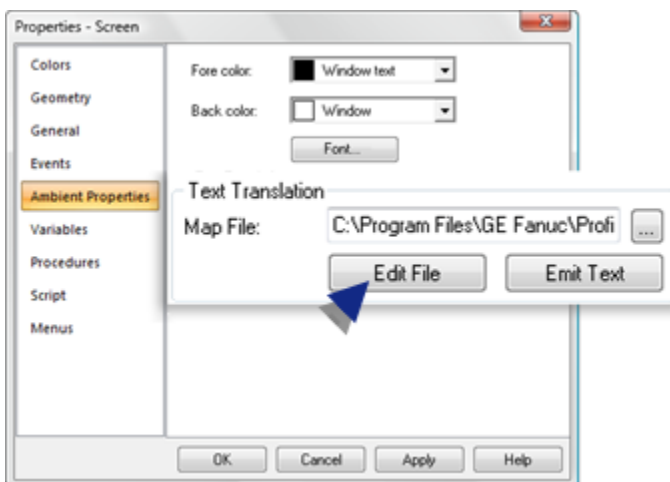
Step 3.2. Select a Translation File

Do any of the following:

- Use the default translation file.
- Create a new file.
- Open an existing translation file.
- Save the open file as another file.

Use the default translation file

When you open the CIMPLICITY Language Mapper window, the default translation file, alarmtranslation.clm, is loaded.
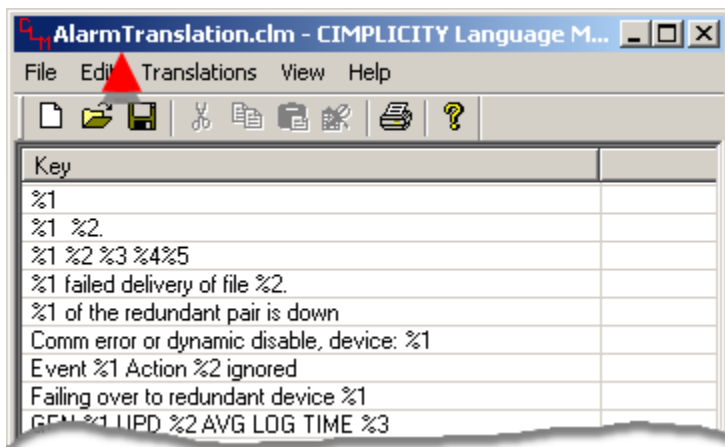
The file is available for editing translation keys and specifications.

Create a new file

Do one of the following.

- Click the **New** button on the CIMPLICITY Language Mapper window toolbar.
- Click File>New on the CIMPLICITY Language Mapper window menu

bar.
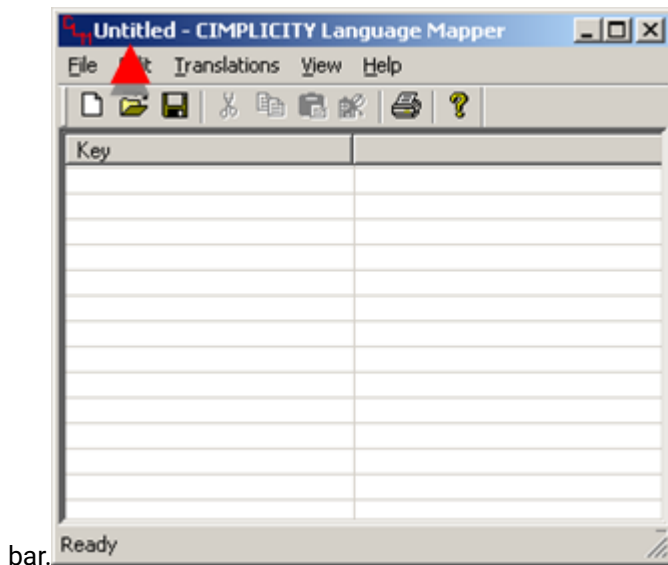
Result: A new untitled file opens ready for translation configuration.

> ⚠️ **Important:**
>
> If you are configuring a host redundant system, make sure the file is located in the same place on both computers or use a static path for the filename.
>
> If you do not do this and the directory structures are not the same on both computers, the translation file will not be found by CimView.

Open an existing translation file

1. Do one of the follwing.

   ○ Click the **Open** button on the CIMPLICITY Language Mapper window toolbar.
   ○ Click File>Open on the CIMPLICITY Language Mapper window menu bar.

   An Open dialog box opens.

2. Select the *.clm file that you want to open.

3. Click **Open**.
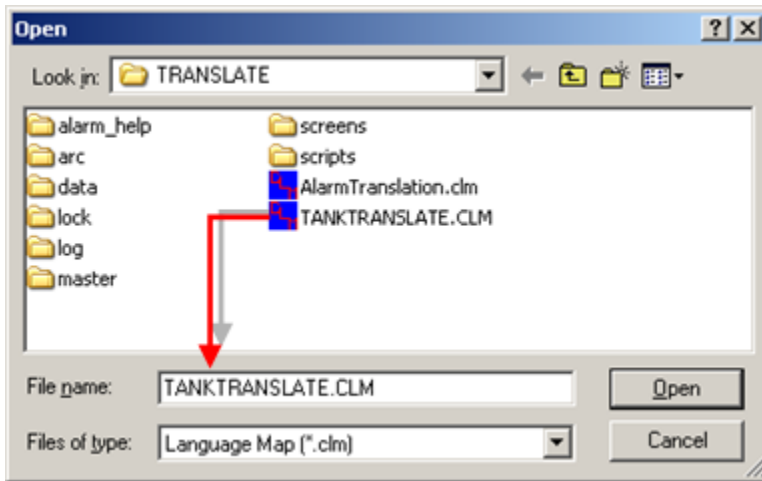
The selected file displays in the CIMPLICITY Language Mapper window.

Save the open file as another file

1. Open the file you want to save as another file.
2. Click File>Save as on the CIMPLICITY Language Mapper window menu bar.

   A Save as dialog box opens.
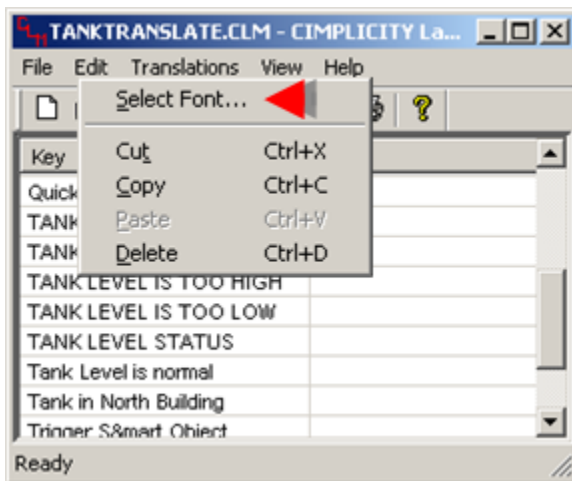3. Enter a file name in the folder where you want the file to be located.
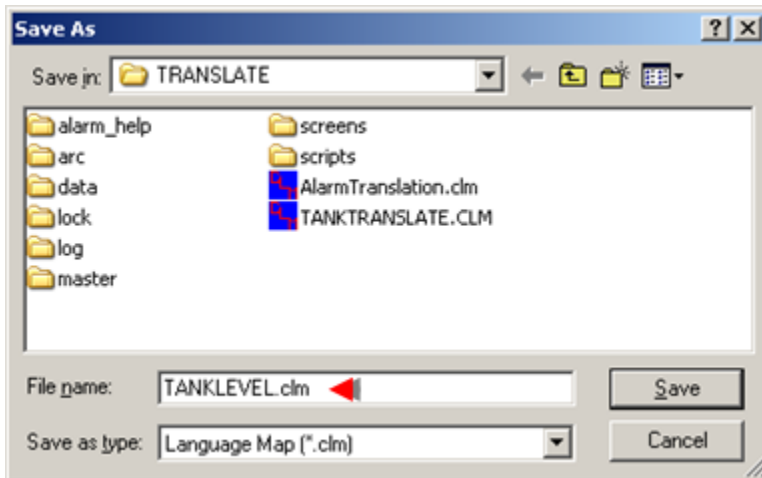
4. Click the **Save** button.

The CIMPLICITY Language Mapper window displays the new saved as

file.
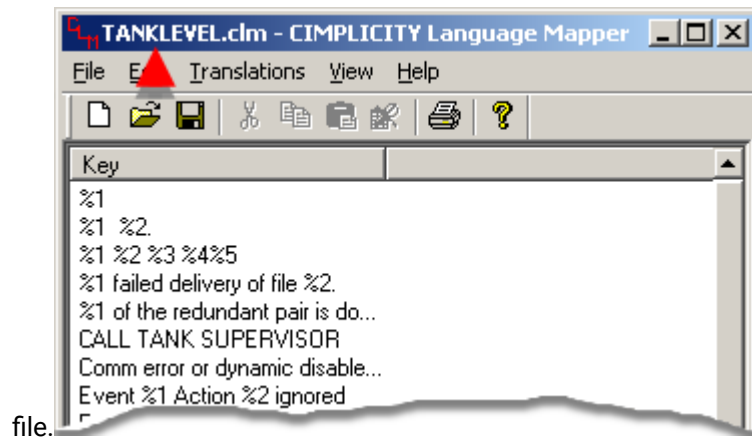
Step 3.3. Select a Font

1. Click Edit>Select Font on the CIMPLICITY Language Mapper window menu bar.

The Font dialog box opens.

2. Select a font that will accommodate all of the languages you plan to use.

> ⚠️ **Important:**
> If you select a font that cannot be used in a language you select, the words will not display
> correctly.

> ⚠ Any UNICODE font, e.g. Arial UNICODE MS, can be used for all languages.
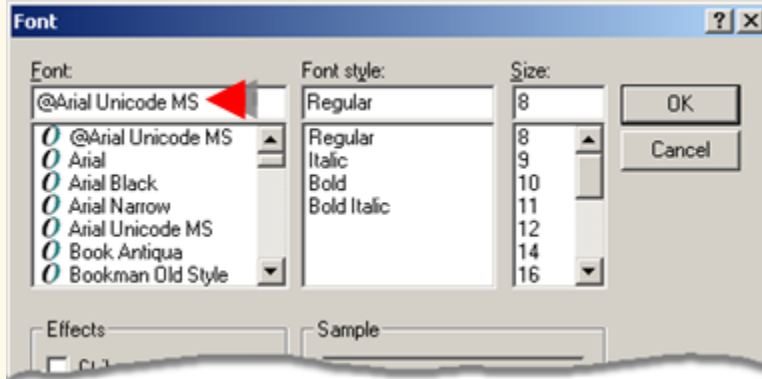
Arial UNICODE MS font selected

A	English keys.
B	Romance languages display correctly.
C	Multi-byte Asian languages display correctly.

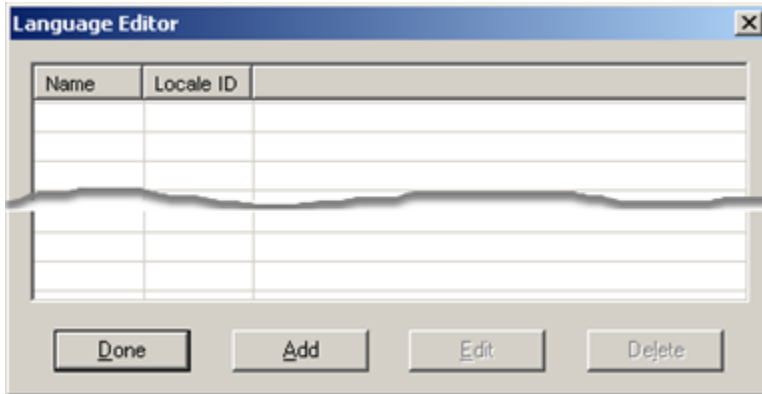**Times New Roman font selected**

A	English keys.
B	Romance languages display correctly.
C	Multi-byte Asian languages do not display.

Step 3.4. Select Languages or other English Strings

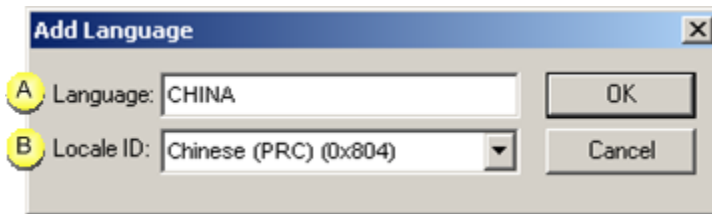1. Click Translations>Language Editor... on the CIMPLICITY Language Mapper window menu bar.
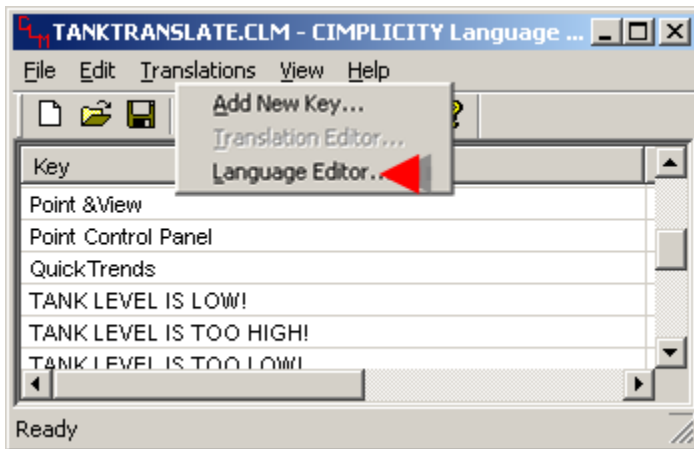
The Language Editor window opens.

2. Click **Add**.

   The Add Language dialog box opens.

3. Make entries as follows.

| A	Language	Enter a label that identifies the selected locale.
B	Local ID	Select the language/dialect that the label identifies in the drop-down list.

4. Click **OK**.

   Your selection displays in the Language Editor list.

5. Repeat the procedure until all of the required languages are listed.
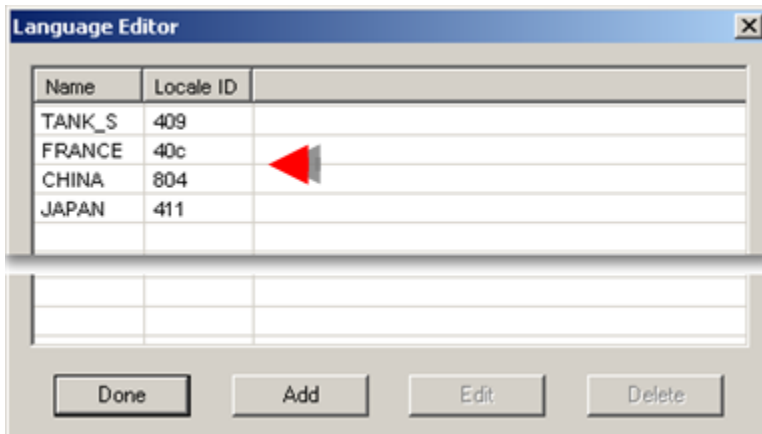
6. Click **Done**.

The Language Editor window closes. The selected locales head columns in the CIMPLICITY Language Mapper window and are available for translation.
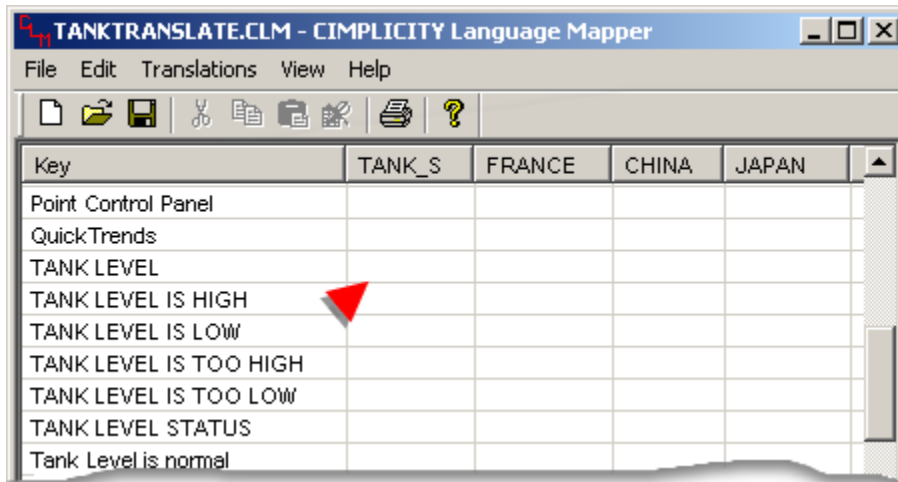
Step 3.5. Translate Keys that should Display in Selected Languages

1. Do one of the following:
    ◦ Double-click a key.
    ◦ Click **Translations > Translation Editor...** on the CIMPLICITY Language Mapper menu

   bar.
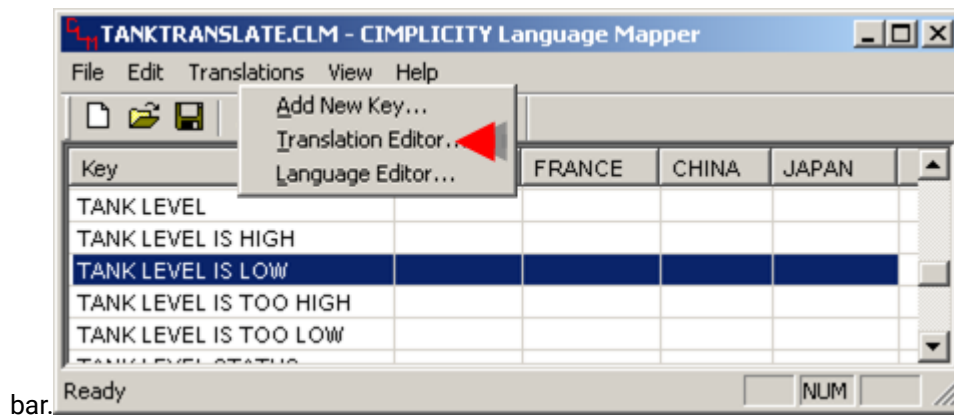
   The Translation Editor window opens for the selected key.

2. Double-click a language.

   A Translated Text Editor dialog box opens for the selected language.

3. Enter the string that you want to display when the text should display in the selected language.

> **Note:**
> - The text may display on a CimEdit/CimView screen or in the Alarm Viewer.
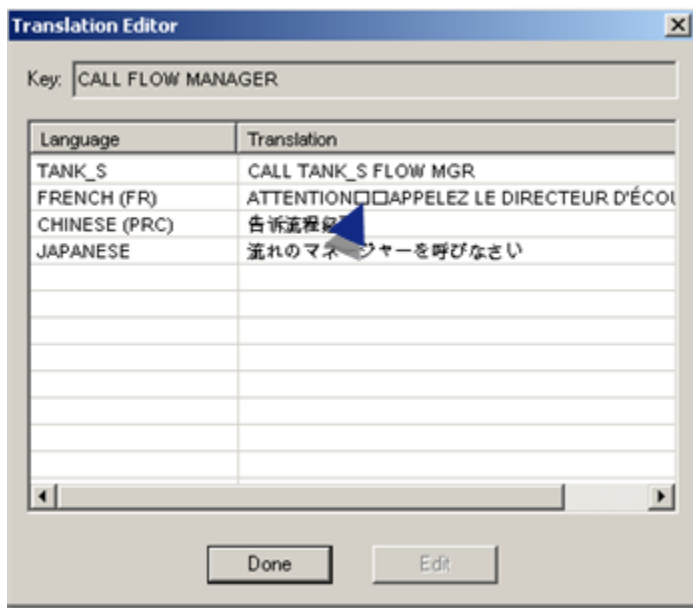> - The Text Editor accepts multi-line entries.
>
> **FRENCH (FR) - Translated Text Editor**
>
> ATTENTION
> APPELEZ LE DIRECTEUR D'ÉCOULEMENT
>
> [OK]   [Cancel]

4. Click **OK**.

5. Repeat the procedure for all the languages you want to include in the translation.

   The translated strings display in the Translation Editor window.

Translation Editor

Key: CALL FLOW MANAGER

Language	Translation
TANK_S	CALL TANK_S FLOW MGR
FRENCH (FR)	ATTENTION□□APPELEZ LE DIRECTEUR D'ÉCOU
CHINESE (PRC)	告诉流程经
JAPANESE	流れのマネージャーを呼びなさい

[Done]   [Edit]

6. Close the Translation Editor window.

7. Continue translating all of the strings that should by displayed in multiple languages.

The strings display in the language columns in the CIMPLICITY Language Mapper window. At runtime, when the translation file is used, the string entered for the selected runtime language displays.
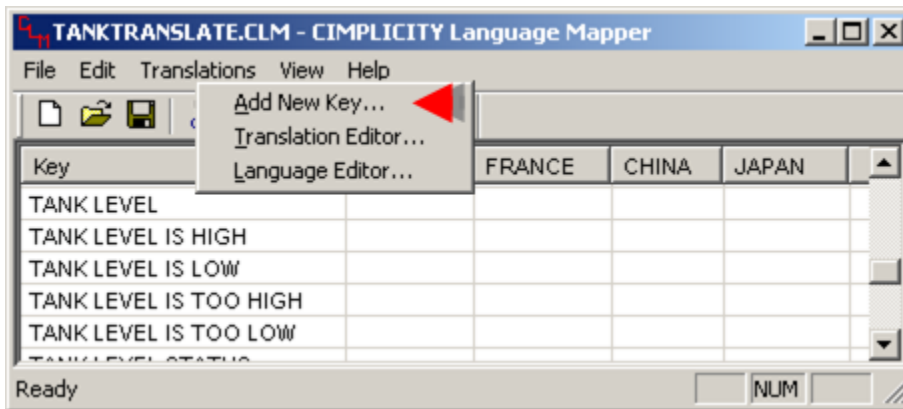
Step 4. Work with Keys in a Translation File

Step 4. Work with Keys in a Translation File

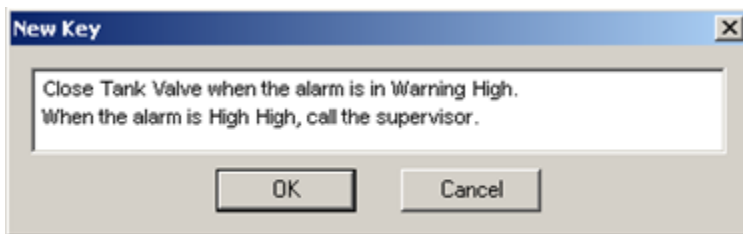|	
Option 4.1 *(on page 111)*	Add a new key manually.
Option 4.2 *(on page 112)*	Copy and paste keys.
Option 4.3 *(on page 114)*	Delete keys.

Option 4.1. Add a New Key Manually to a Translation File

1. Click **Translations > Add New Key...** on the CIMPLICITY Language Mapper window menu bar.

The New Key dialog box opens.

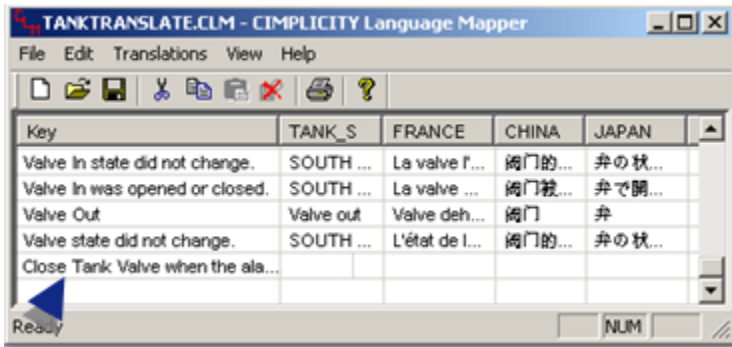2. Enter a key that you will want to translate.

> **Note:**
> - This key can be used for alarms and on CimEdit/CimView screens.
> - The key can be multi-line.

3. Click **OK**.

The key is added to the file that is open in the CIMPLICITY Language Mapper window.

Option 4.2. Copy and Paste Keys in a Translation File

Option 4.2.1 *(on page 112)*	Copy and paste a key from another translation file.
Option 4.2.2 *(on page 114)*	Copy and paste a key in the same translation file

> ⚠ **Important:**
> You can paste copied keys to a mapper file opened in a CIMPLICTY Language Mapper window. However, pasting keys into a different program, e.g. Notepad, is not supported.

Option 4.2.1. Copy and Paste a Key from another Translation File

1. Open the key's source file.
2. Select one or more keys.

> **Note:**
>
> Hold down **Shift** for adjacent keys and **Ctrl** for scattered
>
>
>
> keys.

3. Do one of the following.

   ◦ Click the **Copy** button on the CIMPLICITY Language Mapper window toolbar.

   ◦ Click Edit>Copy on the CIMPLICITY Language Mapper window menu bar.

   ◦ Press **Ctrl+C** on the keyboard.

4. Open the key's target file.

5. Do one of the following:

   ◦ Click the **Paste** button on the CIMPLICITY Language Mapper window toolbar.

   ◦ Click Edit>Paste on the CIMPLICITY Language Mapper window menu bar.

   ◦ Press **Ctrl+V** on the keyboard.

The key with any associated translations is pasted into the target file.

Option 4.2.2. Copy and Paste a Key in the Same Translation File

1. Select a key that you want to copy and paste.

2. Do one of the following:

    ◦ Click the **Copy** button on the CIMPLICITY Language Mapper window toolbar.
    ◦ Click Edit>Copy on the CIMPLICITY Language Mapper window menu bar.
    ◦ Press **Ctrl+C** on the keyboard.

3. Do one of the following:
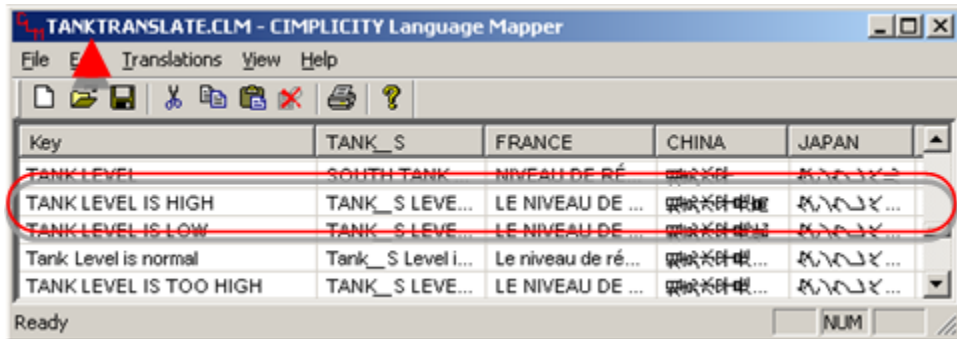
    ◦ Click the **Paste** button on the CIMPLICITY Language Mapper window toolbar.
    ◦ Click Edit>Paste on the CIMPLICITY Language Mapper window menu bar.
    ◦ Press **Ctrl+V** on the keyboard.

The key with associated translations is pasted into the list with an _n tag to differentiate it from the copied key. You can copy and paste as many times as you want. The **_n** value corresponds to the key's position in the copy/paste sequence.
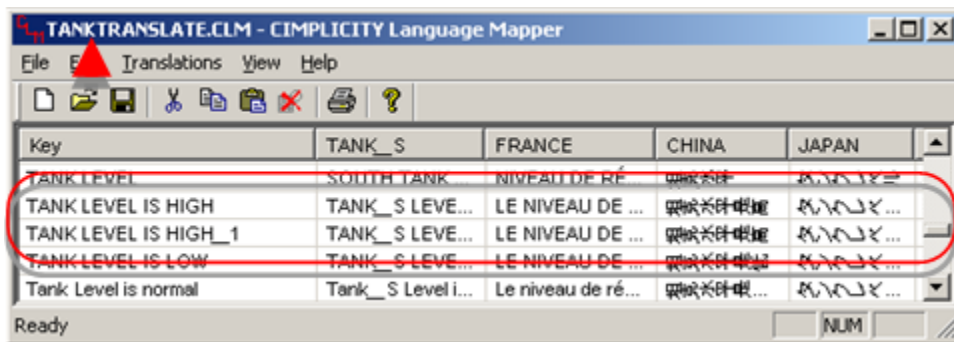
Option 4.3. Delete a Key in a Translation File

1. Open the key's source file.
2. Select one or more keys to delete (use the **Ctrl** or **Shift** keys to select more than one line).

3. Do one of the following:

Cut the selected lines

   a. Either:

       ▪ Click the **Cut** button on the CIMPLICITY Language Mapper window toolbar.

       ▪ Click Edit>Cut on the CIMPLICITY Language Mapper window menu bar.

   A message displays asking you to confirm if you want to delete the file.
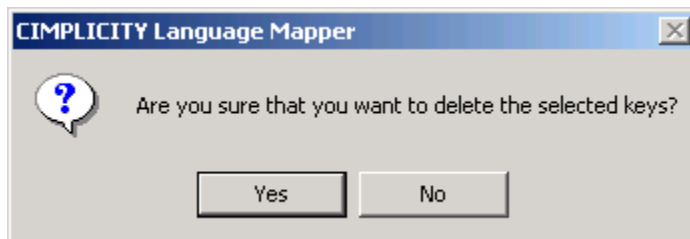
   b. Click **Yes**.
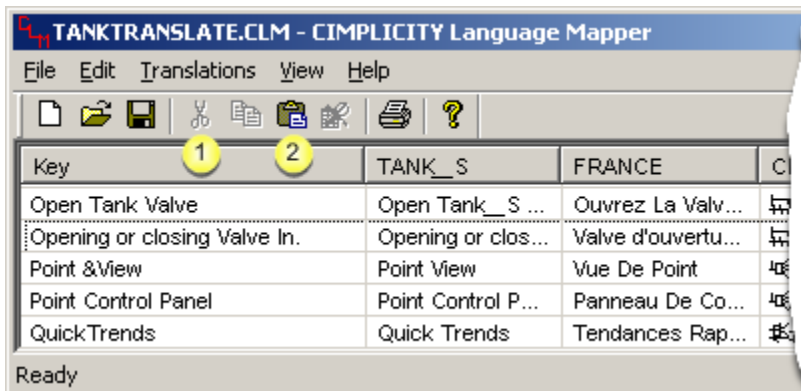
1	The selections are cut from the file.
2	If you change your mind you can paste them back.

Method 2: Delete the selected lines
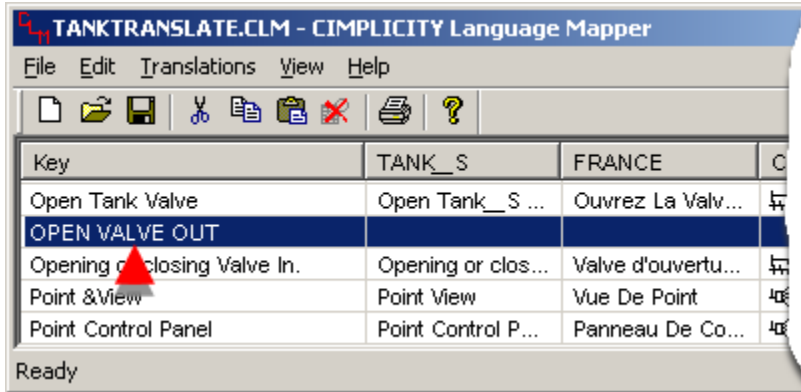
a. Either:

▪ Click the **Delete** button on the CIMPLICITY Language Mapper window toolbar.

▪ Click Edit>Delete on the CIMPLICITY Language Mapper window menu bar.

A message displays asking you to confirm if you want to delete the file.
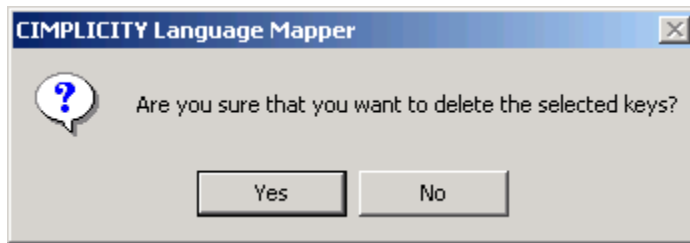
b. Click **Yes**.
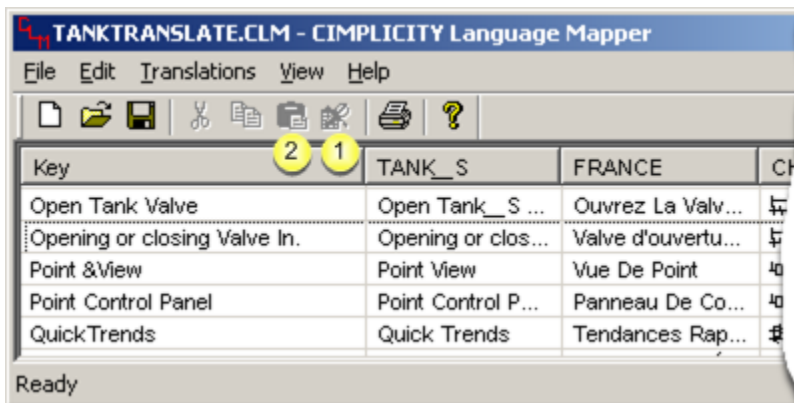
1	The selections are deleted from the file.
2	You cannot paste them back.

4. Save the translation file.

The selected keys are deleted.

Step 5. Print a Translation File Configuration

Step 5. Print a Translation File Configuration

Step 5.1 *(on page 117)*	Preview the printed file.
Step 5.2 *(on page 118)*	Print the translation file configuration.

Step 5.1. Preview the Printed File

1. Click File>Print Preview on the CIMPLICITY Language Mapper window menu bar.

   A preview of the printed document opens in a Print Preview window.

   > **Note:**
   >
   > The preview will display either one or two pages, depending on the display the last time the Print Preview window was closed.

2. The Print Preview window is as follows.
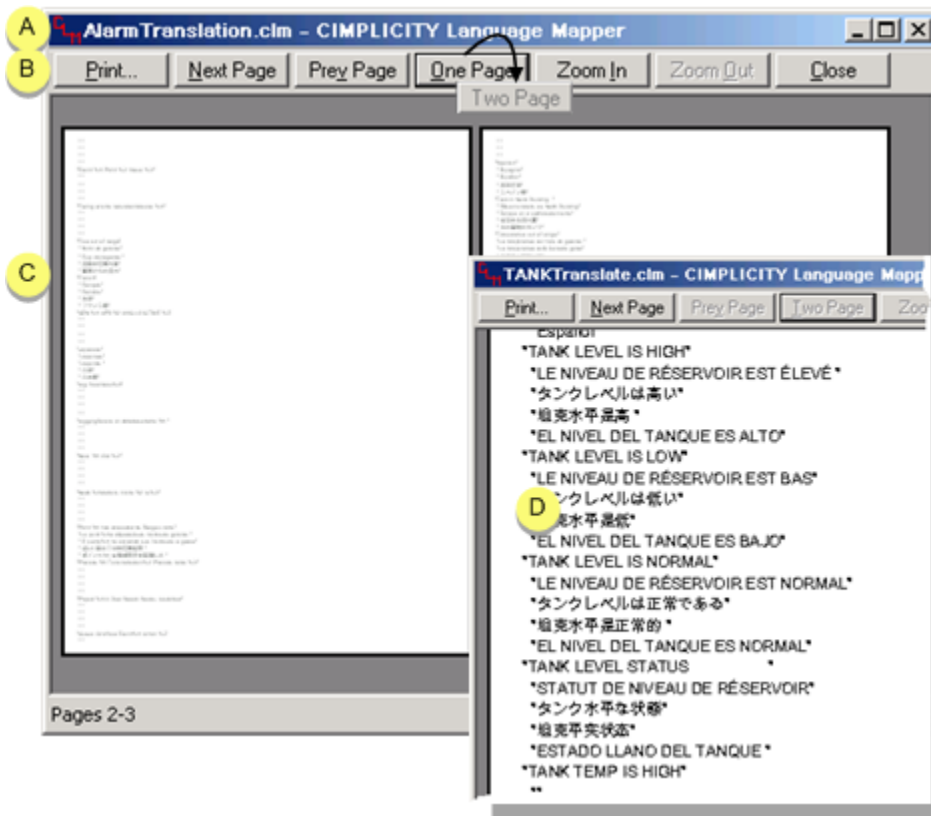
A	Title bar	Displays the translation file that is being previewed.
B	Toolbar Print	Print the document.
	Next Page	Enabled when there is a next page to display.
	Previous Page	Enabled when there is a previous page to display.
	One Page/Two Page	One Page displays during a two-page display; two page displays during a one-page display.
	Zoom In	Magnifies the preview to make the text legible; has a two-click magnification.
	Zoom Out	Returns the preview to display the entire page in the window.
	Close	Closes the Print Preview window.
C	Two-page display in Print Preview window.	
D	Print preview zoomed in; The key displays with the translated strings listed underneath.	

3. Close the window when you have finished using it.

> **Note:**
>
> If you need to change the printer setup, e.g. your setup is set to landscape orientation and you want portrait, close the Print Preview window and click File>Print Setup on the CIMPLICITY Language Mapper window menu bar.
>
> The Print Setup dialog box will open for setup changes.

Step 5.2. Print the Translation File Configuration

1. Click File>Print on the CIMPLICITY Language Mapper window menu bar.

   The Print dialog box opens.
2. **Optional:** Make any changes to the print setup.
3. Print the document.
4. Close the Print dialog box.

Step 6. Configure Translation Options for Runtime

Step 6. Configure Translation Options for Runtime

Step 6.1 *(on page 119)*	Configure translation options for CimView users.
Step 6.2 *(on page 124)*	Configure for Alarm Viewer control use.

Step 6.1. Configure Translation Options for CimView Users

Step 6.1. Configure Translation Options for CimView Users

The CIMPLICITY Language Mapper provides you with an Object Model. You can use the objects, properties and methods to create scripts that determine translation options.

A simple way to enable CimView users to change languages or English text strings during runtime is to create a button for each language you want to substitute.

Step 6.1.1 *(on page 119)*	Configure buttons to change languages or English strings.
Step 6.1.2 *(on page 122)*	Test your translations in CimView.

Step 6.1.1. Configure Buttons to Change Languages or English Strings

1. Open a CimEdit screen that has been configured for translation.
2. Place a button on the screen.
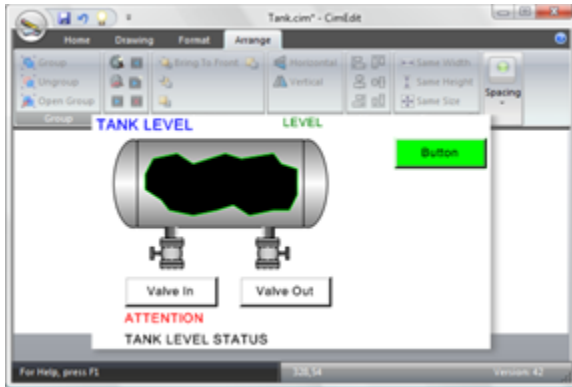
3. Open the button's Properties - Object dialog box.

4. Label the button *(on page 82)* to notify a user what language or English string the CimView text will change to.

> **Note:**
>
> Check **Translate** if you want the button label to be emitted to the translation file.
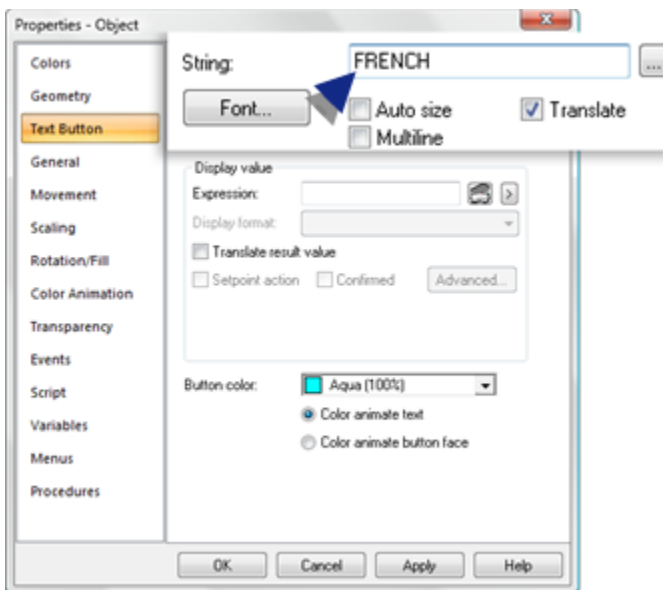
5. Create a MouseUp event:

    a. Select the Events tab.

    b. Select a MouseUp event.

    c. Click the Popup button to the right of the Action field to open an Edit Script window.

    d. Create a new script as the action for the mouse up event as follows.

```
Sub OnMouseUp(x As Long, y As Long, flags As Long)

    CimGetScreen.Application.Language = "String Description"

End Sub
```

Where

The "`String Description`" is the selected language, entered exactly as it is identified in the CIMPLICITY Language Mapper window.

If the entry is not exactly the same, the default language will display instead of the selected language.
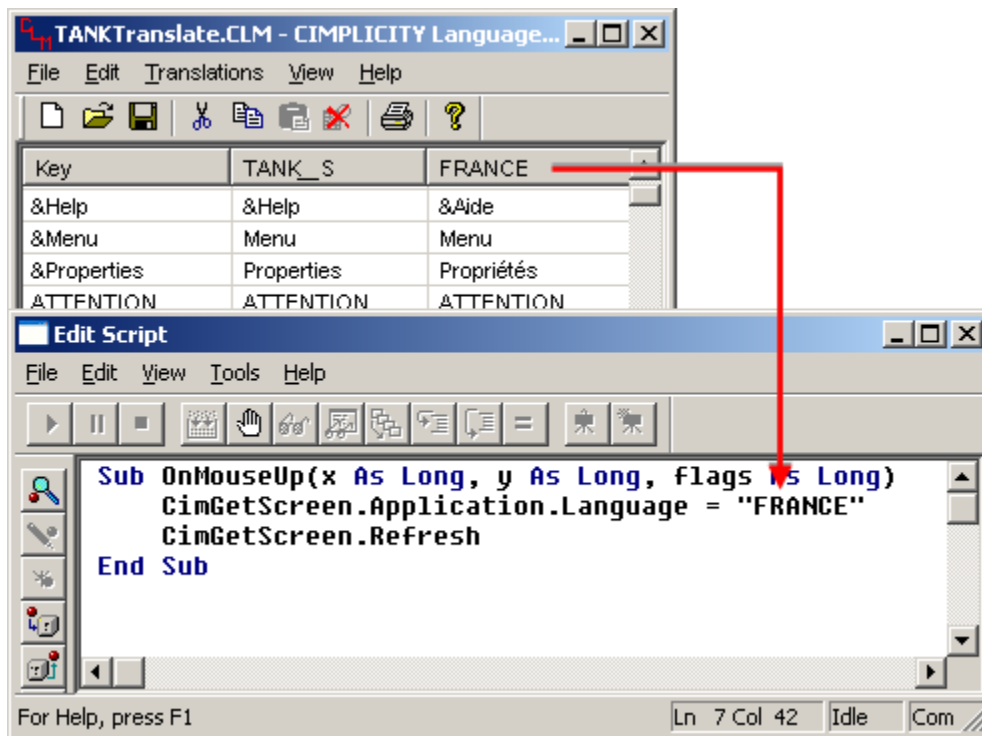
e. Compile the script and close the Edit Script window.

6. Close the text button's Properties dialog box.

7. Continue to create buttons until you have created as many as the screen should have.

> **ⓘ Tip:**
>
> If you are configuring a screen with buttons to change languages, add a button that enables the operator to re-select the default language after another language is selected.

Example

If English is the default language, add an English button. You do not need to create a column in the translation file. If there is no entry, the default language displays.

8. **Optional:** Emit the text labels *(on page 92)* on the text buttons and translate them in the translation file selected for the screen.

Step 6.1.2. Test your Screen Translations in CimView

Click the **Runtime** button on the CimEdit toolbar.
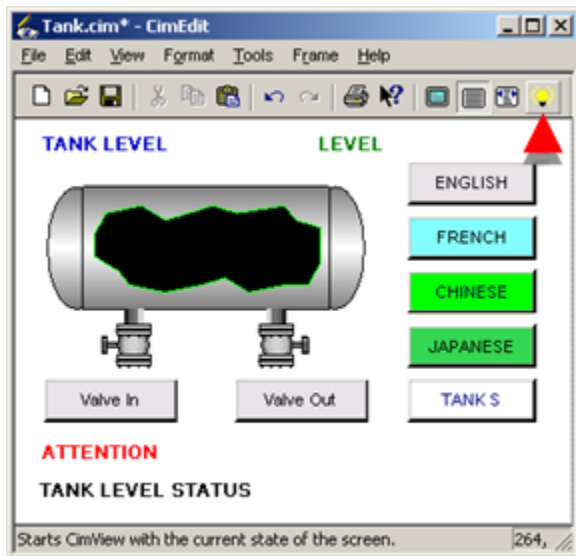
Results

• The CimView screen displays in the default language.
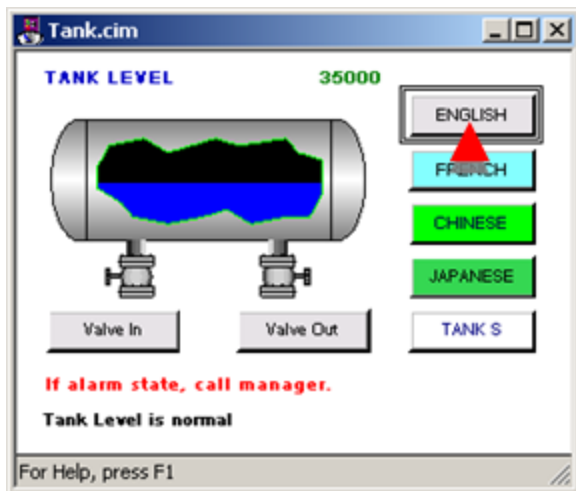
• Entries in the CIMPLICITY Language Mapper display for a language display when its button is clicked.

• Alternative text in the CIMPLICITY Language Mapper for the default or any language, displays when its button is clicked.
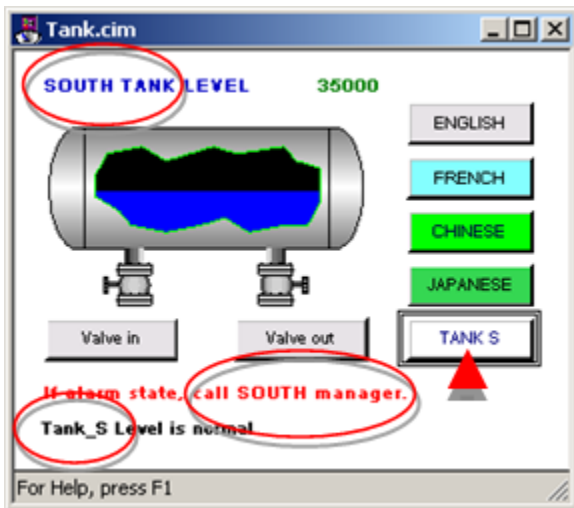
• Popup menu items display in the selected language when the Popup is opened, if they have been translated in the CIMPLICITY Language Mapper.
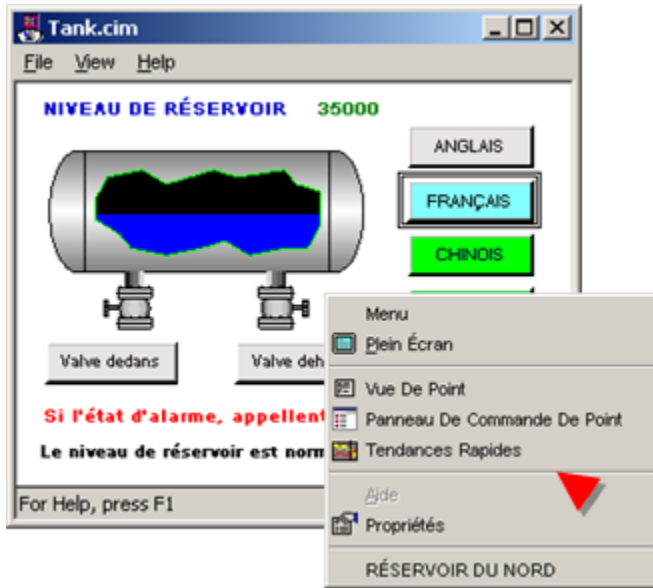
Step 6.2. Configure an Alarm Viewer Control for Translation

The CIMPLICITY Language Mapper provides you with an Object Model. You can use the objects, properties and methods to create scripts that determine translation options.

For example, a simple way to enable Alarm Viewer Control users to change languages or English text strings during runtime is to create a button for each language you want to substitute.

Step 6.2.1 *(on page 124)*	Configure an Alarm Viewer control for translation.
Step 6.2.2 *(on page 126)*	Test your Alarm Viewer Control translations in CimView.

Step 6.2.1. Configure an Alarm Viewer Control

1. Configure an Alarm Viewer Control on a CimEdit screen.
   Configuration guidelines include:

◦ Verifying that you make fields, such as Message fields wide enough to accommodate the languages to display in the Alarm Viewer control.

◦ Selecting a font that will accommodate the selected languages.

A UNICODE font can be used for any language.

2. Do one of the following to place buttons on the screen that will enable users to select another language or text string:

If you configured buttons you need for another CimEdit screen

Copy the buttons to this screen or place them as linked objects.

If you need to create new buttons

Follow the procedure described in the previous step *(on page 119)* .
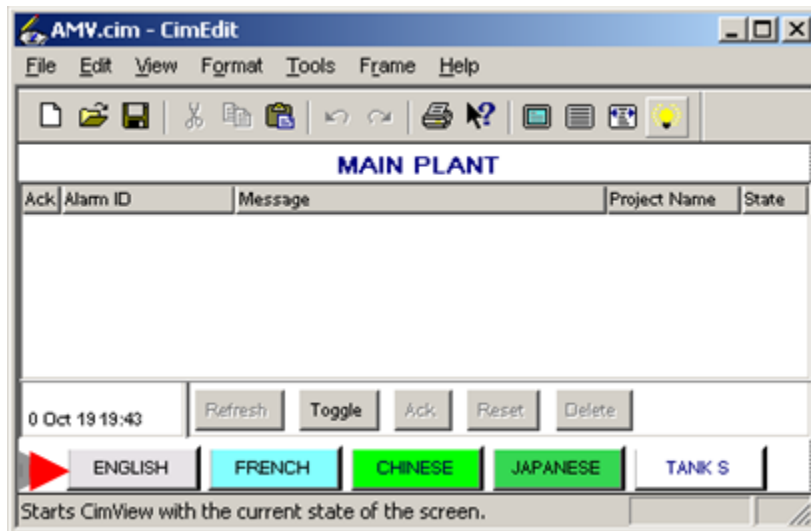
3. Do one of the following to make sure the button labels and other text strings that should be translated are translated:

If you are sharing a translation file that already has the translations

You do not have to do anything.

If you are using a translation file that does not have the keys and translations

a. Emit *(on page 92)* the text to the file.
b. Enter the translations *(on page 109)*.

You are now ready to test your screen during runtime.

Step 6.2.2. Test you Alarm Viewer Control Translations in CimView

1. Click the **Runtime** button ![icon] on the CimEdit toolbar.

   The Alarm Viewer control opens in the default language.
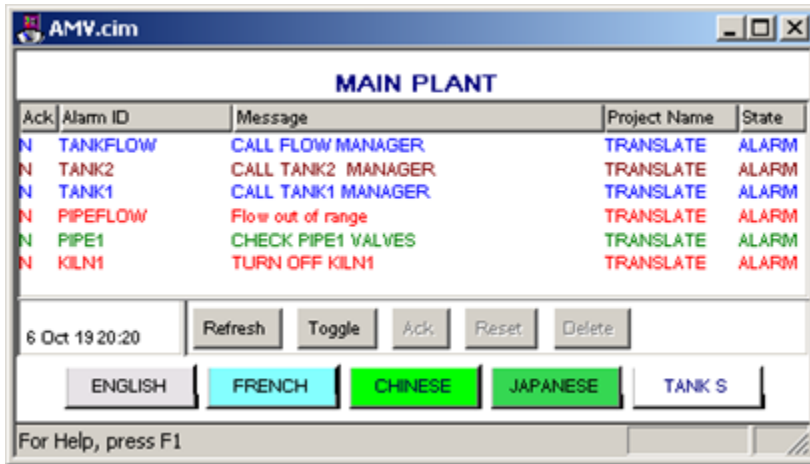
2. Click language buttons to view the text changes, based on text that is translated in CimEdit's selected translation file.

   Click a foreign language button.

   The text that is translated in the CIMPLICITY Language Mapper replaces the text that currently displays on the screen.

   Examples

   Japanese translation

French translation

Chapter 7. Historical Alarm Viewer Control

About the Historical Alarm Viewer Control

The Historical Alarm Viewer enables a user to view either Database Logger or Historian historical data.

During a session, a user can:

- Review logged alarm data through CimView in an easy-to-read table format and
- Print one or more pages of the display at any time during a session.

The user will view logged data that passes specifications including filters, time frames and several condition types.

You, an applications engineer, can simply place the control on a CimEdit screen and follow the next steps to customize it.

> ⚠️ **Important:**
> Viewers displaying a Historical Alarm Viewer that is pulling logged point and/or alarm data from the SQL Server must have the same SQL driver version installed that is being used on the CIMPLICITY Server. If the SQL driver is a different version the data will not display.

Historical Alarm Viewer Control Configuration

Historical Alarm Viewer Control Configuration

Step Number	Description
Step 1 *(on page 129)*	Place an Historical Alarm Viewer (HAV) control on a CimEdit screen.
Step 2 *(on page 132)*	Open the CIMPLICITY Historical Alarm Viewer Properties dialog box.
Step 3 *(on page 133)*	Enter general specifications for the HAV control.
Step 4 *(on page 136)*	Configure connection options for the CIMPLICITY Historical Alarm Viewer.

Step Number	Description
Step 5 *(on page 141)*	Configure the SQL display.
Step 6 *(on page 152)*	Select column justification.
Step 7 *(on page 154)*	Configure row styles.
Step 8 *(on page 161)*	Specify runtime configuration capability.

CIMPLICITY Configuration Object Model and DCOM

When off-node projects are selected on the Connection tab, requests are made to determine which tables the remote project has available by using the CIMPLICITY configuration Object Model (CimServer).

`CimServer` uses DCOM based communications architecture. Therefore, it may be necessary to ensure that DCOM is properly configured on the project's node to allow access to the Object Model.

DCOM configuration and Windows security are complex technical topics and beyond the scope of this document. For an introduction to DCOM security configuration, see Configuring the GagePort Mitutoyo OPC server DCOM (About DCOM Security) in the CIMPLICITY documentation. For more advanced DCOM configuration issues, please refer to Microsoft documentation.

Step 1. Place an Historical Alarm Viewer Control on a CimEdit Screen

Step 1. Place an Historical Alarm Viewer Control on a CimEdit Screen

Tasks to place an Historical Alarm Viewer Control on a CimEdit screen include:

Step 1.1 *(on page 130)*	Insert an Historical Alarm Viewer Control on a CimEdit Screen
Step 1.2 *(on page 131)*	Resize a New Alarm Viewer OCX Control.

> **⚠ Important:**
>
> Put CimEdit in 100% zoom mode before you begin configuring or editing the Historical Alarm Viewer control.

Step 1.1. Insert an HAV Control on a CimEdit Screen

Use the following buttons to insert an Historical Alarm Viewer control on a CimEdit screen:

- Historical Alarm Viewer button
- OLE button

OLE Button

Historical Alarm Viewer Button

Click **Historical Alarm Viewer** in the Drawing>Objects group on the CimEdit Ribbon bar.
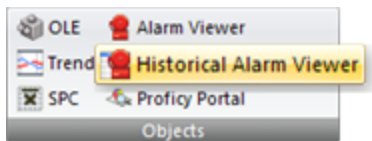
A Historical Alarm Viewer control is placed on the CimEdit screen. The top left corner is located at the top left corner of the screen.

OLE Button

1. Click **OLE** in the Drawing>Objects group on the CimEdit Ribbon bar.
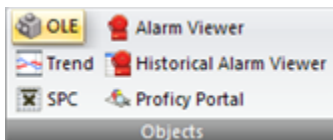
2. An ActiveX Placement cursor displays on the CimEdit screen.

3. Place the ActiveX Placement cursor where you want the top left corner of the control to be located.
4. An Insert Object dialog box opens.
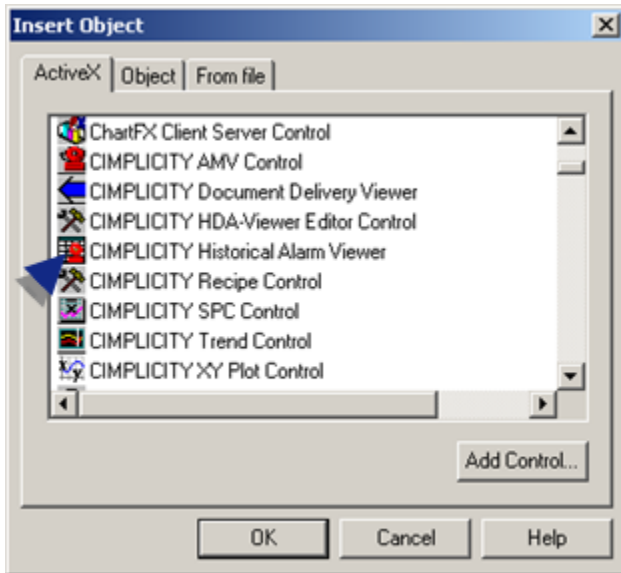
5. Double-click the CIMPLICITY Trend Control.

A new Historical Alarm Viewer control is placed on your CimEdit

screen.
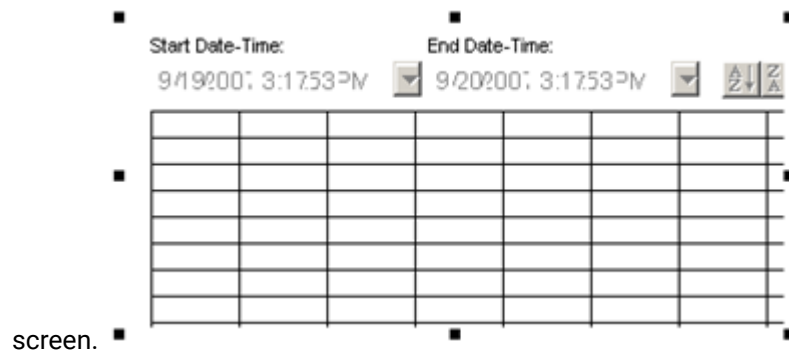
Step 1.2. Resize the Historical Alarm Viewer Control

You can perform a quick resize or a precise resize to resize the Historical Alarm Viewer Control.

Quick Resize Procedures

Grab one of the object's handles and move it to enlarge or reduce the **HAV** Control.

Precise Resize Procedure

1. Select the Historic Alarm Viewer control.
2. Do one of the following.
   - Right-click the Historical Alarm Viewer Control; select Properties on the Popup menu.
   - Click the Properties in the Home>Properties group on the CimEdit menu bar.

The Properties - Object dialog box opens.

3. Select **Geometry.**

4. Enter the following:
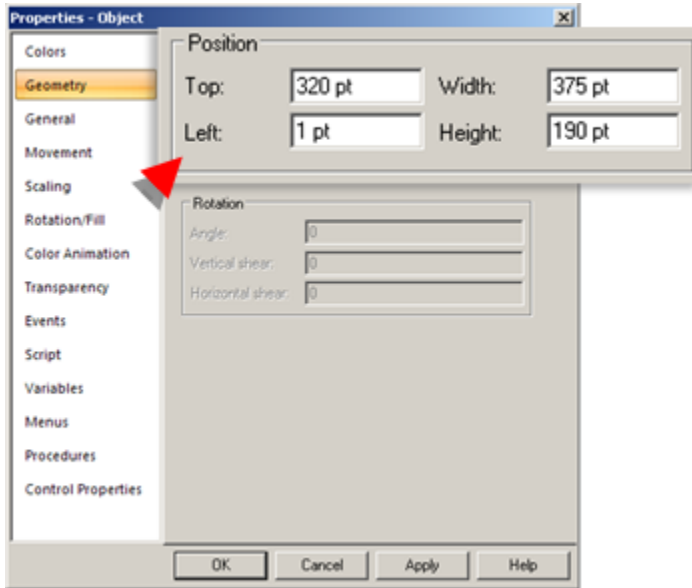
Field	Enter
Top	Number of points starting from the bottom of the screen where the **HAV** Control top is located.
Width	Width of the object in points.
Left	Number of points starting from the left of the screen where the left side of the **HAV** Control is located.
Height	Height of the object in points.

The Historical Alarm Viewer Control enlarges/ reduces and moves to the size you specify.

> **Note:**
>
> Hold the right-button down and drag the object to where you want it positioned on the CimEdit/ CimView screen.

Step 2. Open the CIMPLICITY Historical Alarm Viewer Properties Dialog Box

1. Select the Historical Alarm Viewer control.
2. Do one of the following:

◦ Click the right-mouse button, and then select **CIMPLICITY Historical Alarm Viewer Object > Properties** on the Popup menu.

◦ Click **Edit > CIMPLICITY Historical Alarm Viewer Object > Properties** on the CimEdit menu bar.

◦ Press **Alt+E+O+R** on the keyboard.

The CIMPLICITY Historical Alarm Viewer Properties dialog box opens when you use any
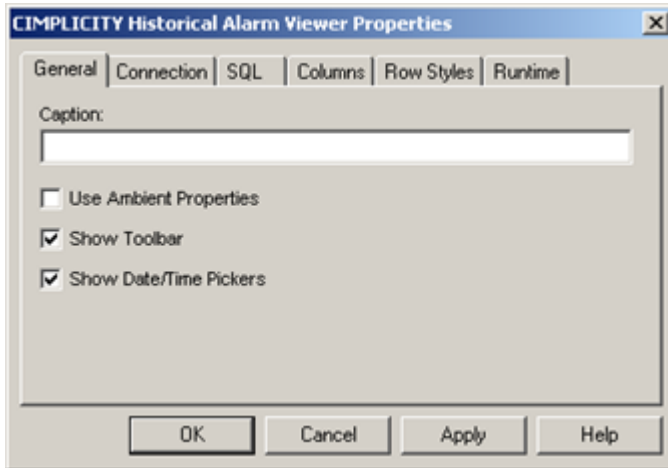
method.

Step 3. Enter General Specifications for the HAV

Enter and select the following on the General tab in the CIMPLICITY Historical Alarm Viewer Properties dialog box.
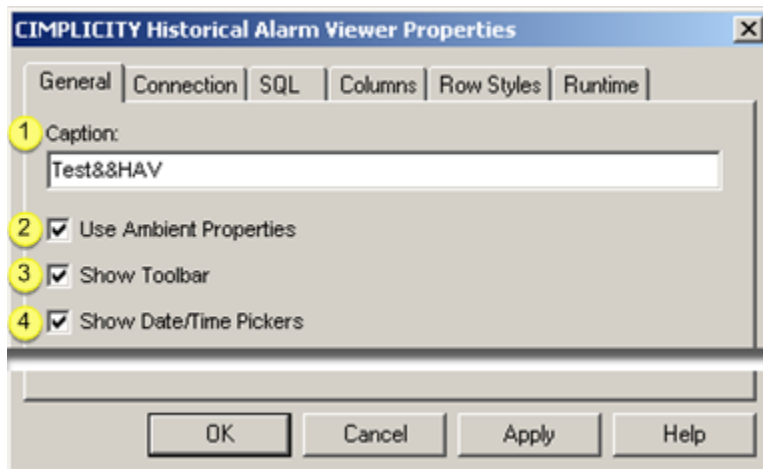
1. #unique_112_Connect_42_i1Caption *(on page 134)*
2. #unique_112_Connect_42_i2Ambient *(on page 134)*

1 *(on page 134)*	Caption.
2 *(on page 134)*	Use ambient properties.
3 *(on page 134)*	Show toolbar.
4 *(on page 135)*	Show Date/Time Pickers.
5 *(on page 136)*	Font guideline.

1	Caption

The caption is a title that will identify the control during runtime.

> **Note:**
>
> If the caption includes an ampersand, Windows will not display the ampersand. Use a double ampersand to get a single ampersand to display. **&&** will display as **&** in the runtime title.

2	Use Ambient Properties

Check **Use Ambient Properties** to use the CimEdit ambient properties for the Historical Alarm Viewer.

3	Show Toolbar

Check **Show Toolbar** to display the following toolbar during runtime.
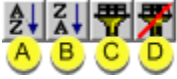
A	Sort a selected column in ascending order.
B	Sort a selected column in descending order.
C	Add a filter to the view based on a selected cell.
D	Remove the additional filters.

> **Note:**
>
> Filters applied during runtime are in addition to any filters configured on the SQL tab in the CIMPLICITY Historical Alarm Viewer Properties dialog box. The **UF** button removes the runtime filters only.

4	Show Date/Time Pickers

Check **Show Date/Time Pickers** to display a Start Date-Time and End Date-Time.

 A user can select the starting and ending time of the logged data that the CIMPLICITY Historical Alarm Viewer will display.

If the user clicks the down arrow to the right of each field a calendar will open to aid in making the
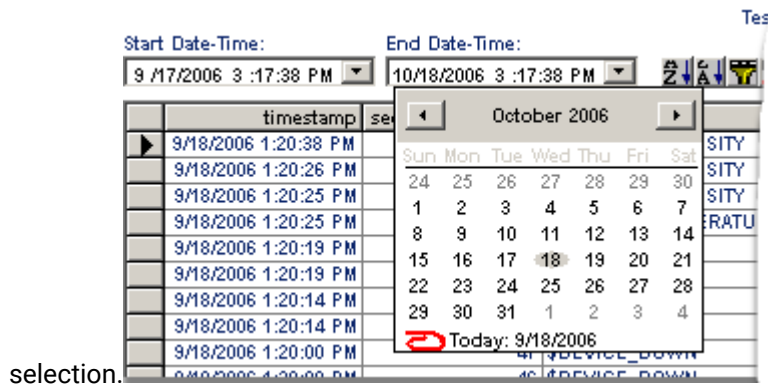
selection.

> **Note:**
>
> You can specify the amount of time the Historical Alarm Viewer will display at one time. This specification is on the SQL tab in the CIMPLICITY Historical Alarm Viewer Properties dialog box.

The runtime Historical Alarm Viewer control will display the options that you selected and configured.

5	Font Guideline

If an alarm message that needs to use non-Western characters (e.g. Cyrillic, Chinese) displays **????** instead of the message, the following procedure may correct the issue.

1. Right-click the Historical Alarm Viewer control.
2. Select Properties on the Popup menu.

   The Properties - Object dialog box opens.

3. Select Control Properties.
4. Click the **Open** button to the right of the **Font** field.

   The Font dialog box opens.

5. Select a font that includes the characters for the required language.
6. Select the language in the script drop-down list.
7. Close the Font dialog box.
8. Close the Properties - Object dialog box.

> ✏️ **Note:**
>
> If this procedure does not resolve the issue, other factors might be affecting font display on your system. Consult Microsoft documentation also.

This procedure applies to values/text from SQL Server. Cyrillic and other non-western characters are not available for data from Historian.

Step 4. Configure Connection Options for the CIMPLICITY Historical Alarm Viewer

The Connection tab in the Historical Alarm Viewer Properties dialog box provides several connection selections. The selections you make on this tab determine what fields you can select to display during runtime.

Enter and select the following on the Connection tab in the CIMPLICITY Historical Alarm Viewer Properties dialog box.
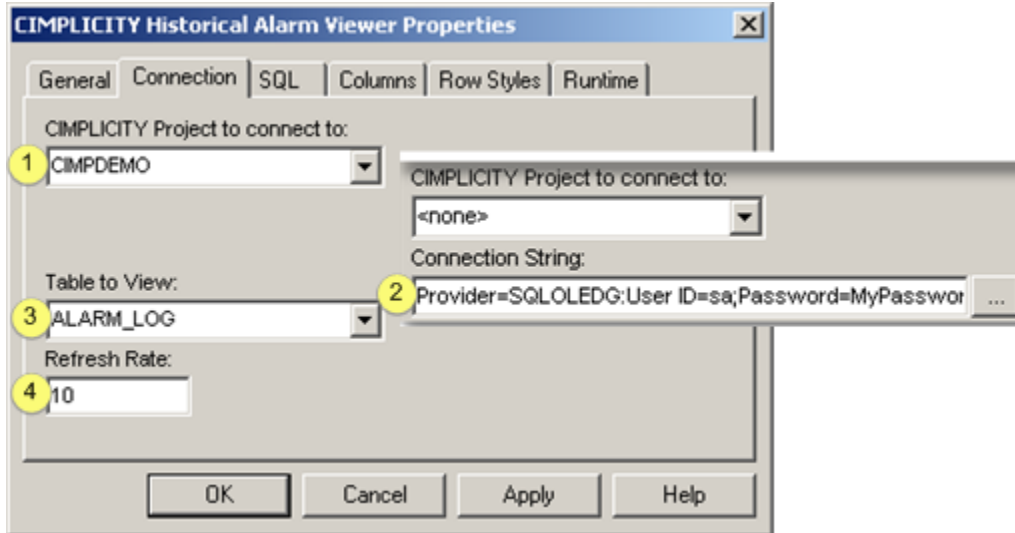
1 *(on page 137)*	CIMPLICITY Project to connect to.
2 *(on page 138)*	Connection String.
3 *(on page 138)*	Table to View.
4 *(on page 140)*	Refresh Rate

1	CIMPLICITY Project to connect to

Options include:

<none>	A **Connection String** *(on page 138)* field displays in the dialog box for you to specify the connection.
<default historian>	Display data logged to Historian.
<local>	Selects the local project in which the HAV is configured. The HAV displays all of the data from that project's Historian server, not just the data logged from the selected project.
Project name	Enables you to select any project running in the network, including any projects running on the local computer. The HAV displays all of the data from the selected project's Historian server, not just the data logged from the selected project."

2	Connection String

A Connection String field displays when <none> is selected in the **CIMPLICITY Project to connect to** field.

Click the button [...] to the right of the Connection String field to open a Data Link Properties dialog box and configure the connection.

> ⚠ **Important:**
>
> When you select this option the password will display in the field; any user who has access to the Historical Alarm Viewer control configuration will know what the password is.

Choosing other options sets the data link properties, but hides the information.

3	Table to View

Options depend on

- Which of the following or if both are enabled.
  - Database Logger
  - Historian
- The value you selected in the **CIMPLICITY Project to connect to** field.

Options include the following.

Enabled	Options	Selections
Database Logger only	<none>	Based on connection string.
	<default historian>	**Note:** Table to View options are available for a default Historian *(on page 139)* connection even if Historian is not enabled. However, The Historical Alarm Viewer will not display data until the Historian is enabled.
	<local>	ALARM_LOG DATA_LOG EM_LOG EVENT_LOG
	<Project name>	ALARM_LOG DATA_LOG EM_LOG EVENT_LOG
Historian only	<none>	Based on connection string.
	<default historian>	IhAlarms ihArchives ihCalculationDependencies ihCollectors ihComments ihMessages ihQuerySettings ihRawData

Enabled	Options	Selections
		ihTags ihTrend
	\<local\>	Historian Alarms Historian Data **Note:** ALARM_LOG is also listed. If you select it a message will report that is cannot be found. You can select it; however, the Historical Alarm Viewer will not display data until the Database Logger is enable.
	\<Project name\>	Historian Alarms Historian Data **Note:** ALARM_LOG is also listed. If you select it a message will report that is cannot be found. You can select it; however, the Historical Alarm Viewer will not display data until the Database Logger is enable.
Database Logger and Historian	All of the above options are available when both the Database Logger and Historian are enabled in the Project Properties dialog box.	

4	Refresh Rate

How frequently the screen should refresh.

The rate is in seconds.

Example

Enter	The screen:
0	Never refreshes.
5	Refreshes every 5 seconds

Enter	The screen:
10	Refreshes every 10 seconds.

Step 5. Configure the SQL Display

Step 5. Configure the SQL Display

Once you have selected the connection the Historical Alarm Viewer will make, you can more specifically select what data will be displayed.

1. Select the SQL tab.
2. Enter specifications that determine what data will be displayed and highlighted.

   Steps to configure the SQL display include:

Step 5.1 (on page 142)	Make general specifications.
Step 5.2 (on page 143)	Select the fields that will display in the **HAV**.
Step 5.3 (on page 145)	Select data filters.
Step 5.4 (on page 151)	Specify the sort order.

The Status box at the bottom of the tab displays your selections. During runtime these selections will be implemented.

```
SELECT * FROM ALARM_LOG WHERE "timestamp">={ ts '2002-01-16
12:55:04'}
```

Step 5.1. Make General Specifications

General specifications on the Historical Alarm Viewer Properties dialog box SQL tab apply to all
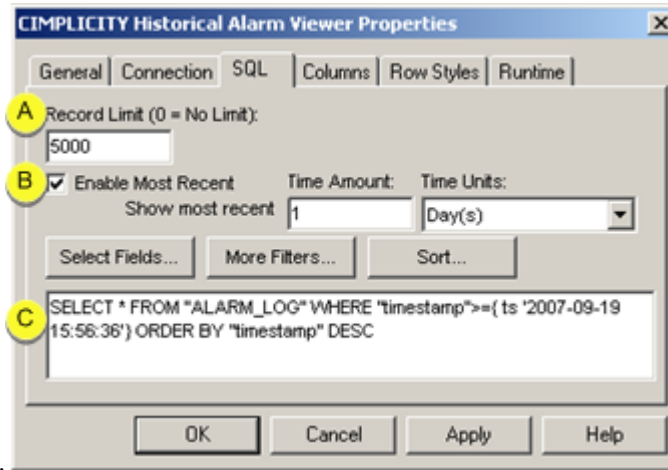
connection selections.

A	Record Limit

Maximum number of records in the **Record Limit** field.

If the log contains more records than the maximum number of records, the **HAV** deals with the first records up to the limit.

The filter and the sort specified through the SQL tab influence the records that are initially used.

Default	5000

B	Enable Most Recent

Do one of the following.

- Clear **Enable Most Recent**

   The **Time Amount** and **Time Units** fields are disabled.

   The logged data that displays starts when the Historical Alarm Viewer Control is opened.

- Check Enable Most Recent

   The **Time Amount** and **Time Units** fields are enabled.

   Enter the time span for the Historical Alarm Viewer display as follows.

Time Amount	Number of selected units, e.g. 5 (seconds).
Time Units	Choose: ◦ Seconds ◦ Minutes ◦ Hours ◦ Days

C	Copy/paste text in the status box

> ✎ **Note:**
>
> You can copy the data in the Status box.

Do one of the following to select the text.

- Click the right-mouse button over the text; select Select all on the Popup menu.
- Click the right-mouse button over selected text; select Copy on the Popup menu.

You can paste the selection the same way you paste a text selection in the Windows environment.

Step 5.2. Select the Fields that will Display in the HAV

> ⓘ **Tip:**
>
> Check Show Toolbar *(on page 134)* on the General tab so a runtime user can influence the
> record selection by adding a filter and changing the record sort order.

Click **Select Fields** on the SQL tab in the Historical Alarm Viewer Properties dialog box.

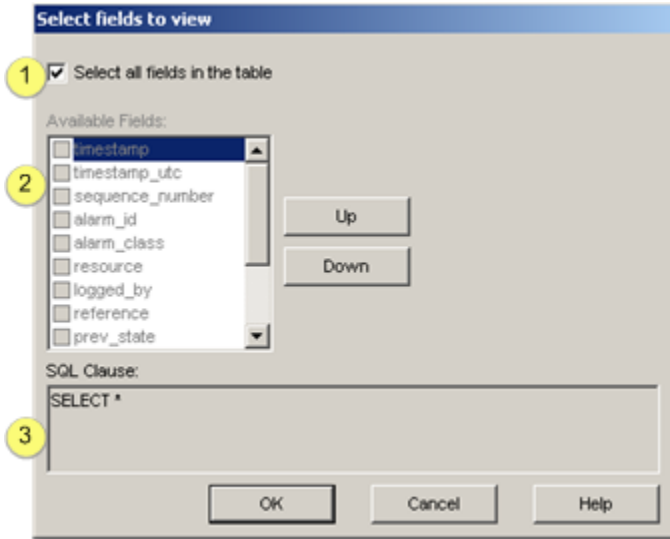The Select Fields to view dialog box opens.

Do one of the following.

A *(on page 144)*	Select all fields in the table.

B *(on page 144)*	Select some fields in the table.

1. Select all Fields in the table

   You can quickly select to display all of the columns in the Historical Alarm Viewer, as follows.

	Feature	Description
1	Select all fields in the table.	(Default) Check to select all of the fields at one time.
2	Available Fields	The list of available fields is disabled; their static position in the Historical Alarm Viewer cannot be changed.
3	SQL Clause	The `SELECT*` clause includes all fields.

2. Select some fields in the table

   > **Note:**
   >
   > The fields that are available *(on page 168)* are based on selections on the Connection tab's **CIMPLICITY Project to connect to** field and **Table to View** drop down list

   You can select the columns that will display in the Historical Alarm Viewer, as follows.

	Feature	Description
1	Select all fields in the table.	Clear to select individual fields. **ⓘ Tip:** If you want to change the static position of the fields in the Historical Alarm Viewer, clear the checkbox and select the fields individually.
2	Available Fields	Check the fields that should display in the Historical Alarm Viewer.
3	Up/Down buttons	To change the position of a field in the Historical alarm viewer. a. Select the field. b. Click one of the buttons to do the following.
4	SQL Clause	(Read-only) The SELECT statement displays the selected fields in the order they will display in the Historical Alarm Viewer.

Step 5.3. Select the Data Filters

Click **More Filters** on the SQL tab in the Historical Alarm Viewer Properties dialog box.

The Edit Filters dialog box opens.

The fields that display in the Fields dialog box are based on your Connection tab **CIMPLICITY Project to connect to** and **Table to View** selections.

The Edit Filters dialog box provides the tools to define all filters, as follows.
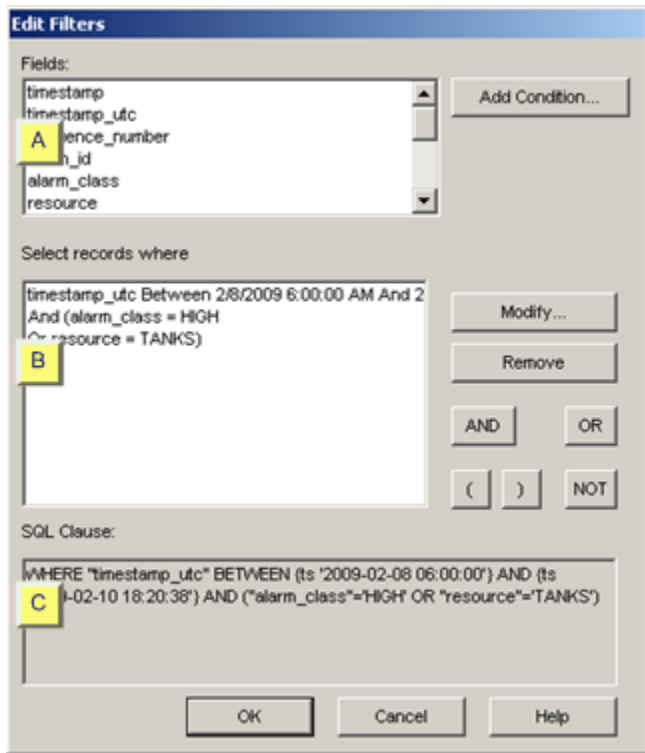
A *(on page 146)*	Add conditions.
B *(on page 150)*	Construct the SQL clause.
C *(on page 151)*	Review the SQL clause.

Add conditions.

A	Add conditions.

1. Select a field in the **Files** box.

> ✏️ **Note:**
>
> If you are going to construct statements such as AND, OR, select the fields for those
> statements in the order they will be used.

2. Click **Add Condition**.

A Select Values dialog box opens with fields that relate to your selection.

3. Enter the value(s) against which data will be evaluated and filtered.
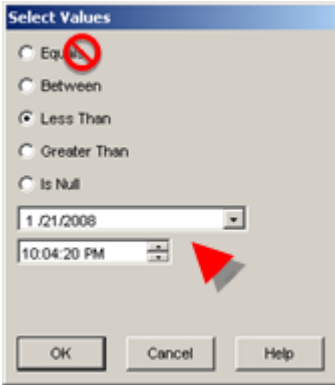
Criteria types are as follows.
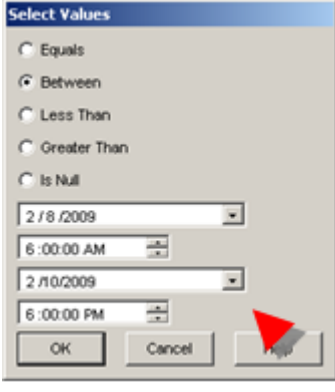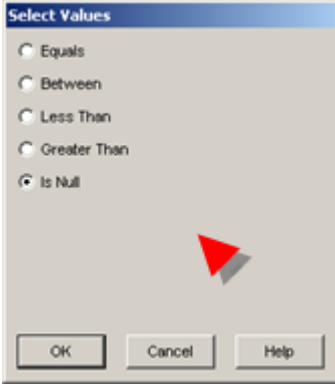
- Time criteria
- Alarm state criteria
- Other alarm criteria

Time Criteria

A Select Values dialog box provides the following options for fields that require date and time
specifications.

Data that meets the date and time specifications passes the filter.

Check	Displays
One of the following: ◦ Less Than ◦ Greater Than	Displays a single date and time field for the date that will be referenced. **Important:** Do not use **Equals** with a time stamp.
◦ Between	Two date and time fields for the date/time range that will be referenced.

Check	Displays
◦ Null	No time fields are required.

> **Note:**
>
> Click the down arrow to the right of a date field to display a calendar.
>
>

Alarm State Criteria

Alarm State criteria are available for the Database Logger ALARM_LOG table.
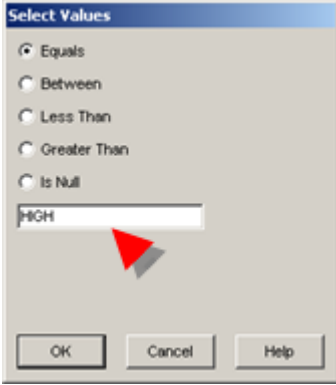
Checked values pass the filter.
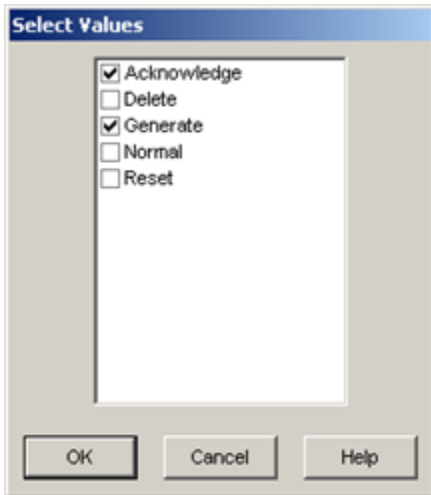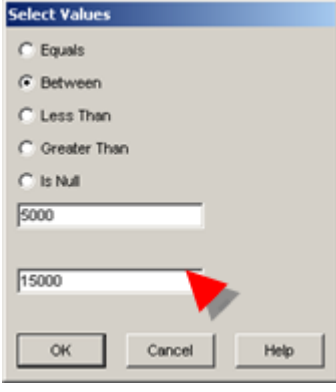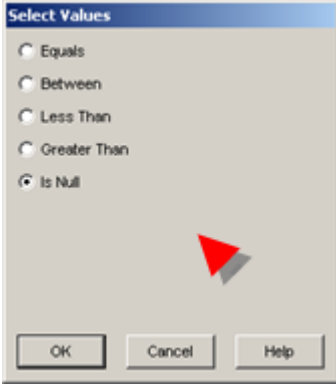
Other alarm criteria

Other alarm criteria include:

Data is evaluated alphanumerically. Data that meet the specifications passes the filter.

Check	Displays
One of the following: ◦ Equals ◦ Less Than ◦ Greater Than	Displays a criterion field for the value that will be referenced. .
◦ Between	Two criteria fields for the value range that will be referenced.

Check	Displays
◦ Null	No criteria fields are required.

The selected field is entered in the Select records where box.

Construct the SQL clause.

B	Construct the SQL clause.

By default, each field is added to the Select records where box as an AND criteria. The alarm will have to fulfill that criteria and others on the list.

You can create statements to change how the list will be filtered.

1. Select a field in the Select records box.
2. Click any of the following to construct the SQL clause.

Button Name	Button
Modify	
Remove	
And	
Or	
NOT	
Parentheses	

> **Note:**
> You can copy the data in the Status box.

Review the SQL clause.

C	Review the SQL clause

The SQL Clause that you create displays in the read-only SQL Clause box.

When you close the Edit Filters dialog box, the clause also displays in the read-only box on the SQL tab.

Step 5.4. Specify the Sort Order

Click **Sort** on the SQL tab in the Historical Alarm Viewer Properties dialog box.

The Select sort criterion dialog box opens.

The fields that display in the Sort by dialog box are based on your Connection tab **CIMPLICITY Project to connect to** and **Table to View** selections.

Select the runtime sorting priorities, as follows.
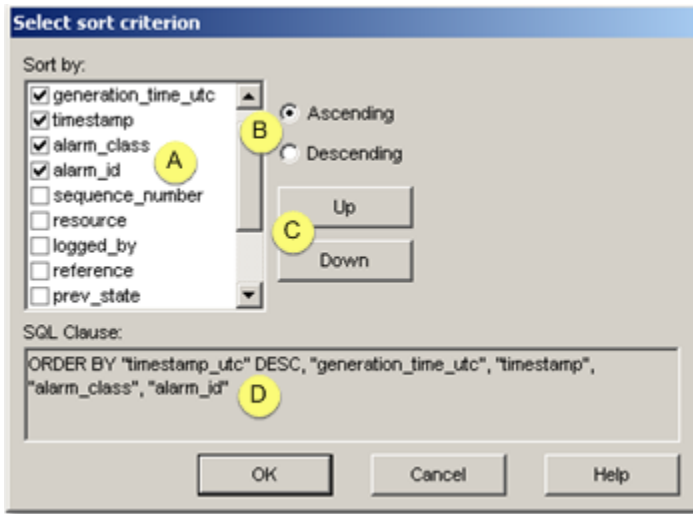
Sort Cri-teri-on	Feature	Description
A	Sort by	Check the fields that will be included in the criteria for sorting.
B	Ascend-ing/De-scending	Check one to sort the fields: Ascending or Descending.
C	Up/Down	Moves a selected field up or down in the list. The sort begins with the first selected field in the list; the next sort is the second selected field; sorts continue until the last selected field is sorted.
D	SQL Clause	(Read-only) The clause that defines the sorting priority displays.

Step 6. Select Column Justification

The default Historical Alarm Viewer column justification is right, the standard justification for numbers. You can change the default or re-select the default.

1. Select the Columns tab.
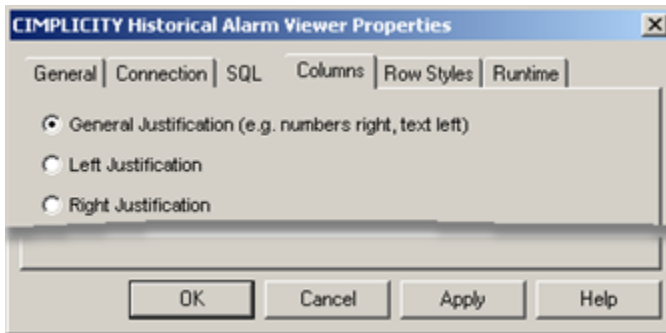
2. Choose among the following justification options:

Option	Description
General Justification	Numbers are right; text is left
Left Justification	Numbers and text are left.
Right Justification	Numbers and text are right.

General Justification

A	Text is left justified
B	Numbers are right justi-fied.

Left Justification
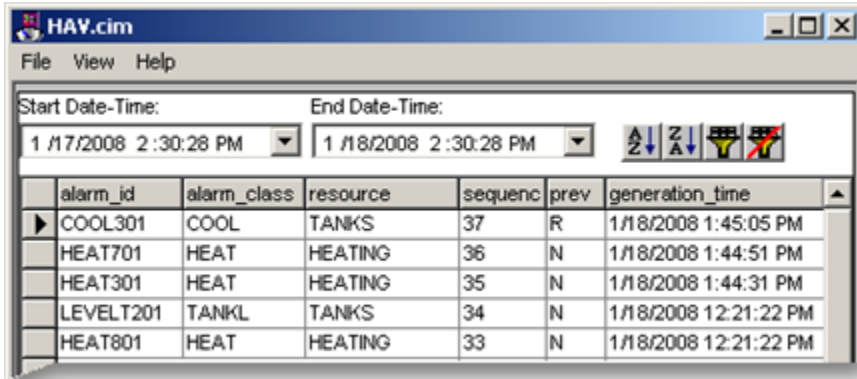
Right Justification
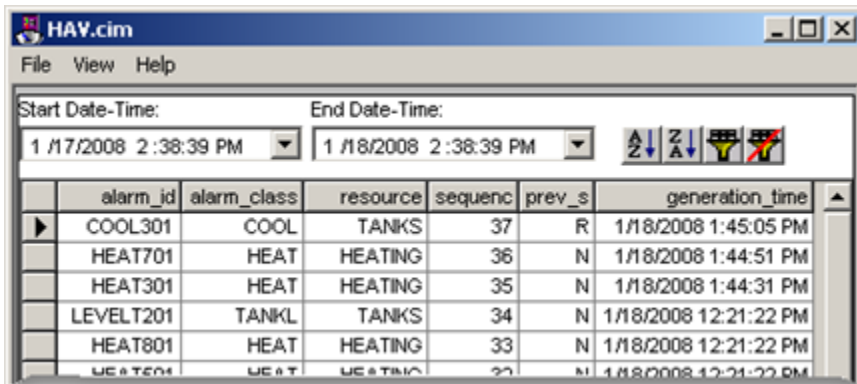
Step 7. Configure Row Styles

Step. 7 Configure Row Styles

The default display for rows is as follows.

If Use Ambient Proper-ties on the General tab:	Rows Display using:
Not checked	System colors
Checked	Using the Ambient colors

If you want rows that meet certain conditions to display differently, you can select the Row Styles tab.

Configuration steps are as follows:

	Add/remove rows styles.
	Configure Row Style 1 and Row Style 2.
	Configure addition row styles.

Step 7.1. Add/Remove Row Styles

- Add a row style
- Remove a row style

Add a Row Style

1. Click the **Add Style** button.

   An additional Row Style set is added to the list.
2. Continue to add as many styles as you think you need to highlight different runtime conditions.

   As soon as a row style is added, its colors *(on page 156)* can be selected and conditions *(on page 158)* defined for runtime display.
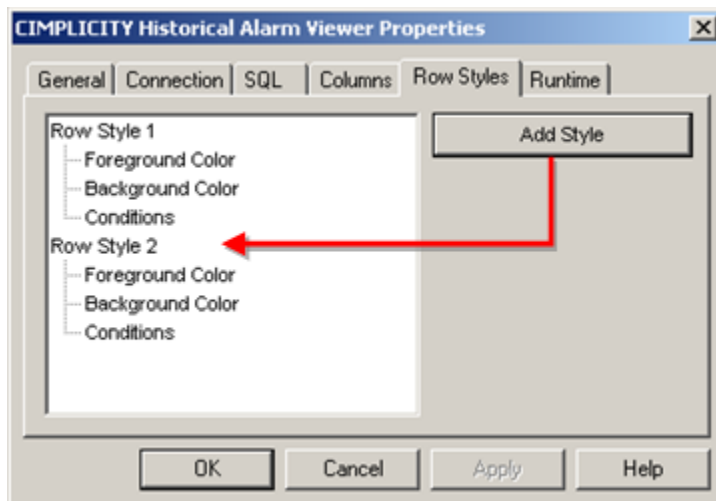
Remove a Row Style

1. Select the Row Style <n> line for the row style you want to remove.

   The button becomes a **Remove Style** button.

2. Click **Remove Style**.
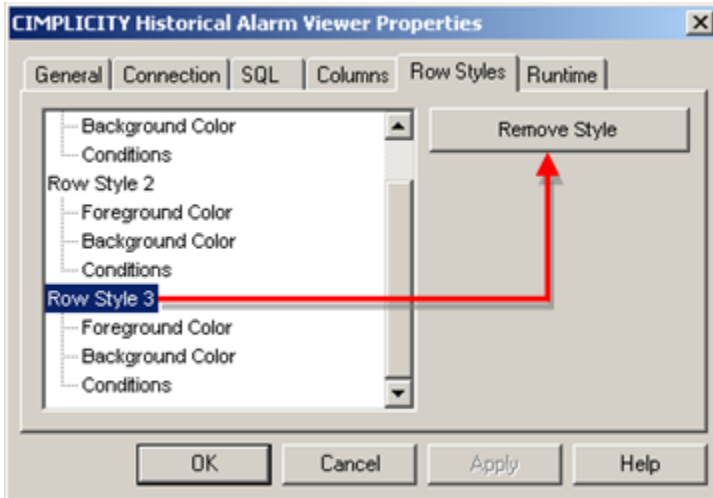
The style is removed.
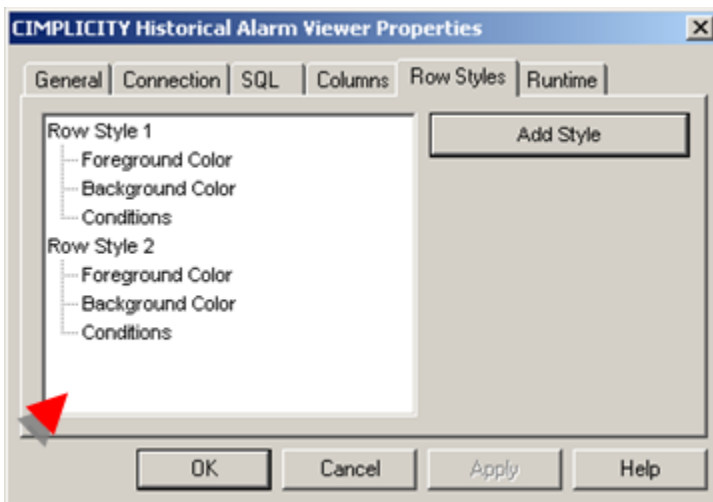
Step 7.2. Configure Row Style Foreground and Background Colors

1 *(on page 157)*	Select the foreground color for a Row Style.

2 *(on page 158)*	Select the background color for a Row Style.

1. **Select the Foreground Color for a Row Style**

    a. Select Foreground Color under a Row Style

    A color square displays to the right of the Row Style box.
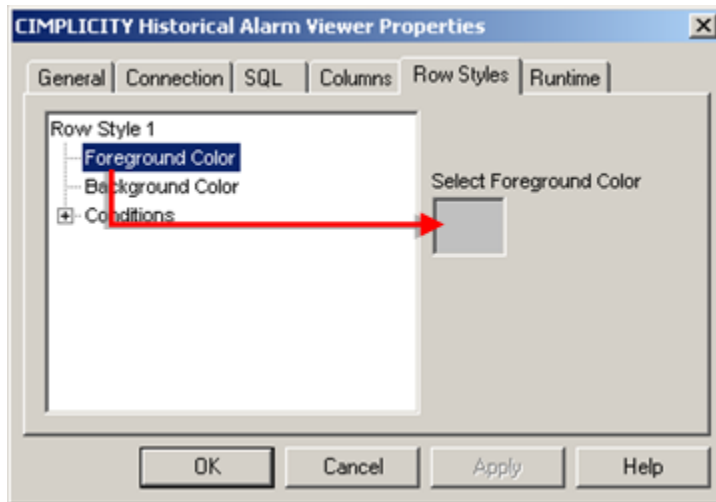
    b. Right-click the Square.

    An Advanced Color Palette opens.

    c. Select the foreground (font) color.
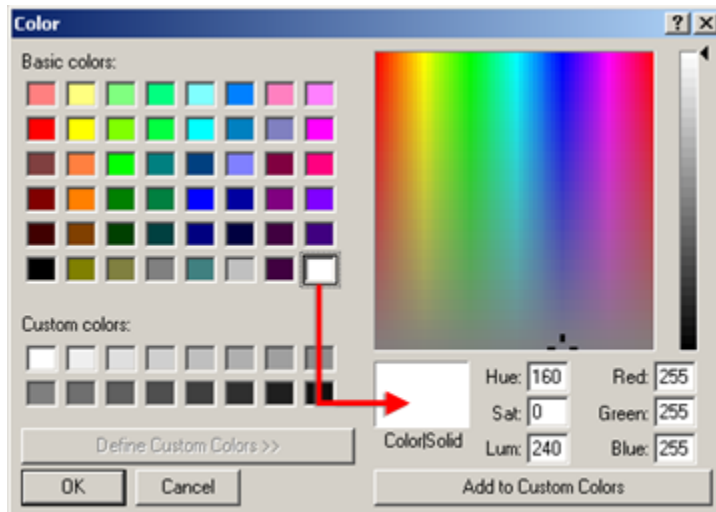
    d. Click **OK**.

The color that displays in the Select Foreground Color is the font color for that row style.

2. **Select the Background Color for a Row Style**

Select Background Color and repeat the process above to specify the background color for the selected Row Style.
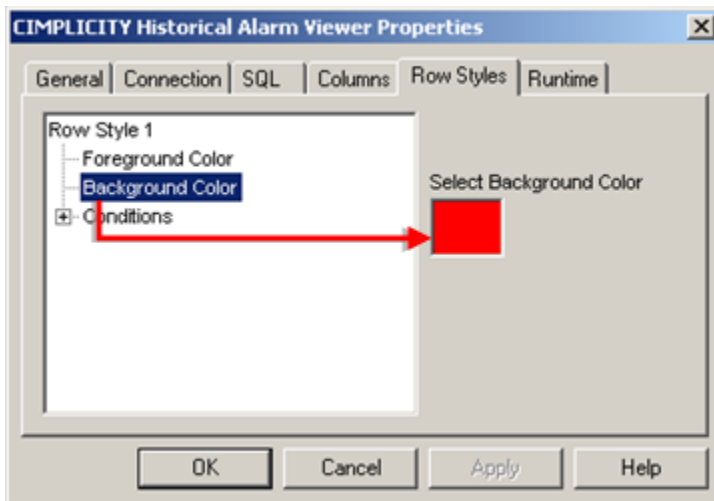
Step 7.3. Select Conditions for Row Styles

- Row style condition configuration.
- Guidelines for row styles.
- Row style condition example.

Row Style Condition Configuration

You can highlight selected conditions in the Historical Alarm Viewer by assigning them colors, as follows.

1. Select Conditions under a Row Style.

   An **Add Condition** button displays.

2. Click **Add Condition**.
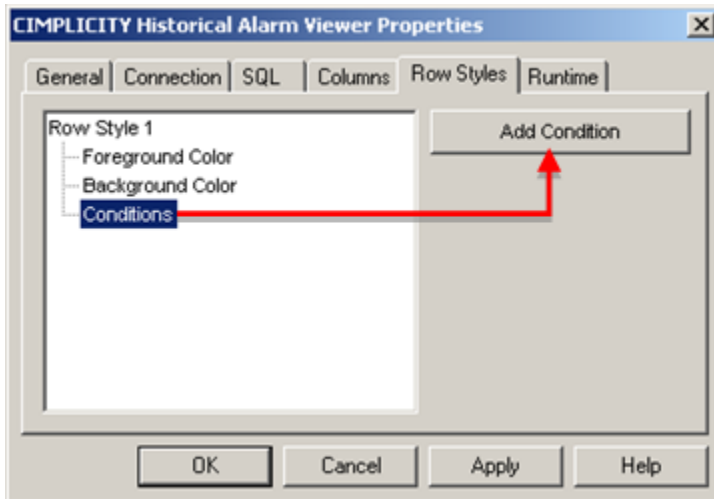
A Select Fields browser opens.

3. Select a condition.
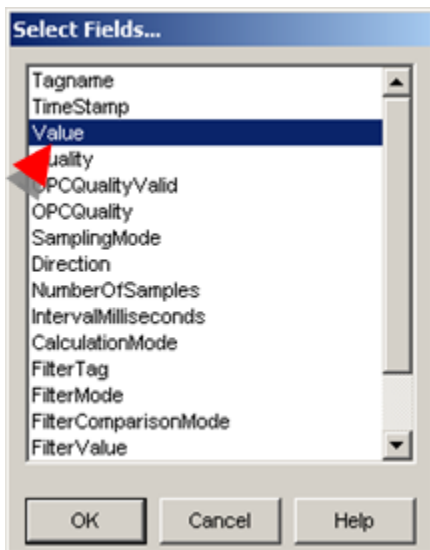
4. Click **OK**.

The condition displays in the Row Style tree.

5. Do the following:
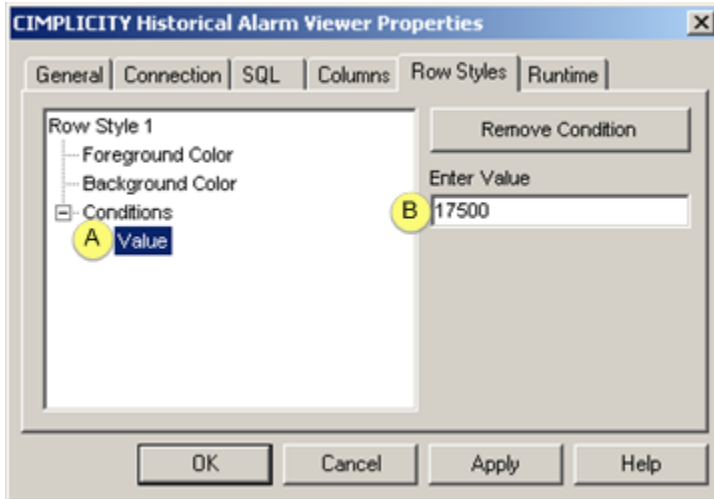
A	Select the condition. An **Enter Value** field displays on the Row Styles tab.
B	Enter a value in the **Enter Value** field

6. Repeat this procedure for Row Style 2 if you want to display a second customized row style.

During runtime rows that meet the specified conditions displays the row style for that condition.

Guidelines for row styles

- Available conditions depend on your **CIMPLICITY Project to connect to** and **Table to View** selections on the Historical Alarm Viewer Properties' Connection tab.
- You can add more than one condition to a row style. The list of conditions will be included in an AND clause. Runtime values will have to meet all criteria to display the row style.
- When you select a condition, a **Remove Condition** button displays; click **Remove Condition** to remove the selected condition from the list.
- If a value meets all the conditions for more than one row style, the last row style with conditions that are met is applied to the row.

Row Style Condition Example

- Row Style 1 and Row Style 2 each have 1 condition

Style	Condition	Fore- ground	Back- ground	Value
Row Style 1	value	White	Red	**17500**

Style	Condition	Fore-ground	Back-ground	Value
Row Style 2	tagname	White	Blue	**LEV-ELT101**

• The alarm HEAT101 meets the condition for both row styles.

• The row for HEAT101 displays the Row Style 2

style.

Step 8. Specify Runtime Configuration Capability

The Runtime tab contains viewer options that you can enable for runtime.
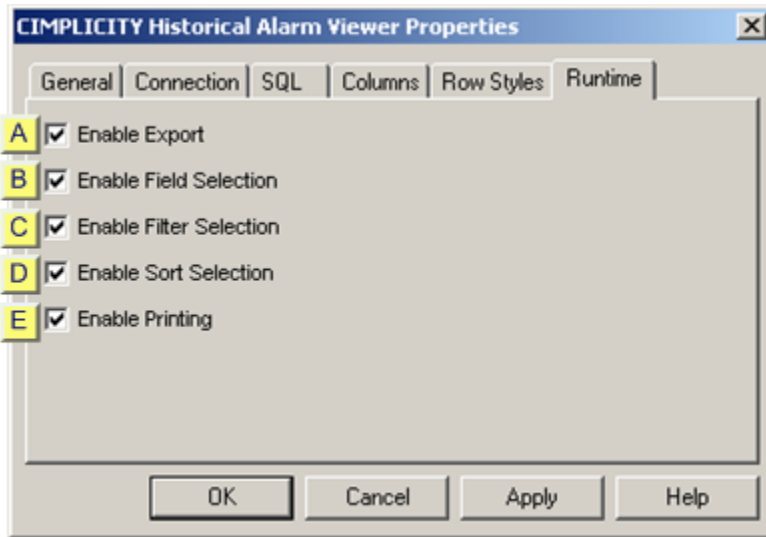
1. #unique_140_Connect_42_Export *(on page 163)*
2. #unique_141_Connect_42_Field *(on page 164)*
3. #unique_142_Connect_42_Filter *(on page 164)*
4. #unique_143_Connect_42_Sort *(on page 165)*
5. #unique_144_Connect_42_Printing *(on page 166)*

A *(on page 163)*	Enable Export
B *(on page 164)*	Enable Field Selection
C *(on page 164)*	Enable Filter Selection
D *(on page 165)*	Enable Sort Selection
E *(on page 166)*	Enable Printing

Enable Export

A	Enable Export

Runtime users can save the Historical Alarm Viewer screen as a .txt or .csv file.

1. Right-click the CIMPLICITY Historical Alarm Viewer in the toolbar area.
2. Select Export on the Popup menu.
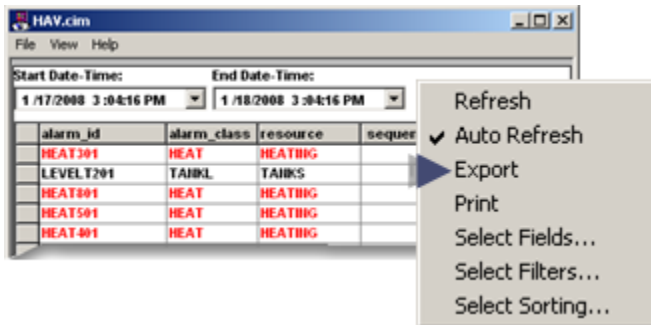
A Save As dialog box opens.

3. Save the Historical Alarm Viewer report as a .csv or .txt file.

> ✎ **Note:**
> The file is saved by default as a .txt file. If you want to save it as a .csv file, enter the full
> name with the extension in the File name field.
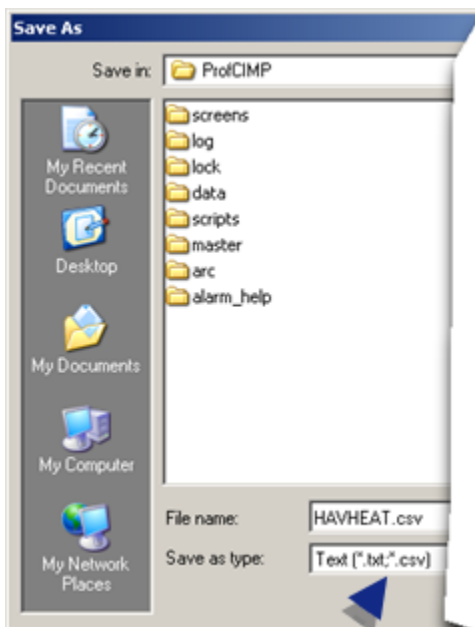
The report is saved in the format you specify and can be opened in a .txt or .csv application.

Enable Field Selection

B	Enable Field Selection

1. Right-click the CIMPLICITY Historical Alarm Viewer in the toolbar area.
2. Select Select Fields on the Popup menu.
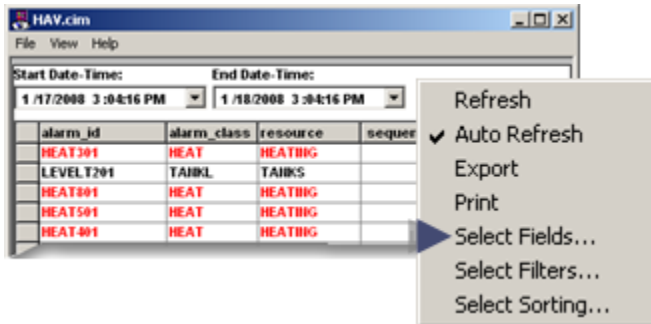
A Select fields to view dialog box opens. Fields can be added, removed, moved to the left or right on the screen.
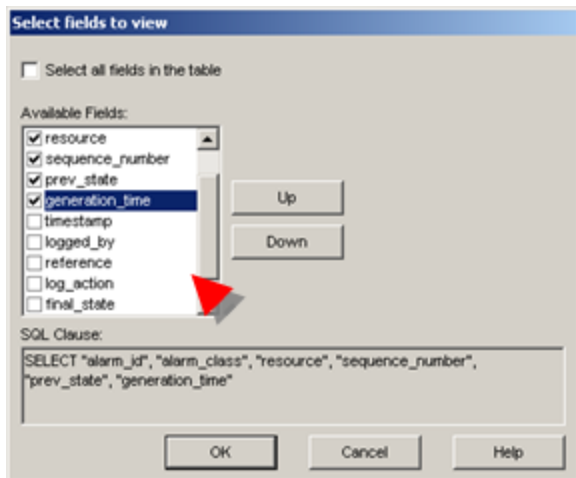
Enable Filter Selection

C	Enable Filter Selection

1. Right-click the CIMPLICITY Historical Alarm Viewer in the toolbar area.
2. Select Select Filters on the Popup menu.
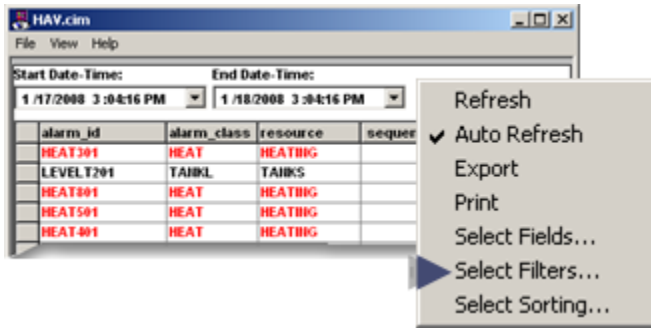
An Edit Filters dialog box opens.

The SQL clause can be modified to change the criteria for which alarms display in the Historical Alarm Viewer.

> **Note:**
> Review a required SQL query if the Historian `ihRawData` table is selected.

Enable Sort Selection

D	Enable Sort Selection

1. Right-click the CIMPLICITY Historical Alarm Viewer in the toolbar area.
2. Select Select Sorting on the Popup menu.
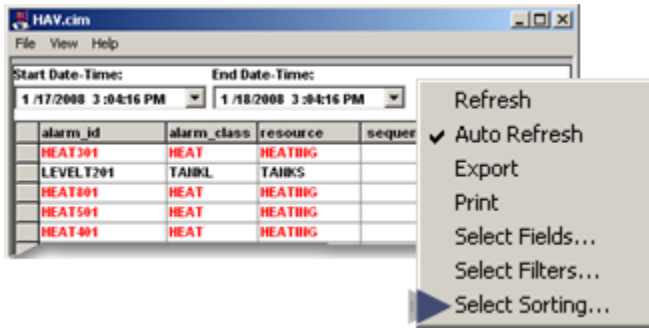
A Select sort criterion dialog box opens.

The current priorities for sorting the list can be changed.
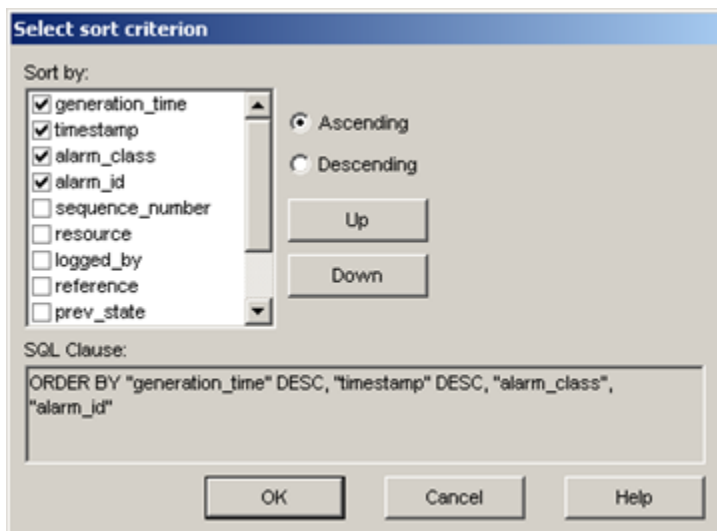
Enable Printing

| E | Enable Printing |
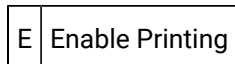
1. Right-click the CIMPLICITY Historical Alarm Viewer in the toolbar area.
2. Select Print on the Popup menu.
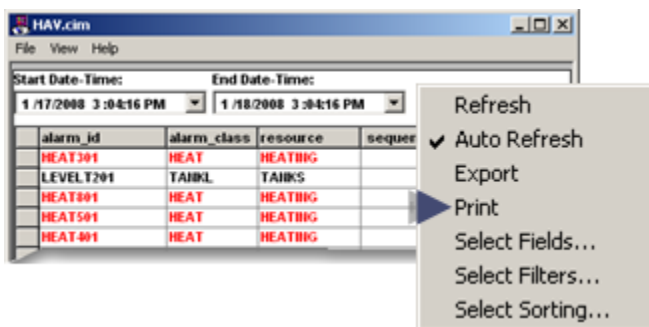
A Page Setup dialog box opens.

3. Select print criteria that reflect your Historical Alarm Viewer size and printer specifications.
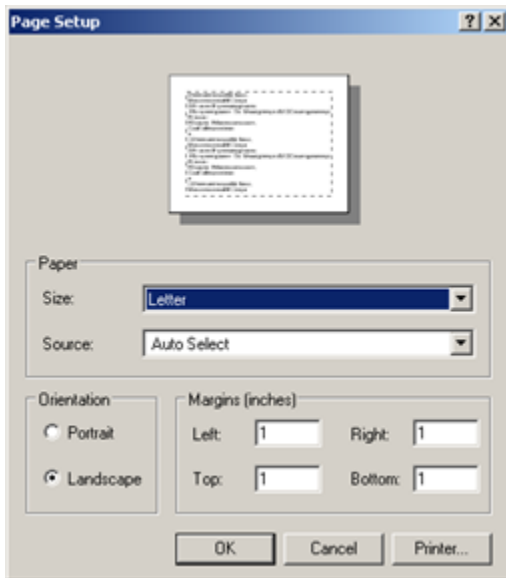
4. Click **OK**.

A Print Preview window opens.

5. Click the **Print** button on the Preview window toolbar when you are ready to print one or more pages.

A Print dialog box opens.

6. Click **Print** to print a selected page range.

Technical Reference: Historical Alarm Viewer

Technical Reference: Historical Alarm Viewer

The Historical Alarm Viewer provides several options for displaying data during runtime.

Fields that are available are based on your **CIMPLICITY Project to connect to** and **Table to View** selections on the Historical Alarm Viewer Properties' Connection tab.

1 *(on page 168)*	Default Historian tables and field options
2 *(on page 182)*	<Local> or <Project Name> tables and field options

1. Default Historian Tables and Field Options

1. Default Historian Tables and Field Options

Table views that are available when you select Default Historian in the **CIMPLICITY Project to connect to** on the Historical Alarm Viewer Properties dialog box Connection tab, are as follows.

Each table view provides related fields.

1.1 *(on page 169)*	Default Historian\ihAlarms fields
1.2 *(on page 170)*	Default Historian\ihArchives fields
1.3 *(on page 171)*	Default Historian\ihCalculationDependencies fields
1.4 *(on page 171)*	Default Historian\ihCollectors fields

	Default Historian\ihComments fields
	Default Historian\ihMessages fields
	Default Historian\ihQuery fields
	Default Historian\ihRawData fields
	Default Historian\ihTags fields
	Default Historian\ihTrend fields

1.1. Default Historian\ihAlarms Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihAlarms are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	StartTime
	EndTime
	AckTime
	Timestamp
Other	AlarmID
	ItemID
	Source

Criteria Type	Fields
	DataSource
	Tagname
	AlarmType
	EventCategory
	Condition
	SubCondition
	Message
	Acked
	Severity
	Actor
	Quality
	RowCount

1.2. Default Historian\ihArchives Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihArchives are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	StartTime
	EndTime
	LastBackup
	LastModified
Other	ArchiveName
	ArchiveStatus
	FileName
	IsCurrent

Criteria Type	Fields
	IsReadOnly
	FileSizeCurrentDisk
	FileSizeCurrent
	FileSizeTarget
	LastBackupUser
	LastModifiedUser
	TimeZone
	DaylightSaving-Time
	RowCount

1.3. Default Historian\ihCalculationDependencies Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihCalculationDependencies are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Other	Tagname
	DependentTag-name
	RowCount

1.4. Default Historian\ihCollectors Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihCollectors are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	LastModified
Other	CollectorName

Criteria Type	Fields
	CollectorDescription
	Comment
	ComputerName
	Status
	CollectorType
	MinimumDiskFreeBufferSize
	MaximumMemoryBufferSize
	ShouldAdjustTime
	ShouldQueueWrites
	CanBrowseSource
	CanSourceTimestamp
	StatusOutputAddress
	RateOutputAddress
	HeartbeatOutputAddress
	ColllectorGeneral1
	CollectorGeneral2
	CollectorGeneral3
	CollectorGeneral4
	CollectorGeneral5
	LastModifiedUser
	SourceTimeInLocalTime
	CollectionDelay
	DefaultTagPrefix
	DefaultCollectionInterval
	DefaultCollectionType

Criteria Type	Fields
	DefaultTimeStampType
	DefaultLoadBalancing
	DefaultCollectorCompression
	DefaultCollectorCompressionDeadband
	DefaultCollectorCompressionTimeout
	DefaultCollectorAbsoluteDeadbanding
	DefaultCollectorAbsoluteDeadband
	DisableOnTheFlyTagChanges
	DefaultSpikeLogic
	DefaultSpikeMultiplier
	DefaultSpikeInterval
	RedundancyEnabled
	PrincipalCollector
	IsActiveRedundantCollector
	FailoverOnCollectorStatus
	FailoverOnBadQuality
	FailoverOnValue
	FailoverValueChangeType
	WatchdogValueMaxUnchangedPeriod WatchdogTag-Name
	TimeZone
	DaylightSavingTime
	RowCount

1.5. Default Historian\ihComments Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihComments are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	Timestamp
	StoredOnTimeStamp
	CommentTimeStamp
Other	Tagname
	SuppliedUsername
	Username
	Comment
	DataTypeHint
	SamplingMode
	Direction
	NumberofSamples
	IntervalMilliseconds
	CalculationMode
	FilterTab
	FilterMode
	FilterComparisonMode
	FilterValue
	TimeZone
	DaylightSavingTime
	RowCount

1.6. Default Historian\ihMessages Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihMessages are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	TimeStamp
Other	Topic
	Username
	MessageNumber
	MessageString
	TimeZone
	DaylightSaving-Time
	RowCount

1.7. Default Historian\ihQuerySettings Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihQuerySettings are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	StartTime
	EndTime
Other	SamplingMode
	Direction
	NumberOfSamples
	IntervalMilliseconds
	CalculationMode
	FilterTag
	FilterMode
	FilterComparisonMode
	FilterValue

Criteria Type	Fields
	TimeZone
	DaylightSavingTime
	RowCount

1.8. Default Historian/ihRawData Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihRawData are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	TimeStamp
Other	Tagname
	Value
	Quality
	OPCQualityValid
	OPCQuality
	SamplingMode
	Direction
	NumberOfSamples
	IntervalMilliseconds
	CalculationMode
	FilterTag
	FilterMode
	FilterComparisonMode
	FilterValue
	TimeZone
	DaylightSavingTime

Criteria Type	Fields
	RowCount

> ⚠️ **Important:**
>
> If you choose the `ihRawData` table, modify the Query (Data filters) to the following.

```
SELECT * FROM "ihRawData" WHERE "timestamp">='<Date><Time>' and ("SamplingMode"='''interpolated''') ORDER BY

 "timestamp" DESC
```

Example

```
SELECT * FROM "ihRawData" WHERE "timestamp">='2008-05-17 20:01:09' and ("SamplingMode"='''interpolated''') ORDER BY

 "timestamp" DESC
```

1.9. Default Historian\ihTags Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihTags are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	LastModified
Other	Tagname
	Description
	EngUnits
	Comment
	DataType
	FixedStringLength
	CollectorName
	SourceAddress
	CollectionType
	CollectionInterval
	CollectionOffset

Criteria Type	Fields
	LoadBalancing
	SpikeLogic
	SpikeLogicOverride
	TimeStampType
	HiEngineeringUnits
	LoEngineeringUnits
	InputScaling
	HiScale
	LoScale
	CollectorCompression CollectorDeadbandPercent-Range
	ArchiveCompression
	ArchiveDeadbandPercentRange
	CollectorGeneral1
	CollectorGeneral2
	CollectorGeneral3
	CollectorGeneral4
	CollectorGeneral5
	ReadSecurityGroup
	WriteSecurityGroup
	AdministratorSecurityGroup
	Calculation
	LastModifiedUser
	CollectorType
	StoreMilliseconds

Criteria Type	Fields
	UTCBias
	AverageCollectionTime
	CollectionDisabled
	CollectorCompressionTimeout
	ArchiveCompressionTimeout
	TimeZone
	DaylightSavingTime
	RowCount
	InterfaceAbsoluteDeadbanding
	InterfaceAbsoluteDeadband

1.10. Default Historian/ihTrend Fields

The following fields (for display and sorting) and filter criteria are available when <default Historian> and ihTrend are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	TimeStamp
Other	SamplingMode
	Direction
	NumberOfSamples
	IntervalMilliseconds
	CalculationMode
	FilterTag
	FilterMode
	FilterComparisonMode
	FilterValue

Criteria Type	Fields
	TimeZone
	DaylightSavingTime
	RowCount
	TagID.Value
	TagID.Quality
	TagID.Tagname
	TagID.Description
	TagID.EngUnits
	TagID.Comment
	TagID.DataType
	TagID.FixedStringLength
	TagID.CollectorName
	TagID.SourceAddress
	TagID.CollectionType
	TagID.CollectionInterval
	TagID.CollectionOffset
	TagID.LoadBalancing
	TagID.SpikeLogic
	TagID.SpikeLogicOverride
	TagID.TimeStampType
	TagID.HiEngineeringUnits
	TagID.LoEngineeringUnits
	TagID.InputScaling
	TagID.HiScale
	TagID.LoScale

Criteria Type	Fields
	TagID.CollectorCompression
	TagID.CollectorDeadbandPercent-Range
	TagID.ArchiveCompression
	TagID.ArchiveDeadbandPercentRange
	TagID.CollectorGeneral1
	TagID.CollectorGeneral2
	TagID.CollectorGeneral3
	TagID.CollectorGeneral4
	TagID.CollectorGeneral5
	TagID.ReadSecurityGroup
	TagID.WriteSecurityGroup
	TagID.AdministratorSecurityGroup
	TagID.Calculation
	TagID.LastModified
	TagID.LastModifiedUser
	TagID.CollectorType
	TagID.StoreMilliseconds
	TagID.UTCBias
	TagID.AverageCollectionTime
	TagID.CollectionDisabled
	TagID.CollectorCompressionTimeout
	TagID.ArchiveCompressionTimeout
	TagID.InterfaceAbsoluteDeadbanding
	TagID.InterfaceAbsoluteDeadband

Criteria Type	Fields
	TagID.ArchiveAbsoluteDeadbanding
	TagID.ArchiveAbsoluteDeadband
	TagID.StepValue

2. <Local> or <Project Name> Tables and Field Options

2. <Local> or <Project Name> Tables and Field Options

Table views that are available when you select **<local>** or a project name in the **CIMPLICITY Project to connect to** on the Historical Alarm Viewer Properties dialog box Connection tab, are as follows.

Each table view provides related fields.

2.1 *(on page 182)*	< Local> or <Project Name>\ALARM_LOG fields
2.2 *(on page 183)*	< Local> or <Project Name>\DATA_LOG fields
2.3 *(on page 184)*	< Local> or <Project Name>\EM_LOG fields
2.4 *(on page 184)*	< Local> or <Project Name>\EVENT_LOG fields
2.5 *(on page 185)*	< Local> or <Project Name>\Historian alarms fields
2.6 *(on page 186)*	< Local> or <Project Name>\Historian data fields

2.1.< Local> or <Project Name>\ALARM_LOG Fields

The following fields (for display and sorting) and filter criteria are available when <local> or <Project Name> and ALARM_LOG are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	timestamp
	timestamp_utc
	generation_time
	generation_time_-utc
Alarm State	prev_state
	log_action
	final_state
Other	sequence_number
	alarm_id
	alarm_class
	resource
	logged_by
	reference
	prev_state
	log_action
	alarm_message

2.2.< Local> or <Project Name>\DATA_LOG Fields

The following fields (for display and sorting) and filter criteria are available when `<local>` or `<Project Name>` and `DATA_LOG` are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	timestamp
Other	point_id _VAL

2.3.< Local> or <Project Name>\EM_LOG Fields

The following fields (for display and sorting) and filter criteria are available when `<local>` or `<Project Name>` and **EM_LOG** are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	timestamp
Other	sequence_number time event_type event_source action_type action_target

2.4.< Local> or <Project Name>\EVENT_LOG Fields

The following fields (for display and sorting) and filter criteria are available when `<local>` or `<Project Name>` and `EVENT_LOG` are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	timestamp generation_time
Other	sequence_number alarm_id

Criteria Type	Fields
	alarm_class
	resource
	logged_by
	reference
	alarm_message

2.5. <Local> or <Project Name>\Historian Alarms Fields

The following fields (for display and sorting) and filter criteria are available when `<local>` or `<Project Name>` and `Historian Alarms` are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	StartTime
	EndTime
	ActTime
	Timestamp
Other	AlarmID
	ItemID
	Source
	DataSource
	Tagname
	AlarmType
	EventCategory
	Condition
	SubCondition
	Message

Criteria Type	Fields
	Acked
	Severity
	Actor
	Quality
	RowCount

2.6. <Local> or <Project Name>\Historian Data Fields

The following fields (for display and sorting) and filter criteria are available when <local> or <Project Name> and Historian Data are selected on the Connection tab in the Historical Alarm Viewer Properties dialog box.

Criteria Type	Fields
Time	TimeStamp
Other	Tagname
	Value
	Quality
	OPCQualityValid
	OPCQuality
	SamplingMode
	Direction
	NumberOfSamples
	IntervalMilliseconds
	CalculationMode
	FilterTag
	FilterMode
	FilterComparisonMode
	FilterValue

Criteria Type	Fields
	TimeZone
	DaylightSavingTime
	RowCount

Chapter 8. OPC Alarm and Event Server and Client

About the OPC Alarm and Event Server and Client

- OPC Alarm and Event Server and Client Overview
- OPC Alarm and Event Server and Client Steps

OPC Alarm and Event Server and Client Overview

CIMPLICITY provides you with an OPC Alarm and Event (A & E) Server and Client.

> **Note:**
> The CIMPLICITY OPC Alarm and Event Server and Client are most commonly used to send data to and receive data from non-CIMPLICITY OPC Alarm and Event Clients and Servers.

The server and client interaction occurs basically as follows.

1	OPC Alarm and Event Client (clients) starts and starts the OPC Alarm and Event Server (OPC servers), if it is not already running.
2	Server requests data from the Alarm Managers in all connected source projects. > **Note:** > Source projects are selected in the server configuration and need to be running in order to be connected.
3	Alarm Managers send data to the server.
4	Server sends alarm data to its clients.
5	Clients display the data in the Alarm Viewer and notify the server if alarms are acknowledged..

| 6 | Server transmits the information to the source projects. |
| | 3-6 continues with data being passed back and forth through the OPC Alarm and Event Server. |

OPC Alarm and Event Server and Client Steps

Step 1 (on page 190)	Configure the OPC Alarm and Event Server.
Step 2 (on page 197)	Configure the OPC Alarm and Event Client.
Step 3 (on page 217)	Use the OPC Alarm and Event Client and Server at runtime.

> **ⓘ Tip:**
> CIMPLICITY also provides the powerful CIMPLICITY Enterprise functionality to send and receive alarm and point data between CIMPLICITY projects.

Alarm Categories for an OPC Alarm and Event Server

These are the categories of CIMPLICITY alarm messages that passed as OPC alarm messages:

Category	Used for
Level	Non-Boolean point alarms Text messages come from the alarm strings definition used by the alarm.
Discrete	Boolean point alarms Text messages come from the alarm strings definition used by the alarm.
System	All non-point alarms Non-point alarms have a configurable severity. This severity is used by the OPC server as the sub-condition `System` severity.

Cate-gory	Used for
	Note: Existing non-point alarms have a default severity of 100.

Configure the OPC Alarm and Event Server and Client

Configure the OPC Alarm and Event Server and Client

Step 1 *(on page 190)*	Configure the OPC Alarm and Event Server.
Step 2 *(on page 197)*	Configure the OPC Alarm and Event Client.
Step 3 *(on page 217)*	Use the OPC Alarm and Event Client and Server at runtime.

Step 1. Configure the OPC Alarm and Event Server

Step 1. Configure the OPC Alarm and Event Server

Following are steps for configuring the OPC Alarm and Event Server.

Step 1.1 *(on page 191)*	Open the OPC Alarm and Event Server Window.
Step 1.2 *(on page 192)*	Configure projects.
Step 1.3 *(on page 194)*	Apply the changes to the OPC Alarm and Event Server.

Step 1.4 *(on page 195)*	Configure the OPC Alarm and Event Server sampling rate.
Step 1.5 *(on page 196)*	Select trace options.
Step 1.6 *(on page 197)*	Close the OPC Alarm and Event Server.

Step 1.1. Open the OPC Alarm and Event Server Window

1. Click **Start** on the Windows task bar.
2. Select (All) Programs>HMI SCADA - CIMPLICITY version>A&E OPC Server.

The OPC Alarm and Event Server window opens.
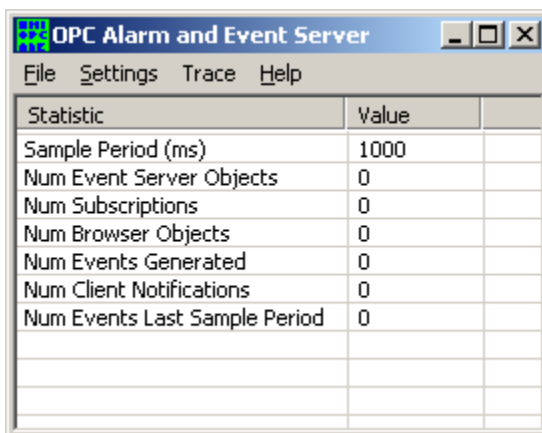
Step 1.2. Configure Projects

Step 1.2.1 *(on page 192)*	Open the Security dialog.
Step 1.2.2 *(on page 193)*	Add a project.

Step 1.2.1. Open the Security Dialog

1. Click **Settings** on the OPC Alarm and Event Server window menu bar.
2. Select **Configure Projects...**
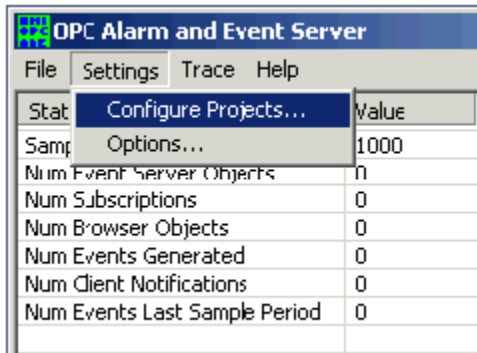
The Security Dialog opens.
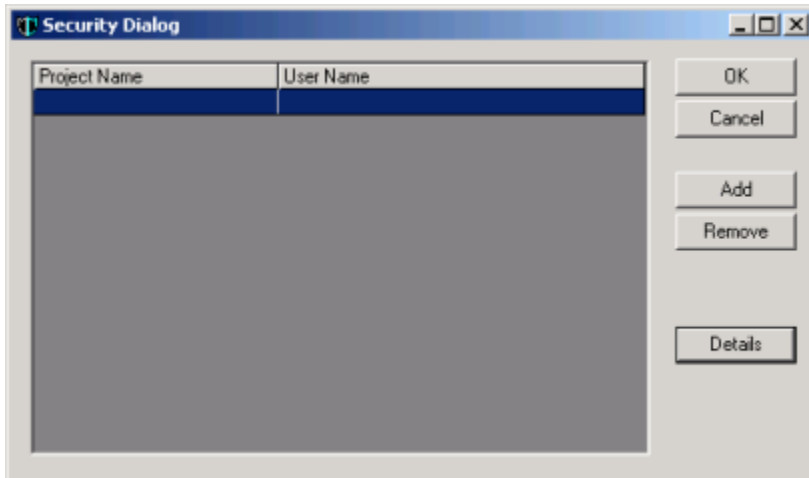
Buttons do the following:

Button	Click to
OK	Close the Security Dialog.
Cancel	Close the Security Dialog and cancel your changes.
Add	Add a new project to the OPC Alarm and Event Server.
Details	Edit the configuration for an connected project.

Step 1.2.2. Add a Project

1. Click **Add** in the Security Dialog.

   A blank Project Properties dialog box opens.

2. Fill in the fields, as follows.

Field	Description
Project name	Project that will be connected to the OPC Alarm and Event Server. **Note:** Running projects are included in the drop-down list.
User name	CIMPLICITY project user selected to access data on the OPC Alarm and Event Server.

Field	Description
Password	Password assigned to the user in the CIMPLICITY project.
Confirm password	Repeat of entered password.

3. Click **OK**.

   The OPC Alarm and Event Server will collect data from the configured project that displays in the
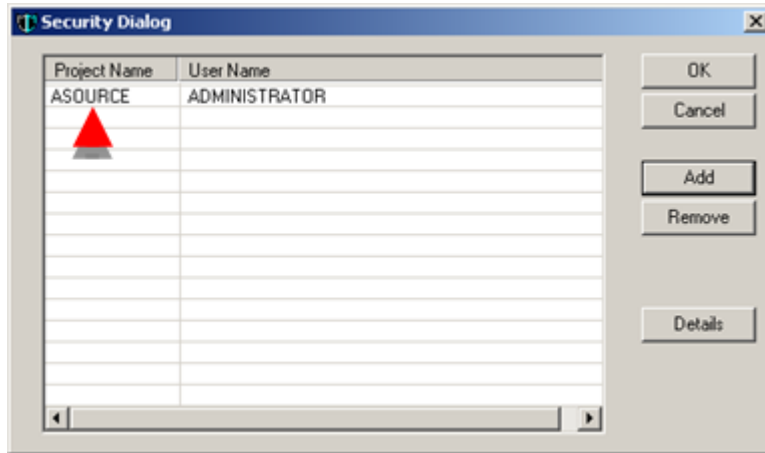
   list in the Security Dialog.
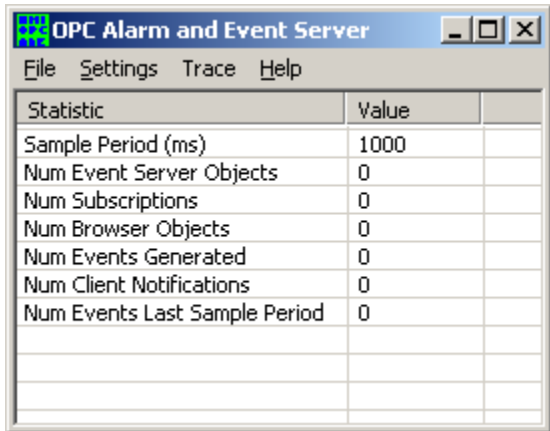
4. Continue to add projects until all the projects that should be connected to this server are connected.

Step 1.3. Apply the Changes to the OPC Alarm and Event Server

1. Click **OK** in the Security Dialog when you have completed adding projects to the OPC Alarm and Event Server.
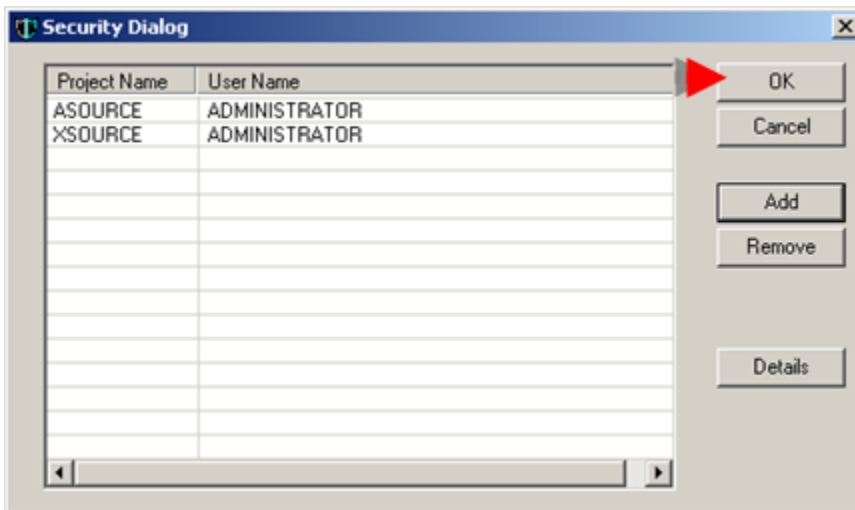
   ◦ The Security Dialog closes.
   ◦ The OPC Alarm and Event Server window opens.

2. Click **OK**.

The message closes.
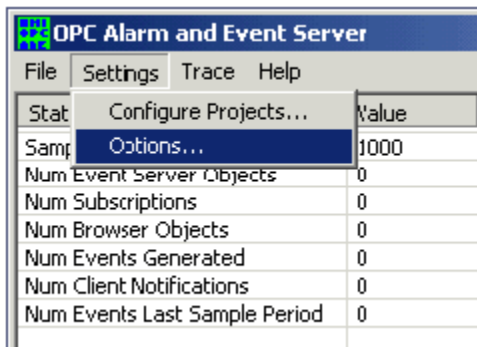
> ⚠️ **Important:**
>
> This list is for Server projects only. Do not add the client project to the Security dialog.

Step 1.4. Configure the OPC Alarm and Event Server Sampling Rate

1. Click **Settings** on the OPC Alarm and Event Server menu bar.
2. **Select Options...**

The OPC Server Options dialog box opens.

3. Configure the fields as follows.

Field	Description
Statistics sample period	Number of milliseconds the server waits between samples
Namespace delimiter	The character inserted in the fully qualified alarm name to define a space between elements. Alarms that an OPC A & E server collects must be configured on an OPC Client in order for the values to display in the client's Alarm Viewer. The fully qualified name is `Source Project/Factory Resource/Reference ID/Alarm ID`
Display server window	Do either of the following: Select the Display the Server check box when it is started by the client, or clear the Hide the Server check box when it is started by the client.

Step 1.5. Select Trace Options

1. Select **Trace** on the OPC Alarm and Event Server window menu bar.

   The Trace menu displays.
2. Select options as follows.
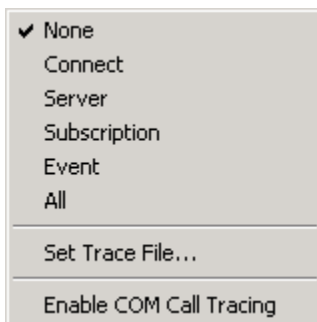
◦ Select one: None, Connect, Server, Subscription, Event, All

◦ Set Trace File...

◦ Enable COM Call Tracing

Step 1.6. Close the OPC Alarm and Event Server

1. Click **File** on the OPC Alarm and Event Server menu.
2. Select **Exit**.
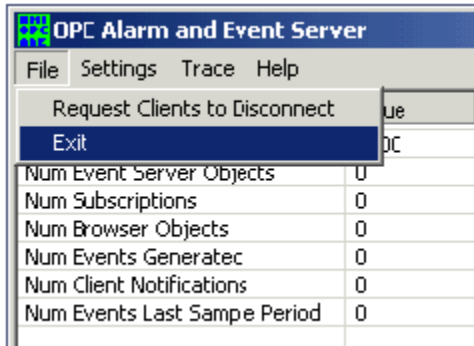
When you restart the Server the security configuration will be applied.

> **Note:**
> The connection to the OPC Alarm and Event Server is controlled using COM security.

Step 2. Configure the OPC Alarm and Event Client

Alarms and events from OPC servers are created dynamically based on configuration for the following alarms.

Alarm	Dynamical-ly creates
$OPC_MODEL_ALARM	Point alarms
$OPC_MODEL_EVENT	Events

You can:

- Modify the alarms to change the default behavior.
- View alarms that are collected by any connected OPC Alarm and Event Server in the CIMPLICITY project's Alarm Viewer.
- Configure individual qualified source alarms on the client computer.
- Log alarms to the Alarm log and events to the Event log.

Step 2.1 *(on page 198)*	Open an OPC A&E client dialog box.
Step 2.2 *(on page 201)*	Create a new connection to an OPC Alarm and Event Server.
Step 2.3 *(on page 209)*	(Optional) Modify source alarms logging and deletion requirements for the client display.
Step 2.4 *(on page 212)*	(Optional) Configure source alarms on the client computer.

Step 2.1. Open an OPC A&E Client Dialog Box

Option 2.1.1 *(on page 198)*	Open a new OPC A&E Client dialog box.
Option 2.1.2 *(on page 200)*	Open an existing OPC A&E Client dialog box.

Option 2.1.1. Open a New OPC A&E Client Dialog Box

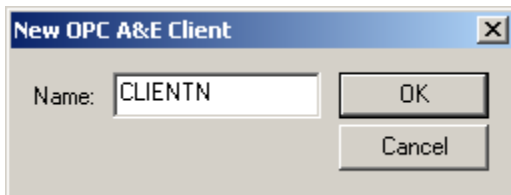CIMPLICITY provides several methods to open a new OPC A&E Client dialog box.

1. Select **Project > Alarms > Alarm OPC Client** in the Workbench left pane.
2. Do the following.
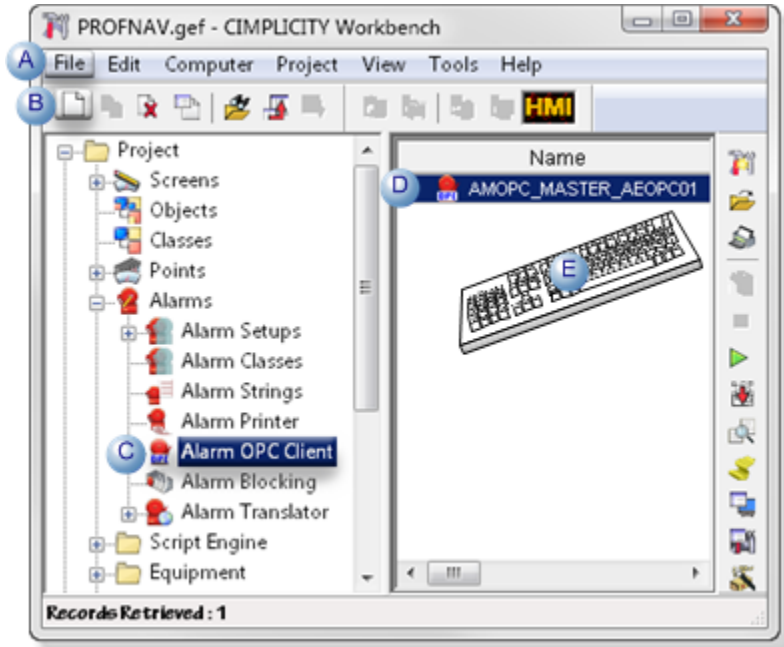
A	Click File>New on the Workbench menu bar.
B	Click the **New Object** button on the Workbench toolbar.
C	In the Workbench left pane, double click **Alarm OPC Client**.

D	In the Workbench right pane:
	
	    a. Right-click any OPC Client.
	    b. Select New on the Popup menu.

E	Press **Ctrl+N** on the keyboard.

A New OPC A&E Client dialog box opens when you use any method.

3. Enter a name in the New OPC A&E Client dialog box.

The name will be used as the reference id for alarms gathered by the client.

4. Click **OK**.

The OPC A&E Client dialog box opens.

Option 2.1.2. Open an Existing OPC A&E Dialog Box

CIMPLICITY provides several methods to open an existing OPC A&E dialog box.

1. Select **Project > Alarms > Alarm OPC Client** in the Workbench left pane.
2. Select an OPC A&E client configuration in the Workbench right pane.
3. Do the following.
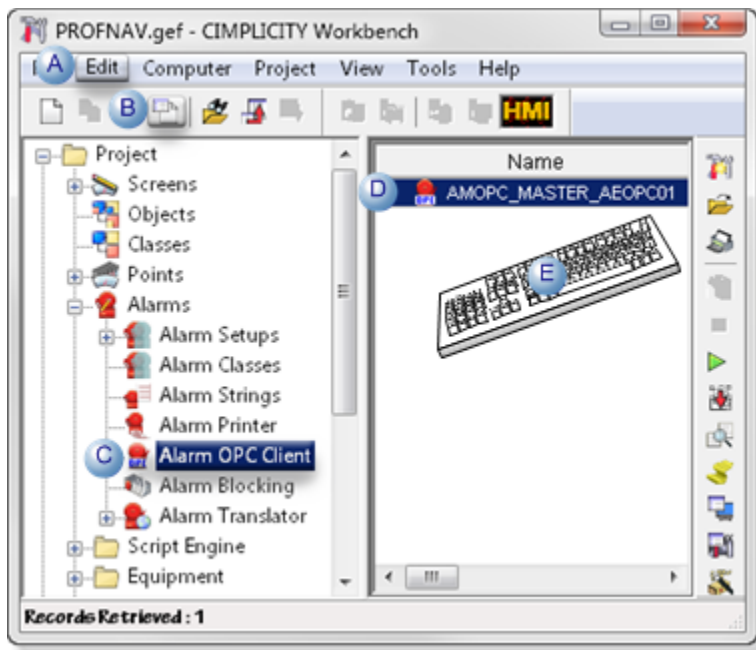
A	Click Edit>Properties on the Workbench menu bar.
B	Click the **Properties** button on the Workbench toolbar.

C	In the Workbench left pane:
	    a. Right-click **Alarm OPC Client**.
	    b. Select Properties on the Popup menu.

D	In the Workbench right pane, double click an OPC A&E client configuration.
E	Press **Alt+Enter** on the keyboard.

The selected OPC A&E Client dialog box opens when you use any method.

Step 2.2. Select the Client Alarm Viewer Display Criteria

Step 2.2. Select the Client Alarm Viewer Display Criteria

Step 2.2.1 (on page 201)	Create a new connection to an OPC Alarm and Event Server.
Step 2.2.2 (on page 203)	Filter alarms that display in the A & E OPC client Alarm Viewer.
Step 2.2.3 (on page 205)	Change attribute display in the Alarm Viewer message field.

Step 2.2.1. Create a New Connection to an OPC Alarm and Event Server

1. Fill in the fields in the OPC A&E Client dialog box as follows.

Option	Description
Server	The OPC Alarm and Event Server that this client connects to. The server can be selected by double-clicking one of the configured OPC Alarm and Event Servers that display in the Server list in the bottom half of the OPC A&E Client dialog box.
Node	The computer name on which the server is located. **Note:** ◦ If the OPC Alarm and Event Server is on the local computer, the **Node** field can be blank. ◦ One client can connect to one OPC Server. If you have multiple OPC Servers, create multiple OPC clients.
Re-source ID	Factory resource the OPC Alarm and Event Server will use to collect alarm data.
Filter	Opens the OPC Filter window *(on page 203)* to select alarm filter criteria.
Mes-sage	Attribute entries configure the alarm message that displays for the source alarms.
Fields	Opens the OPC Fields browser *(on page 205)* to list the attributes that can be selected for the **Message** field.
Re-fresh	Refreshes the display.

2. Click **OK**.

The OPC A&E Client dialog closes.

Alarms from projects that are configured for the OPC Alarm and Event Server will display in the client's Alarm Viewer.
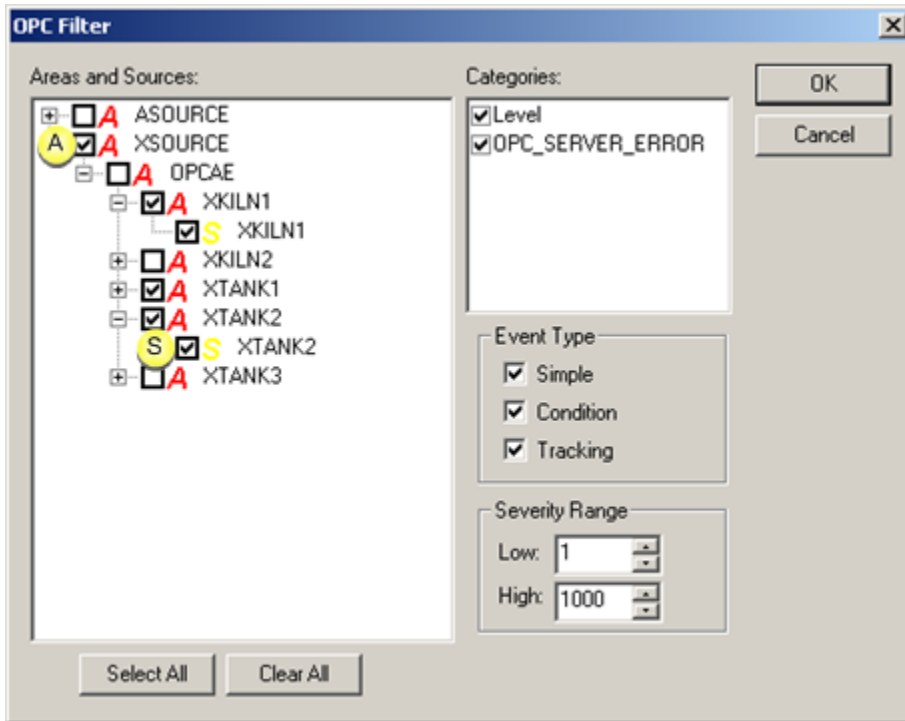
When there is no filter all of the alarms generated on the source and client computers display in the Alarm Viewer.
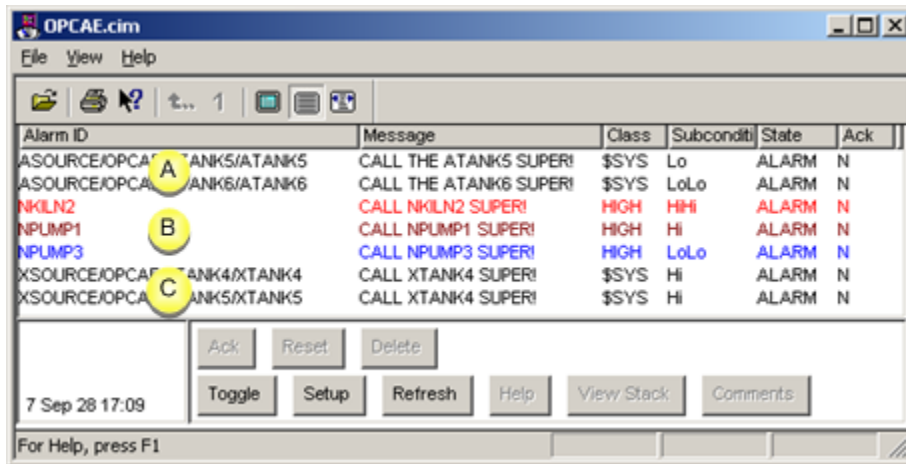
A	Alarms from a source project.
B	Alarms from a client project
C	Alarms from a source project.

Step 2.2.2. Filter Alarms that Display in the A & E OPC Client Alarm Viewer

1. Click the **Filter** button [Filter...] in the OPC A&E Client dialog box.

   The OPC Filter window opens.
2. Select the following.

Window area	Description
Areas and Sources	Are created dynamically as the alarms are generated. If the alarms have not been generated then they will not show in the list of areas and sources. If there are no selections, all alarms display in the Alarm Viewer. You can select sources or areas for which you want to receive alarms. A S
Categories	Check which categories to receive. If there are no selections all categories will display.
Event Type	Types of alarms and events the should display: Simple, Condition, Tracking.
Severity Range	Lowest and highest limits in the severity range *(on page 37)* in which displayed alarms fall.

Your selections determine which alarms will display in the Alarm Viewer control.

Step 2.2.3. Change the Display in the Alarm Viewer Message Field

You can enhance or change the information that displays in the source projects message field.

1. Make sure that dynamic configuration is turned on in the client project, if the project is running.
2. Do any of the following:
   - Add an attribute.
   - Add text.
   - Add text and attributes.
   - Leave the **Message** field blank.

> ⚠ **Important:**
>
> You can make multiple entries in the **Message** field. If you do leave spaces between each selection, the spaces will display during runtime. However, the maximum alarm message length is 73 characters, including the point ID (and spaces). If the message is longer, the message will be truncated after 73 characters.

Add an attribute

The following attributes are available for the OPC Alarm and Event Client use.

- Category
- Condition
- Message
- Subcondition

When you enter an attribute in the **Message** field, make sure the attribute is enclosed in **<>**, e.g. <Category>

> ℹ **Tip:**
>
> Click the Fields button Fields... to open the OPC Fields browser and select an attribute.

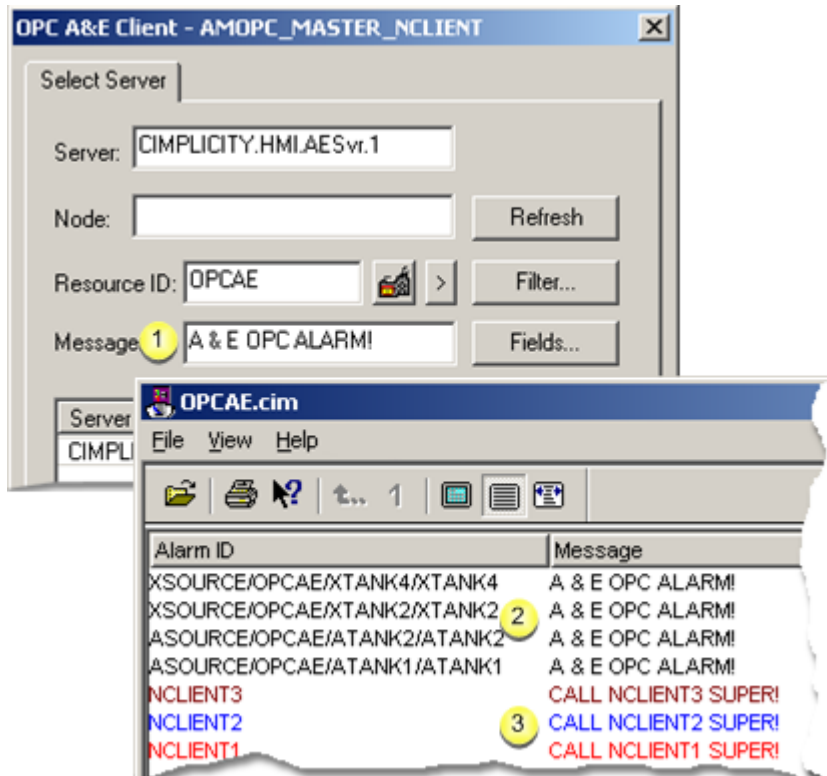Values for the selected attributes will display in the message field during
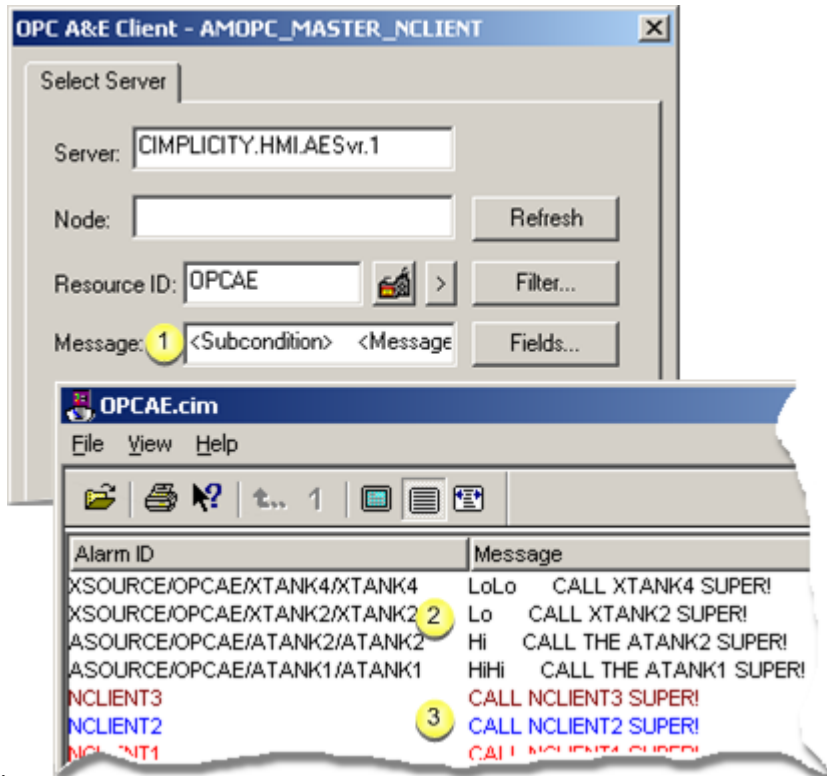
runtime.

1	Fields and spaces configured for the OPC Alarm and Event Server alarm messages.
2	OPC Alarm and Event Server alarm fields and spaces display in the runtime Message column.
3	Alarm messages display for Client alarms during runtime.

Add text

You can enter any text in the **Message** field.

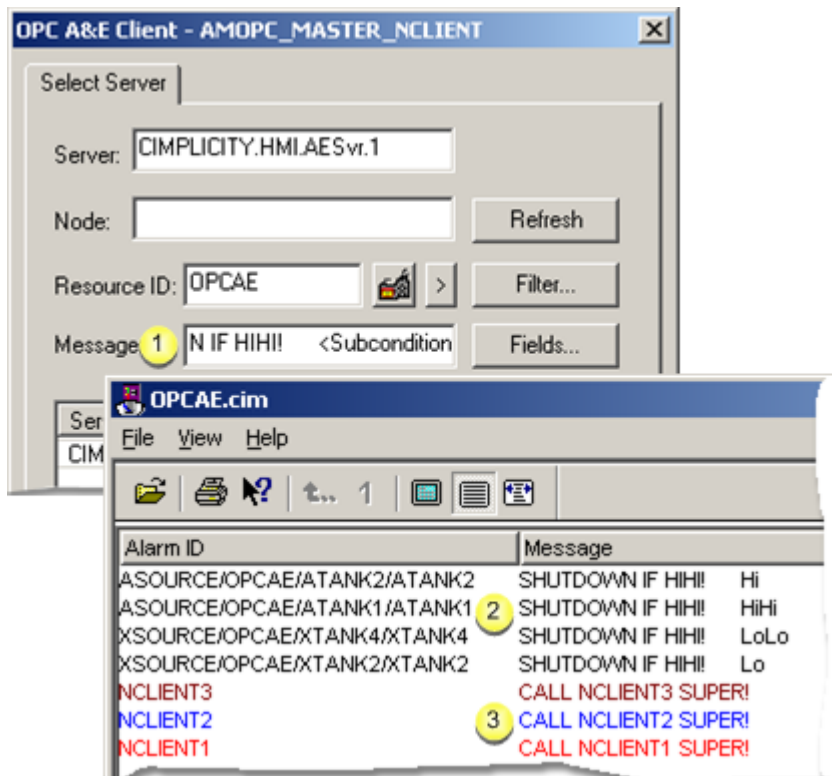The entered text will display in the alarm's Message field during

runtime.

1	Actual text that will display as the OPC Alarm and Event Server alarm message.
2	Actual text that displays as the OPC Alarm and Event Server alarm message during runtime
	Note: The number of spaces between the text and sub-condition value correspond to the number of spaces entered in the **Message** field during configuration.
3	Alarm messages display for Client alarms during runtime.

Add text and attributes

You can enter text and one or more attributes in the **Message** field.

The entered text and values for the attributes display in the alarm's Message field during

runtime.

1	Actual text and sub-condition whose value will display as the OPC Alarm and Event Server alarm message.
2	Actual text and sub-condition value that display as the OPC Alarm and Event Server alarm message during runtime ✏️ **Note:** The number of spaces between the text and the sub-condition value correspond to the number of spaces entered in the **Message** field during configuration.
3	Alarm messages display for Client alarms during runtime.

Leave the field blank

Entry in the **Message** field is optional. It can be left blank.

The original message entered for the alarm
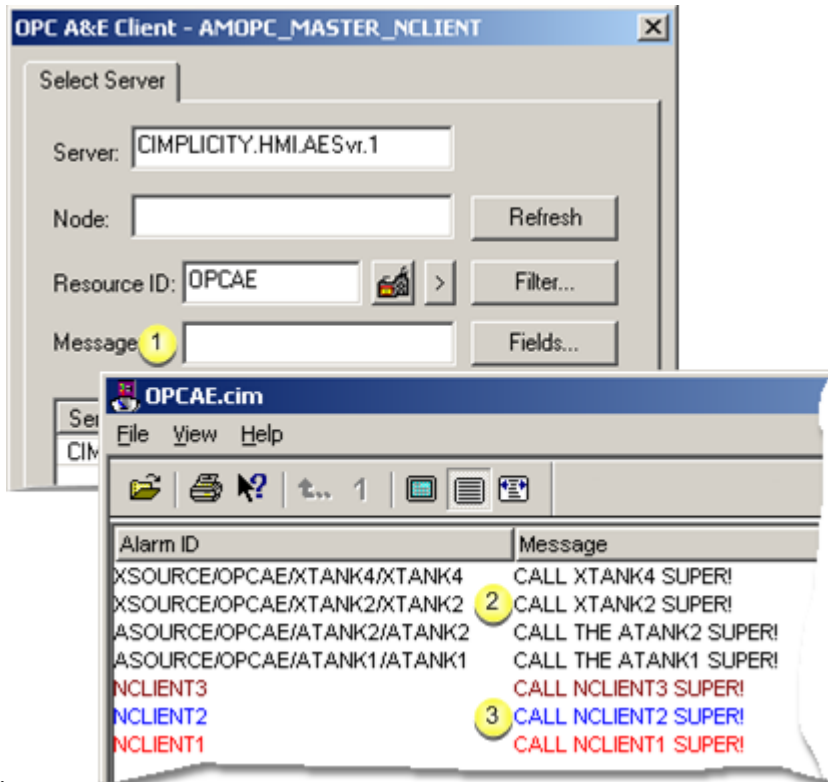
displays.

1	The Client has no configuration to override the original message for Server alarms.
2	Alarm messages configured in the Server projects display for the Server alarms during run-time
3	Alarm messages display for Client alarms during runtime.

## Step 2.3. Modify Source Alarms Default Logging and Deletion Requirements for the Client Display

Alarms and events from OPC servers are created dynamically based on the following alarms in the client computer Alarms folder.

Alarm	Dynamical-ly creates
$OPC_MODEL_ALARM	Point alarms
$OPC_MODEL_EVENT	Events
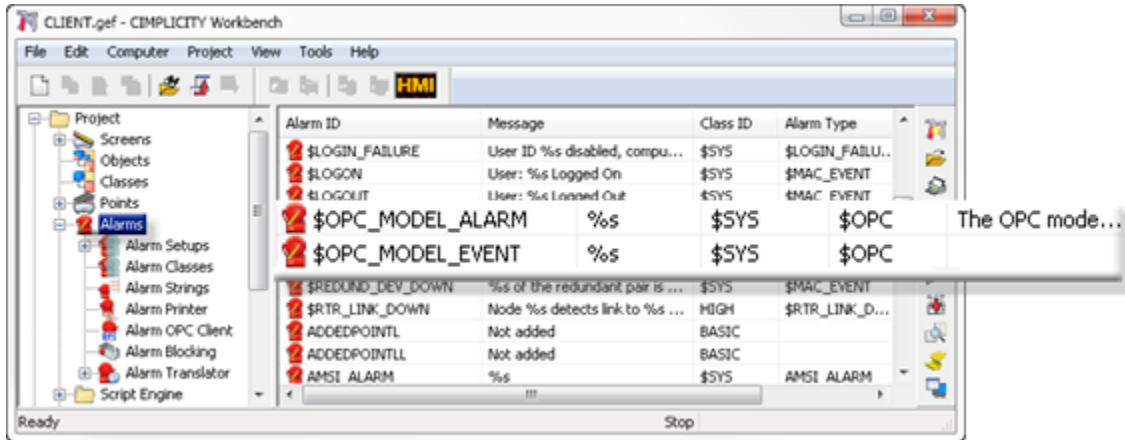
You can modify these alarms to change the default behavior for the source alarms.

1. Double-click either `$OPC_MODEL_ALARM` or `$OPC_MODEL_EVENT` in the Alarms folder on the client computer.

   The Alarm Definition dialog box for the selected alarm opens.
2. Select the Alarm Definition tab.
3. **Optional:** Check one or more of the Alarm Logging options.
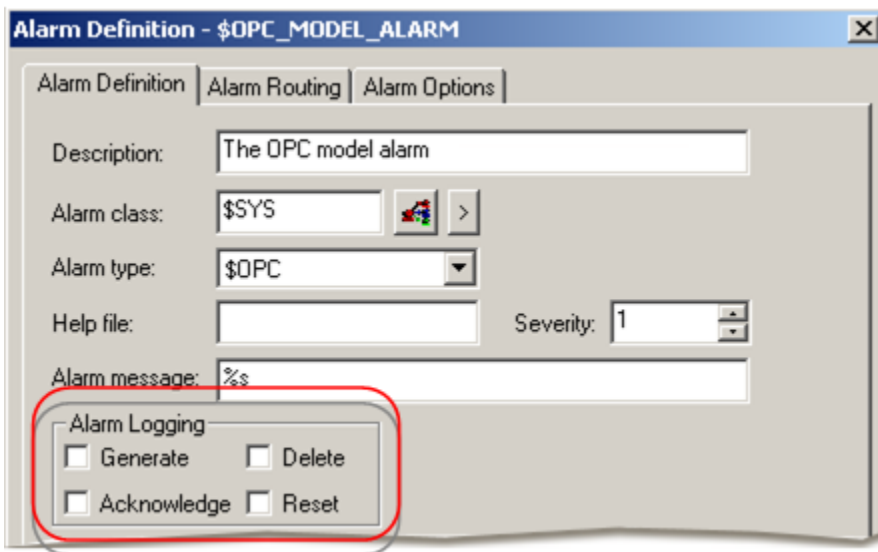
Alarm	Option	Description	Default Value
$OPC_MODEL_-ALARM	Alarm Logging	Alarms are logged to the Alarm log for checked options.	All check boxes are clear.
$OPC_MODEL_-EVENT	Alarm Logging	Event alarms are logged to the Event log for checked options.	All check boxes are clear.

> **Note:**
> Do not change the **Alarm class** and **Alarm type**.

4. Select the Alarm Options tab.

5. **Optional:** Change default options to your system requirements.
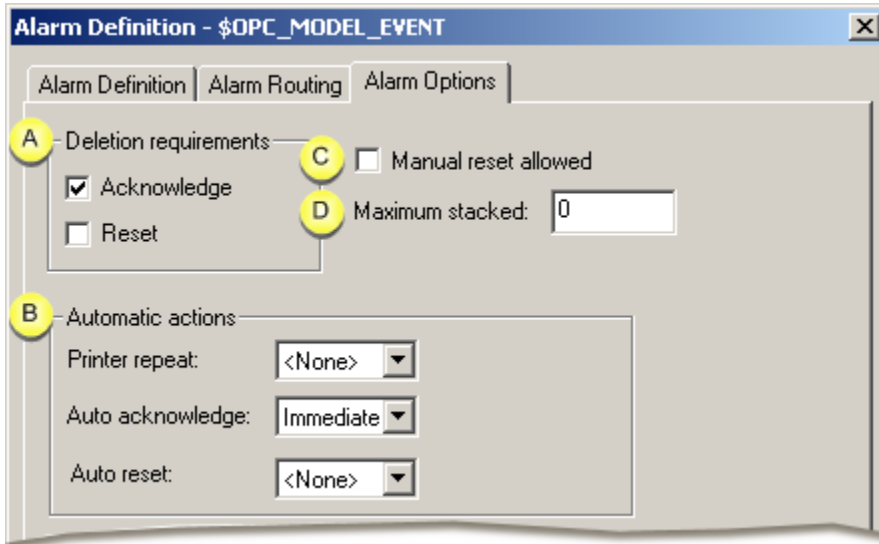
Letter	Alarm	Option	Default Value
A	$OPC_MODEL_ALARM	Deletion require-ments	
		Acknowledge	Checked
		Reset	Checked
B		Automatic actions	
		Printer repeat	<None>
		Auto acknowledge	<None>
		Auto reset	<None>
C		Manual reset allowed	Clear
D		Maximum stacked	0
A	$OPC_MODEL_EVENT	Deletion require-ments	

Letter	Alarm	Option	Default Value
		Acknowledge	Checked
		Reset	Clear
B		Automatic actions	
		Printer repeat	<None>
		Auto acknowledge	<Immediate>
		Auto reset	<None>
C		Manual reset allowed	Clear
D		Maximum stacked	0

> ⚠ **Important:**
> ◦ If you change any of these requirements, e.g. check Manual reset allowed, you can delete the Alarm from the client Alarm Viewer display. However, this action is not sent back through the OPC server to the source project.
> ◦ Change the default $OPC_MODEL_EVENT Auto acknowledge to **<None>** if you want users to view event alarms in the client Alarm Viewer.

Step 2.4. Configure Source Alarms on the Client Computer

Step 2.4.1 *(on page 212)*	Create source alarms on the client computer.
Step 2.4.2 *(on page 214)*	Define source alarms on the client computer.

Step 2.4.1. Create Source Alarms on the Client Computer

You can also configure source alarms on the client computer if you know the following:

- Project names

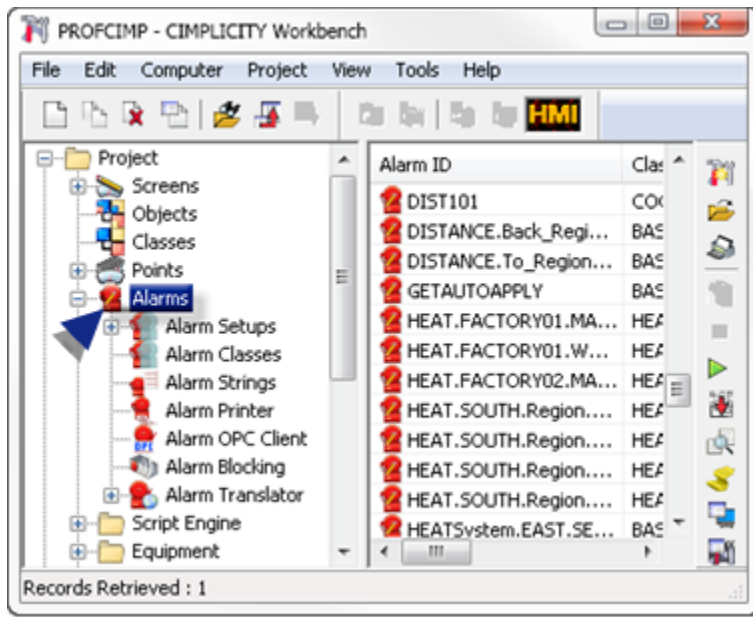- Factory resource IDs

- Alarm reference IDs

> 📝 **Note:**
>
>   A point alarm's reference ID is the point ID.

- Alarm IDs

This gives you more control over the alarm display.

1. Double-click **Alarms** in the left pane of the client project Workbench.

A New Alarm dialog box opens.

2. Enter a fully qualified name for a source project alarm that will be viewed in the client's Alarm Viewer.
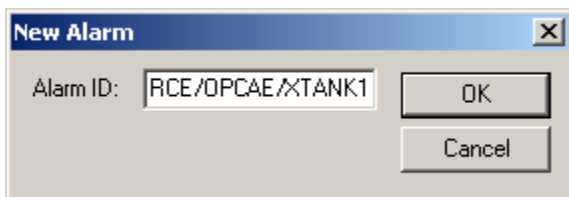
```
Project/Factory Resource ID/Reference ID/Alarm ID.
```

> ⚠️ **Important:**
>
>   The fully qualified alarm ID:
>
>   ◦ Must be a maximum of 255 characters or less.
>   ◦ Cannot contain the characters: $, | or start with @.

Example

SNORTH/AANDE/SN5/SN5

> **Note:**
>
> If a reference ID has not been specifically specified for the point it is the same as the point ID.

The alarm can now be configured similar to a local alarm.

Step 2.4.2. Define Source Alarms on the Client Computer

1. Select the **Alarm Definition** tab in the Alarm Definition dialog box.

   Options descriptions are:
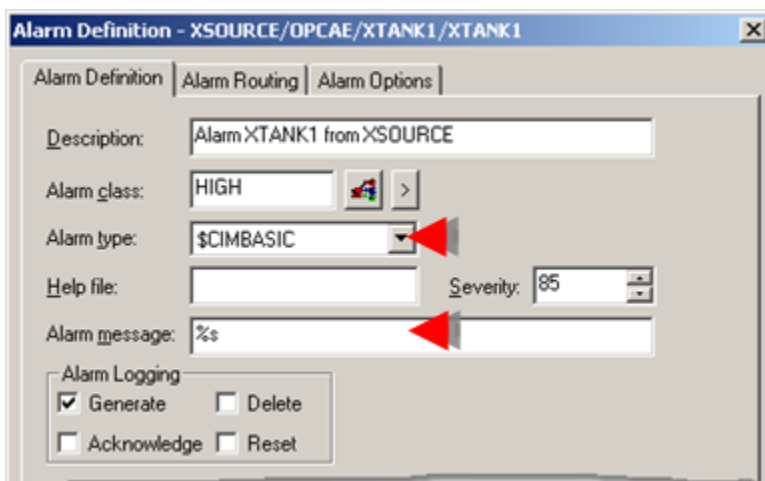
   1. #unique_189_Connect_42_Description *(on page 215)*
   2. #unique_189_Connect_42_AlarmClass *(on page 215)*
   3. #unique_189_Connect_42_Help *(on page 215)*
   4. #unique_189_Connect_42_AlarmType *(on page 215)*
   5. #unique_189_Connect_42_Severity *(on page 215)*
   6. #unique_189_Connect_42_AlarmMessage *(on page 215)*
   7. #unique_189_Connect_42_AlarmLogging *(on page 215)*

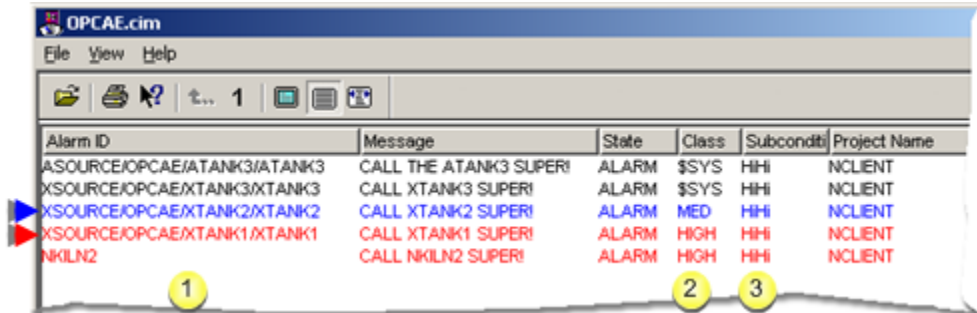| Field	Description
Description	Used to describe the alarm in the client project, e.g. in the Workbench right pane.
Alarm class	Colors for states in the class that are recognized by the OPC A & E configuration display in the Alarm Viewer. **Note:** The class name does not have to be the same as the class used on the OPC A & E server.
Alarm type	$CIMBASIC is the required entry.
Help file	(Optional) Name of a text file that users can display when they click the Help button in the Alarm Viewer. You can enter a filename of up to 67 characters.
Severity	A number the identifies the importance of the alarm; the higher the number, the more severe the state. This enables you to prioritize alarms.
Alarm message	%s (lower case) is the required entry.
Alarm Logging	Alarms are recorded in the client project's Alarm log, based on the checked conditions.

2. Select the **Alarm Routing** tab.

3. Make sure the alarms are routed to the role for the A & E OPC server user.
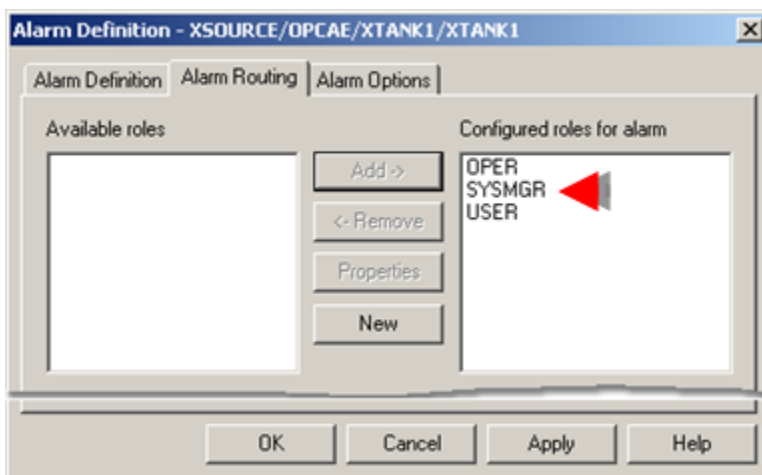
4. **Optional:** Configure alarm options.

5. Click **OK** to close the Alarm Definition dialog box.

The qualified alarm displays the source alarm data that is recognized by the OPC Alarm and Event configuration.

|	
1	Alarm IDs from Server projects display the same type of qualified name whether or not they have been defined in the Client project.
2	The class assigned to the alarm ID in the client project is one of the following: Alarm type Auto qualified Server alarms Qualified Server alarms Client alarms
3	The sub-condition that displays in the Sub-condition column reflects the alarm limits assigned in the alarm's source project. The color assigned to the alarm ID *(on page 218)* is based on the sub-condition for the assigned class and the alarm state. Alarm type Auto qualified Server alarms Qualified Server alarms Client alarms

Step 3. Use the OPC Alarm and Event Client and Server at Runtime

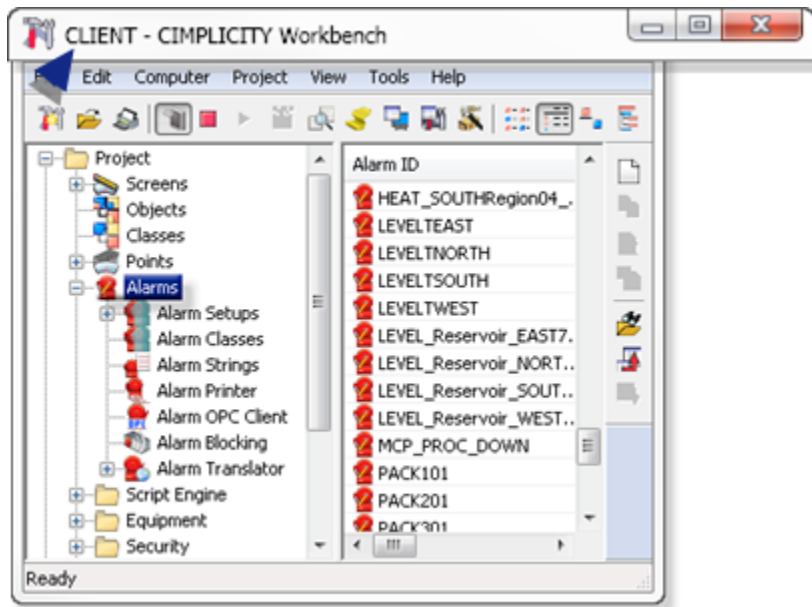## Step 3. Use the OPC Alarm and Event Client and Server at Runtime

Step 3.1 *(on page 217)*	Start the source and client projects.
Step 3.2 *(on page 218)*	Use the OPC Alarm and Event Client Alarm Viewer.
Step 3.3 *(on page 219)*	Review runtime statistics in the OPC Alarm and Event server window.
Step 3.4 *(on page 220)*	Disconnect clients.

Step 3.1. Start the Source and Client Projects

1. Start the source project or projects.
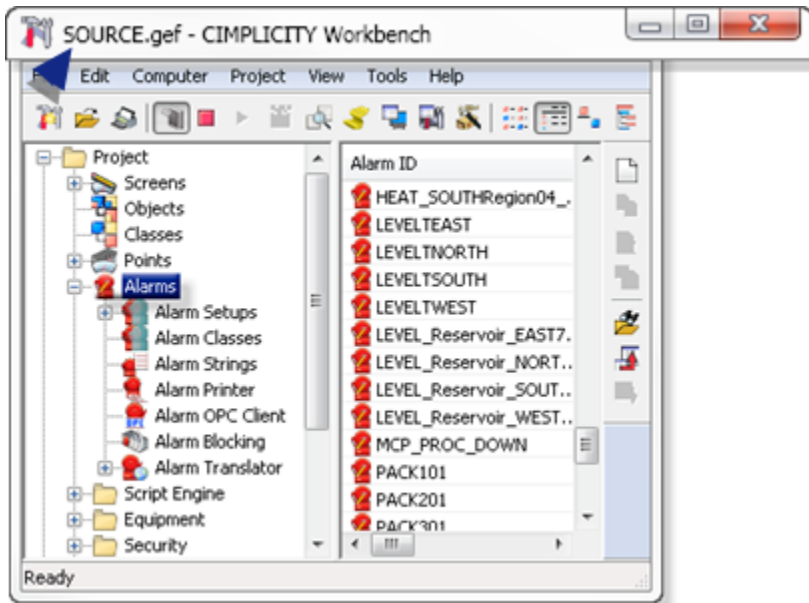
2. Start the client project.

The OPC Alarm and Event Server window opens on the server computer, if it is not already running.
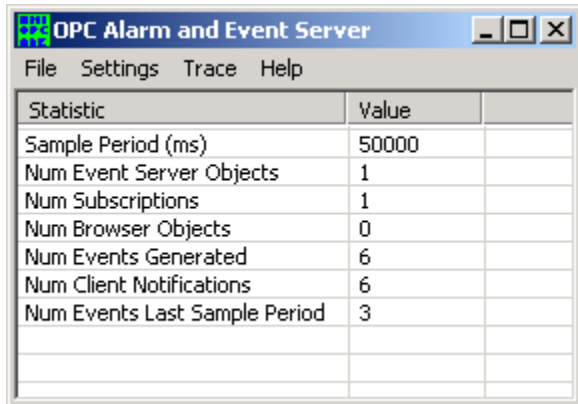
Step 3.2. Use the OPC Alarm and Event Client Alarm Viewer

Open an Alarm Viewer control or the stand alone Alarm Viewer on the client computer.

The display reflects your configuration and the alarm source.

1. #unique_190_Connect_42_Configured *(on page 219)*

2. #unique_190_Connect_42_ClientAlarm *(on page 219)*

3. #unique_190_Connect_42_Sourceevent *(on page 219)*

4. #unique_190_Connect_42_Sourcealarm *(on page 219)*

1 *(on page 212)*	Configured source: Alarm ID, Message, Class, Subcondition.
2 *(on page 209)*	Source alarm: Alarm ID, Message, Class, Subcondition.
3 *(on page 209)*	Source event: Alarm ID, Message, Class, Subcondition.
4	Client alarm: Alarm ID, Message, Class, Subcondition.

# Step 3.3. Review Runtime Statistics in the OPC Alarm and Event Server Window

The OPC Alarm and Event Server window *(on page 190)* displays statistics to inform you of client/ source projects alarm activity.

| Statistic	Describes Number of:
Sample Period (ms)	Milliseconds the server takes to collect data. At the end of the period, the data is displayed in the Client Alarm Viewers.
Num Event Server Objects	Internal events and alarms currently supported by the server.
Num Subscriptions	Clients that are running and being sent data from the server.
Num Browser Objects	Clients browsing for information. 📝 **Note:** CIMPLICITY OPC Alarm and Event Server supports clients with browsing functionality.
Num Events Generated	Changes of states; changes include alarms being activated and alarms acknowledged.
Num Client Notifications	Number of server to client notifications.
Num Events Last Sample Period	Events the server collected during the specified sample period. Example The server collected 19 events during the last 1000 milliseconds, the length specified for the server's sample period.

Step 3.4. Disconnect Clients

1. Click **File** on the OPC Alarm and Event Server window menu bar.
2. Select **Request Clients to Disconnect.**
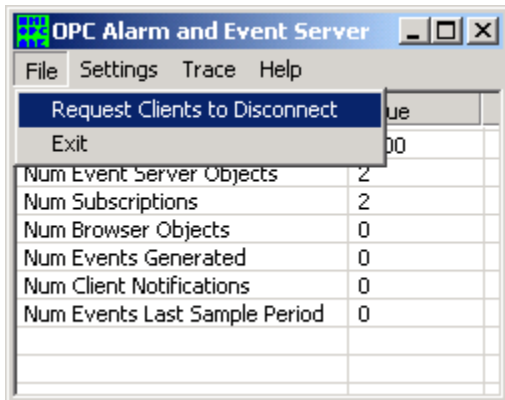
All clients connected to the OPC Alarm and Event Server are disconnected for the sample period.
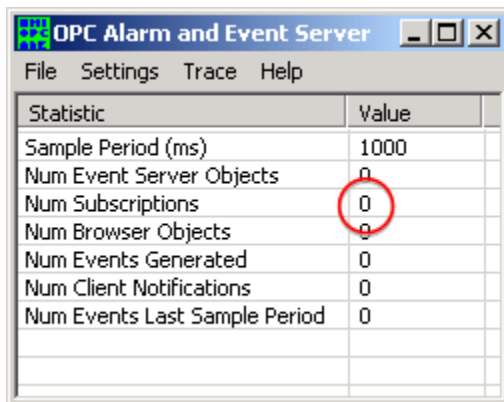
At the end of the sampling period they are reconnected.
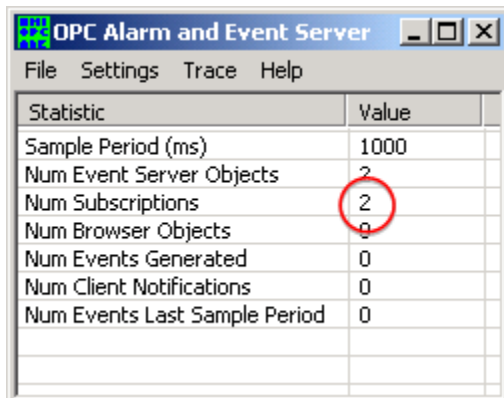
OPC Alarm and Event Server Technical Notes

- Redundant environments.
- DCOM configuration.
- OPC Alarm & Event server shortcut icon.

Redundant Environments

The OPC Alarm and Event Server should be run on a third computer in a redundant environment. The OPC server will then fail over correctly

> ✎ **Note:**
>
> If you try to configure an OPC Alarm and Event Server on the primary and secondary computers, you will create a feedback loop that will fail.

DCOM Configuration

When you want the OPC Alarm and Event Clients to communicate with an off-node OPC Alarm and Event Server, configure the same DCOM configuration for the OPC Alarm and Event Server and OPCEnum as you do for the CIMPLICITY OPC Server.

OPC Alarm & Event Server Shortcut Icon

You can place a shortcut ic...to open the OPC Alarm & Event server.

When the OPC Alarm & Event server opens it:

- Reads project configuration at startup and populates the server configuration database.
- Sets its status to OPCAE_STATUS_NOCONFIG until all configuration information is processed.
- Sets the status to OPCAE_STATUS_RUNNING when it is ready.
- Updates its configuration as projects are added and removed and in addition processes dynamic configuration notifications from the projects to keep its own configuration database up-to-date.

> ⚠ **Important:**
>
> A&E OPC Clients should not use the A&E OPC Server while the status is OPCAE_STATUS_NOCONFIG.

Make sure the server status is OPCAE_STATUS_RUNNING before attempting to set a filter.