ControlShop™

FTAlarm

Version 4.03

By FasTrak SoftWorks, Inc.

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Table Of Contents

FTAlarm Overview

FTAlarm monitors alarm conditions specified by the user across multiple devices. Alarms are displayed in a spreadsheet format with up to 3150 alarms per Alarm Sheet.

Alarm conditions can be:

- Logged to a Microsoft Access or SQL database
- Printed
- Flashed on the screen
- Announced by playing a wave file
- Announced using voice synthesis
- Announced by pager or phone
- Sent by email

The user interface consists of a list (spreadsheet) view and a graphic view. The list view consists of a split window with the upper portion displaying all the alarms being monitored in a spreadsheet-type format and the lower portion displaying the status for selected alarms. The graphics view displays custom text and alarms represented by buttons.

The graphics view has a design (offline) mode and a runtime (online) mode. In the design mode, multiple screens may be created with buttons and text. In runtime mode, users can left and right mouse click on the buttons to perform pre-configured tasks.

Access to devices is handled through FasTrak or OPC Data Access Standard (Version 2.05 or below) communication servers.

All the alarm conditions and settings will be saved into one .ALM file. Device configuration information is stored in a .CFG file whose name and path are saved in the .ALM file. The .CFG file can be loaded into any ControlShop client. Documentation is stored in a Microsoft Access or SQL database file, which can be shared with other FasTrak software applications. Documentation can be imported from, or exported to, a text file.

Online/Offline

FTAlarm has two modes: online and offline.

In online mode, FTAlarm is in actual operation - monitoring the communication servers and reporting alarm conditions.

In offline mode, FTAlarm is ready for configuration. Alarms can only be created or edited in offline mode.

FTAlarm cannot be placed in online mode until at least one alarm has been configured.

The mode is shown as a menu, with **Online** and **Offline** options.

The current mode is grayed out - the only available option is to select the other mode.

The mode is also shown on the toolbar as illustrated below. The mode icon is shown in red when offline, and green when online. Clicking the icon changes the mode.

Configuring Device Sources

Configuring Device Sources

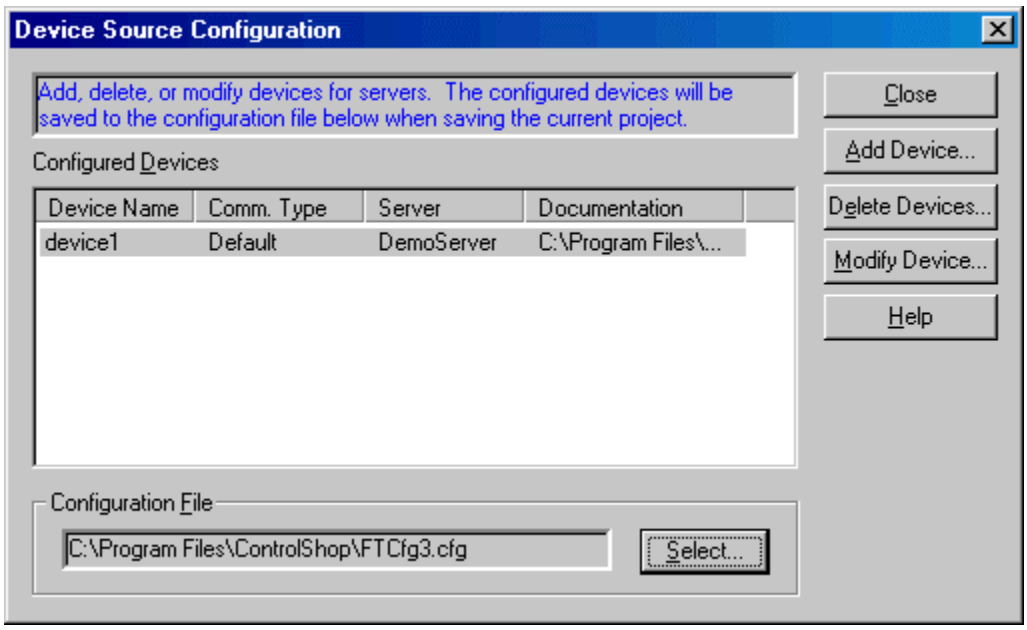
The **Device Source Configuration** dialog allows you to configure the devices from which data points are read using FasTrak servers. (Configuration of OPC servers is dependent on each OPC manufacturer.)

For each device, FTAlarm requires the following information:

- **Device Name:** A unique name to identify the device that is connected to a server.
- **Comm Type:** The communication system by which the server communicates with the device - COM port, TCP/IP, etc. The options depend on the device.
- **Server:** The server name that the device is connected to. Communication servers are shared between FasTrak applications and OPC clients allowing multiple applications to communicate with the same devices at the same time.
- **Doc File Path:** The documentation database, which holds the address documentation for the device. To share documentation (for example, from the shared documentation database for a WorkShop program) set the **File Path** to the shared documentation database. If the **File Path** is set to a database that does not exist, a new database will be created.
- **Communications Parameters:** Configuration for communications between the PC and the device. This information is not shown in the **Device Source Configuration** dialog. (See **Setting Up Communications**.)

To configure a device connected to a FasTrak server:

1. Select the **Setup / Device Source** menu option or the  toolbar button. The **Device Source Configuration** dialog appears.


Device Source Configuration
Add, delete, or modify devices for servers. The configured devices will be saved to the configuration file below when saving the current project.
Configured Devices
Device Name
Comm. Type
Server
Documentation
device1
Default
DemoServer
C:\Program Files\...
Configuration File
C:\Program Files\ControlShop\FTCfg3.cfg
Select...
Close
Add Device...
Delete Devices...
Modify Device...
Help

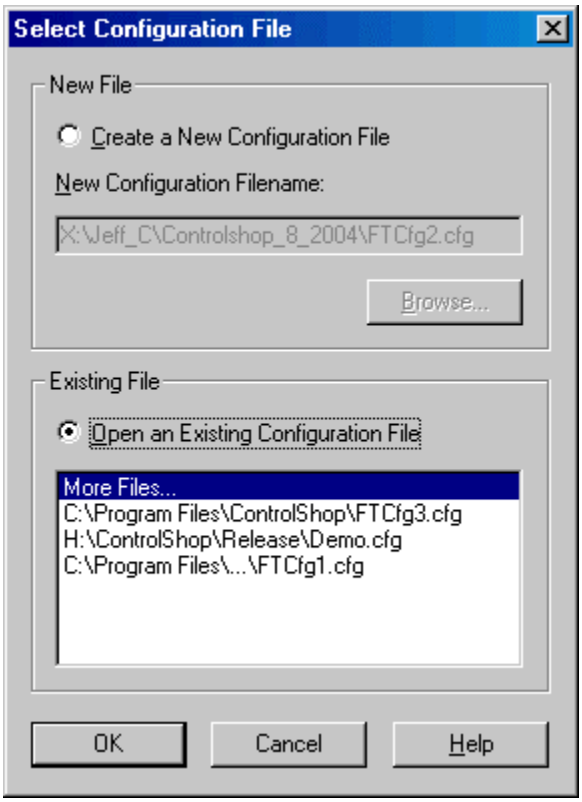
2. Click the following buttons to access configuration options:
   - **Add Device:** Add a new device to the list.
   - **Delete Devices:** Delete the configuration for a highlighted device.
   - **Modify Device:** Edit the highlighted device configuration.
3. Click the **Select** button to select the configuration file to be used with this alarm project or to load a saved configuration. The configuration is saved in a .CFG file, not the .ALM Alarm file. The configuration will be saved to the .CFG file when the .ALM file is saved. (See **Selecting the Configuration File**.)

Selecting the Configuration File

Device configuration information is stored in a .CFG file. The project file contains the name of the .CFG file. Several projects can use the same configuration file. If no configuration files exist, the **Create a New Configuration File** option button in the **New File** area will be selected, and the corresponding edit box will contain a default configuration path and file name.

To select the configuration file:

1. Access the **Device Source Configuration** dialog by selecting the **Setup / Device Source** menu option or clicking the toolbar button.
2. Click the **Select** button in the **Configuration File** area. The **Select Configuration File** dialog appears.



3. Save the current configuration to a file or load a saved configuration.
   - **New File:** To create a new configuration file, select the **Create a New Configuration File** option button, and click the **Browse** button to browse for the new file name and location.
   - **Existing File:** To select an existing configuration file, select the **Open an Existing Configuration File** option button. If the desired file is in the recently-used files list, select it. Otherwise, click the **More Files** option in the list and browse for the file.

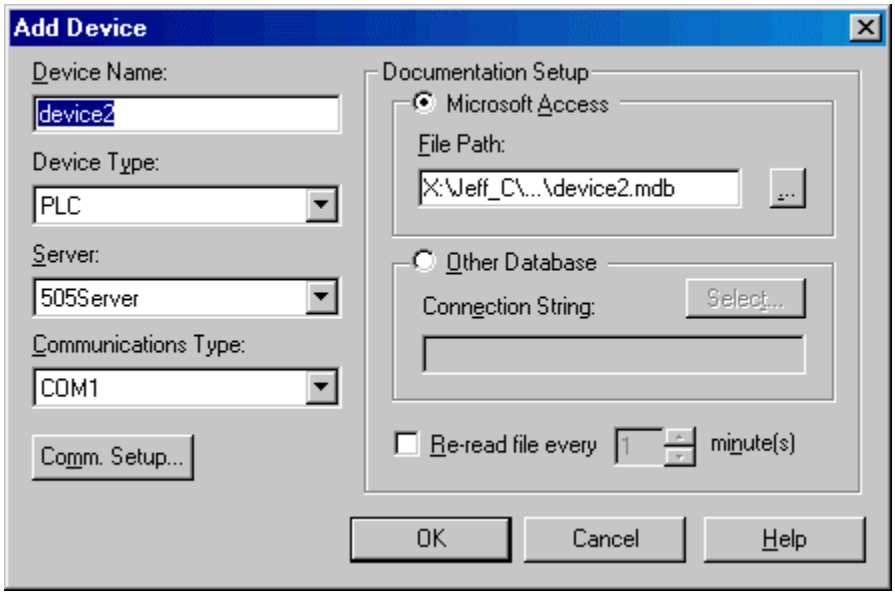
Adding Devices

The **Add Device** dialog is used to add a new device, which FTAlarm will communicate with.

To add a device:

1. Access the **Device Source Configuration** dialog by selecting the **Setup / Device Source** menu item or the toolbar button.

2. Click the **Add Device** button. The **Add Device** dialog appears.



3. Configure the new device, and click **OK**.
   - **Device Name:** Enter a name to identify the device. The device name must be unique.
   - **Device Type:** Select the type of device.
   - **Server:** Select the communication server. Communication servers are shared between FasTrak applications and OPC clients, allowing multiple applications to communicate with the same devices at the same time. The drop-down list shows the communication servers that have been installed on the computer.
   - **Communications Type:** Select the type of communications that connects the PC to the device. The options depend on the communications server selected.
   - **Comm Setup:** Click the Comm. Setup button to configure communications between the PC and the device. (See **Setting Up Communications**.)
   - **Documentation Setup:** Configure the documentation database, which holds the address documentation for the device. To use existing documentation (for example, from the shared documentation database for a WorkShop program) set the **File Path** to the shared documentation database. If you set the **File**

Path to a Microsoft Access database that does not exist, a new database will be created.

- **Re-read file every:** This option should only be selected when sharing the database with other applications, and only if the database is under development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be checked for changes.

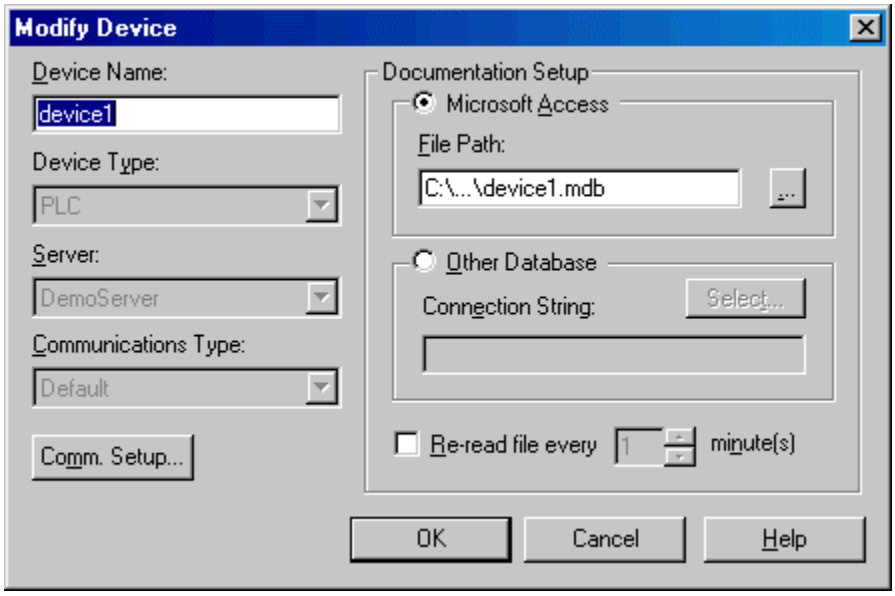
Modifying Devices

The **Modify Device** dialog is used to edit existing device configuration.

To modify a device that is already configured:

1. Access the **Device Source Configuration** dialog by selecting the **Setup / Device Source** menu item or the toolbar button.

2. Highlight the device in the list and click the **Modify Device** button, or double-click the device in the list. The **Modify Device** dialog appears.



3. Modify the device, and click **OK**.
   - **Device Name:** Enter a name to identify the device. The device name must be unique. Unlike within the **Add Device** dialog, when the device name is modified, the documentation file name does not change.
   - **Comm Setup:** Click the Comm. Setup button to configure communications between the PC and the device. If the device is offline, the communication settings can be modified. If the device is online, the communication settings can be viewed but cannot be modified.
   - **Documentation Setup:** Configure the documentation database, which holds the address documentation for the device. To use existing documentation (for example, from the shared documentation database for a WorkShop program) set the **File Path** to the shared documentation database. If you set the **File Path** to a **Microsoft Access** database that does not exist, a new database will be created.
   - **Re-read file every:** This option should only be selected when sharing the database with other applications, and only if the database is under

development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be checked for changes.

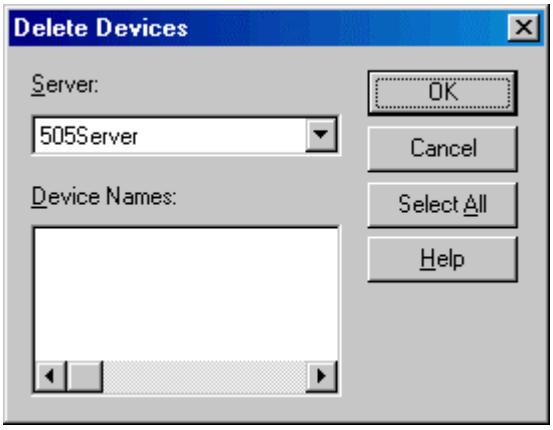
Deleting Devices

The Delete Devices dialog is used to delete devices from the current configuration.

To delete a device:

1. Access the **Device Source Configuration** dialog by selecting the **Setup / Device Source** menu item or the  toolbar button.

2. Click the **Delete devices** button. The **Delete Devices** dialog appears.



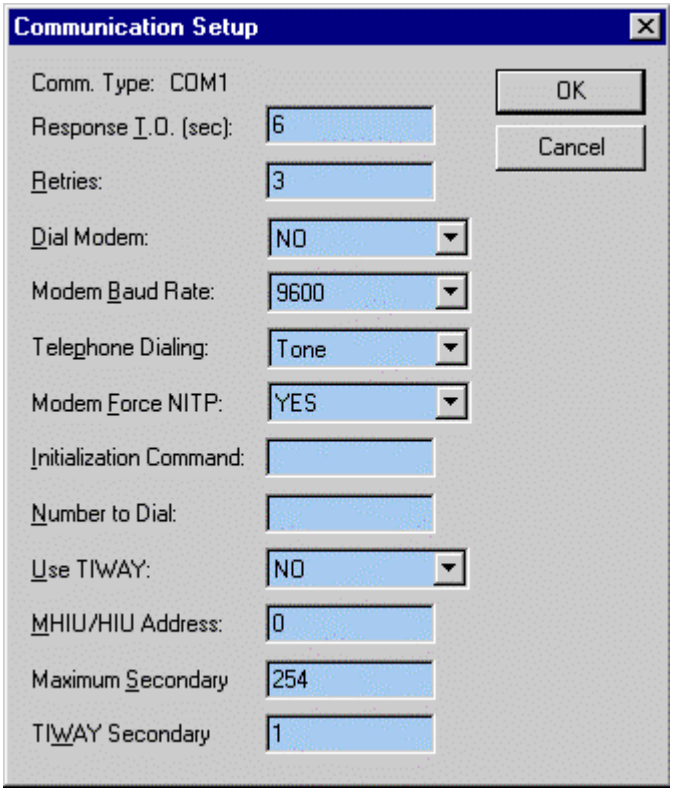
3. Select the **Server** that controls the devices to be deleted. The **Device Names** list shows the devices configured for that server.
4. Select the device(s) to be deleted. To delete all the devices for a server, click the **Select All** button.
5. Click **OK**.

Setting Up Communications

The **Communication Setup** dialog configures communications between the PC and one of the configured devices. It varies depending on the type of device and the type of communication.

To configure communications:

1. Access the **Device Source Configuration** dialog by selecting the **Setup / Device Source** menu option or clicking the toolbar button.
2. Access the configuration dialog for the device, by clicking the **Add Device** button or selecting the device in the list and clicking the **Modify Device** button. When modifying an existing device, if the device is online, the communication setup can be viewed but not edited.
3. Select the **Server**, if possible. The **Server** and **Communications Type** cannot be changed in an existing device.
4. Select the **Communications Type**, if possible.
5. Click the **Comm. Setup** button. The **Communication Setup** dialog appears.



6. Configure communication options and click **OK**.

DemoServer Supported Addresses

The DemoServer provides a simulated device for testing and demonstrating ControlShop applications.

The following addresses are available:

Mod 5-digit	Mod 6-digit	Mod	Siemens 505	AB5	Address Description
40001	400001	4:1	V1	N7:0	Writable
40002	400002	4:2	V2	N7:1	Writable
40003	400003	4:3	V3	N7:2	0.1 second timer 1-1000
40004	400004	4:4	V4	N7:3	1 second timer 1-100
40005	400005	4:5	V5	N7:4	0.1 second timer 1-500
40006	400006	4:6	V6	N7:5	1 second timer 1-1000
40007	400007	4:7	V7	N7:6	0.1 second random
40008	400008	4:8	V8	N7:7	1 second random
40009	400009	4:9	V9.	F8:0	0.1 second sine wave
40011	400011	4:11	V11.	F8:1	0.01 second sine wave
00001	000001	0:1	C1	B3:0	1 second on/off toggle
00002	000002	0:2	C2	B3:1	0.1 second on/off toggle

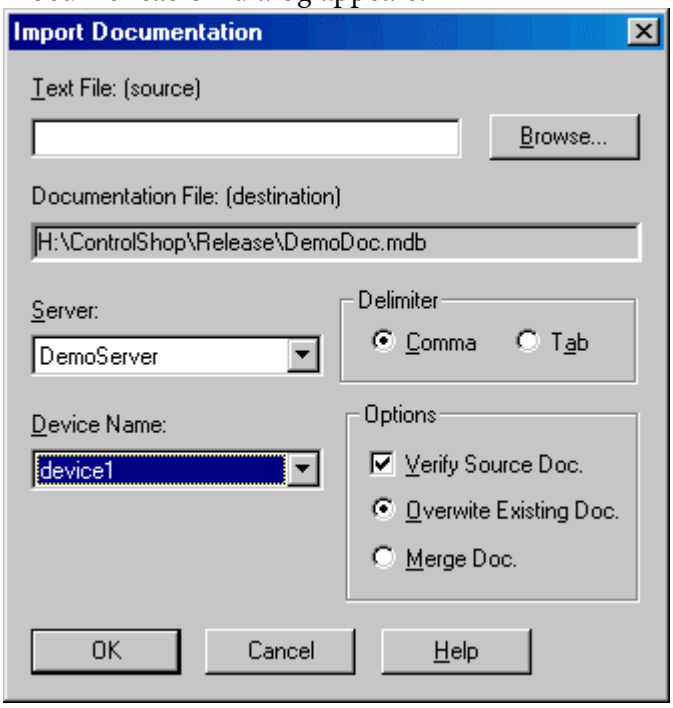
Importing / Exporting Documentation

Importing Documentation

A documentation database is associated with each device, containing tags, descriptions, and comments for addresses on that device. Text files containing address documentation can be imported into that database.

To import documentation:

1. Select the **File / Import/Documentation** menu option. The **Import Documentation** dialog appears.



2. Select the source file by typing in the **Text File (source)** field or by clicking the **Browse** button.
3. Select the communication **Server** for the device, which will receive the imported documentation. The list shows servers that are registered on the computer.
4. Select the Device Name. The list shows device configuration entries that are connected via the server that has been selected. The documentation database that corresponds to the selected device will be the recipient of the imported documentation.
5. If the **Server** is set to **ModServer**, select the option button for either **6 Digits** or **5 Digits**. The options are not visible for other servers.
6. The fields in the text file may be separated by either tabs or commas. Select the **Delimiter** by selecting the appropriate option button.

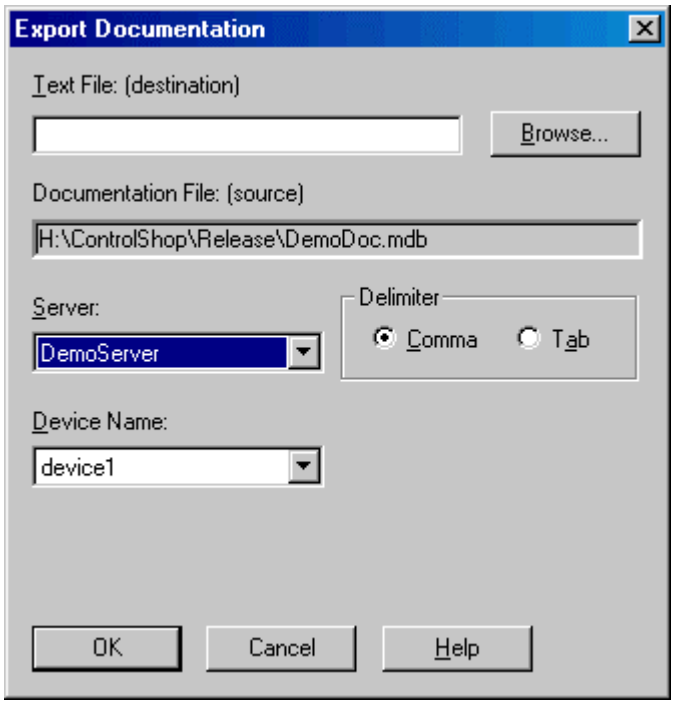
7. Set the **Options** as desired:
   - **Verify Source Doc:** Select the check box to verify tags, addresses, and the source file format. Clear the box for a faster import process.
   - **Overwrite Existing Doc:** When this option is selected, the database is cleared, so the imported documentation is the only documentation.
     - If an address is in the database but not in the imported file, the information in the database is lost.
   - **Merge Doc:** When this option is selected, the imported documentation is merged into the database.
     - If an address is in the imported file but not in the database, it is added to the database.
     - If an address is in the imported file and already in the database, a warning will be received. The address in the database will remain.
     - If an address is in the database but not in the imported file, the database information is left unchanged.
8. Click **OK**.

Exporting Documentation

A documentation database is associated with each device, containing tags, descriptions, and comments for addresses on that device. Documentation for a device can be exported from the database to a text file for editing in an outside program, such as Microsoft Excel, or for import into another application.

To export documentation:

1. Select the **File / Export/Documentation** menu option. The **Export Documentation** dialog appears.

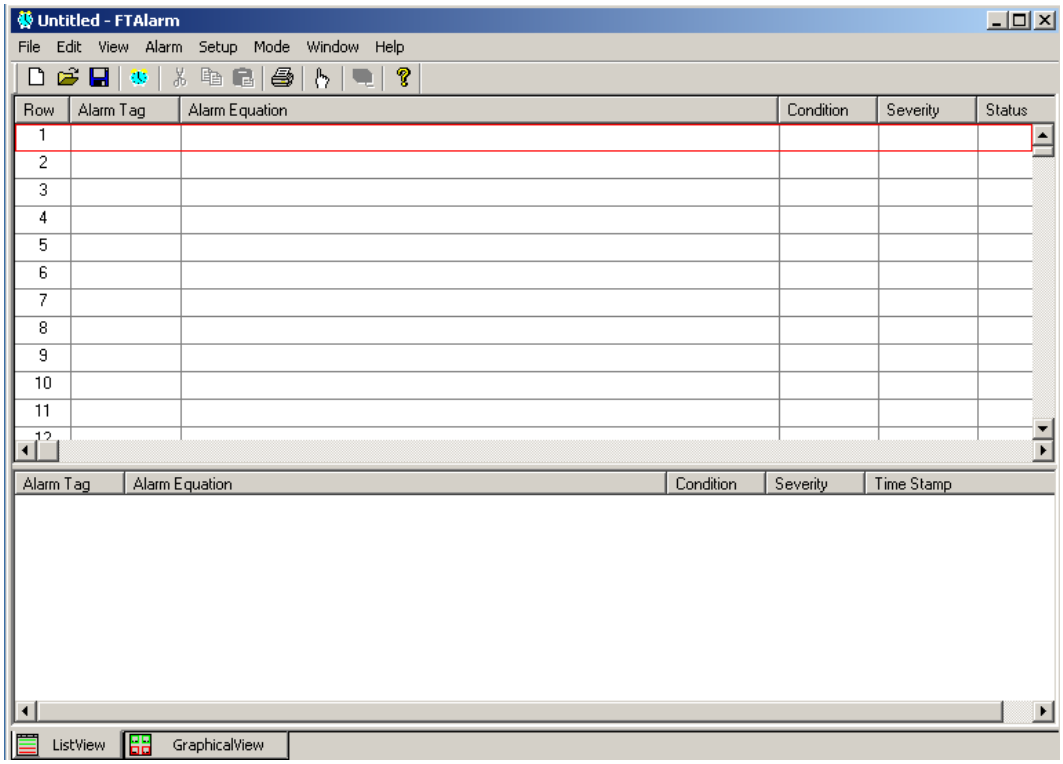


2. Select the destination file by typing in the **Text File (destination)** field or by clicking the **Browse** button.
3. Select the communication **Server** for the device. The list shows servers that are registered on the computer.
4. Select the **Device Name**. The list shows device configuration entries that are connected via the server that has been selected. The documentation database that corresponds to the selected device will be the source of the exported documentation.
5. The fields in the text file may be separated by either tabs or commas. Select the **Delimiter** by selecting the appropriate option button.
6. Click **OK**.

List View

List View Overview

The list view consists of two panes within one window. The upper pane, which is the Alarm Sheet, displays all the alarms being monitored. The lower pane displays the status for selected alarms.

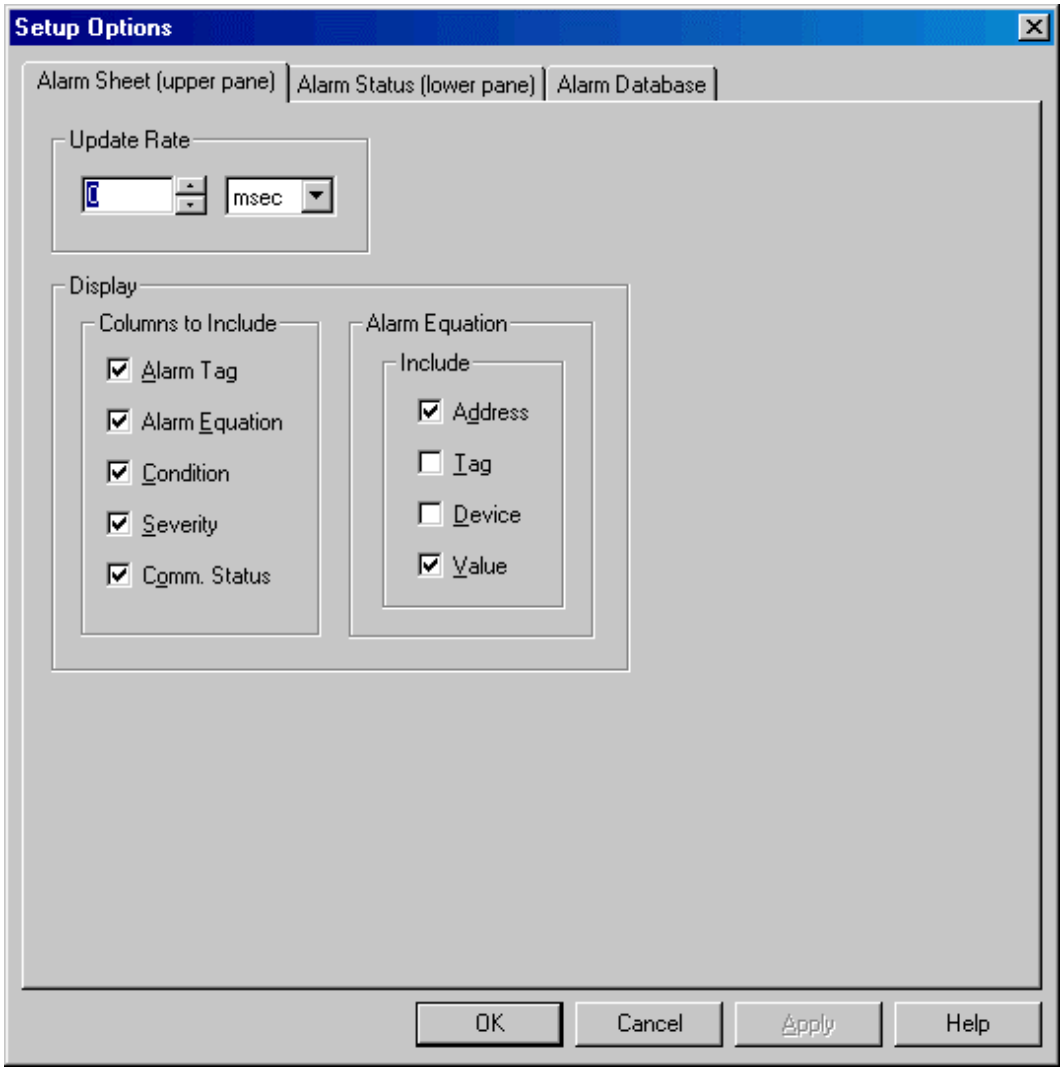


Setup Options

Use the **Setup Options** dialog to configure the **Alarm Sheet** and **Alarm Status**, which comprise the **List View** of the alarms, as well as the **Alarm Database**.

To access List View configuration options:

1. Select the **Setup / Options menu** option. The **Setup Options** dialog appears.

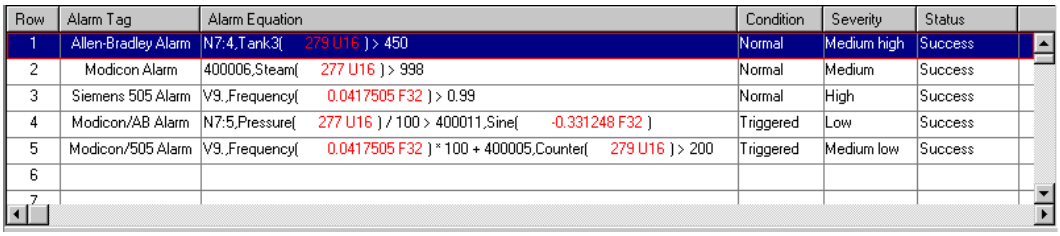


2. Configure alarm options within the following tabs and click **OK**.
   - **Alarm Sheet (upper pane):** Configure the update rate and the appearance of the upper part of the alarm sheet.
   - **Alarm Status (lower pane):** Select the alarms to display in the status area of the alarm sheet and configure their appearance.
   - **Alarm Database:** Configure the database that holds information about the status of all the alarms, autoprint, and calls in and out.

Alarm Sheet (upper pane)

Alarm Sheet Appearance

The Alarm Sheet is shown on the upper part of the FTAlarm **List View** window. It shows the configuration, and if online, the status, of each alarm. Each column is optional.



Row	Alarm Tag	Alarm Equation	Condition	Severity	Status
1	Allen-Bradley Alarm	N7:4,Tank3(279 U16) > 450	Normal	Medium high	Success
2	Modicon Alarm	400006,Steam(277 U16) > 998	Normal	Medium	Success
3	Siemens 505 Alarm	V9.,Frequency(0.0417505 F32) > 0.99	Normal	High	Success
4	Modicon/AB Alarm	N7:5,Pressure(277 U16) / 100 > 400011,Sine(-0.331248 F32)	Triggered	Low	Success
5	Modicon/505 Alarm	V9.,Frequency(0.0417505 F32) * 100 + 400005,Counter(279 U16) > 200	Triggered	Medium low	Success
6					
7					

- Use the **Alarm Sheet (upper pane)** tab of the **Setup Options** dialog to configure the information to be displayed and the refresh rate. Access the **Setup Options** dialog by selecting the **Setup / Options** menu option.
- Use the **Edit Alarm** dialog to edit alarms. Access the **Edit Alarm** dialog by highlighting a row containing the alarm to be edited in the Alarm Sheet and selecting the **Alarm / Edit** menu option or by double-clicking the row.

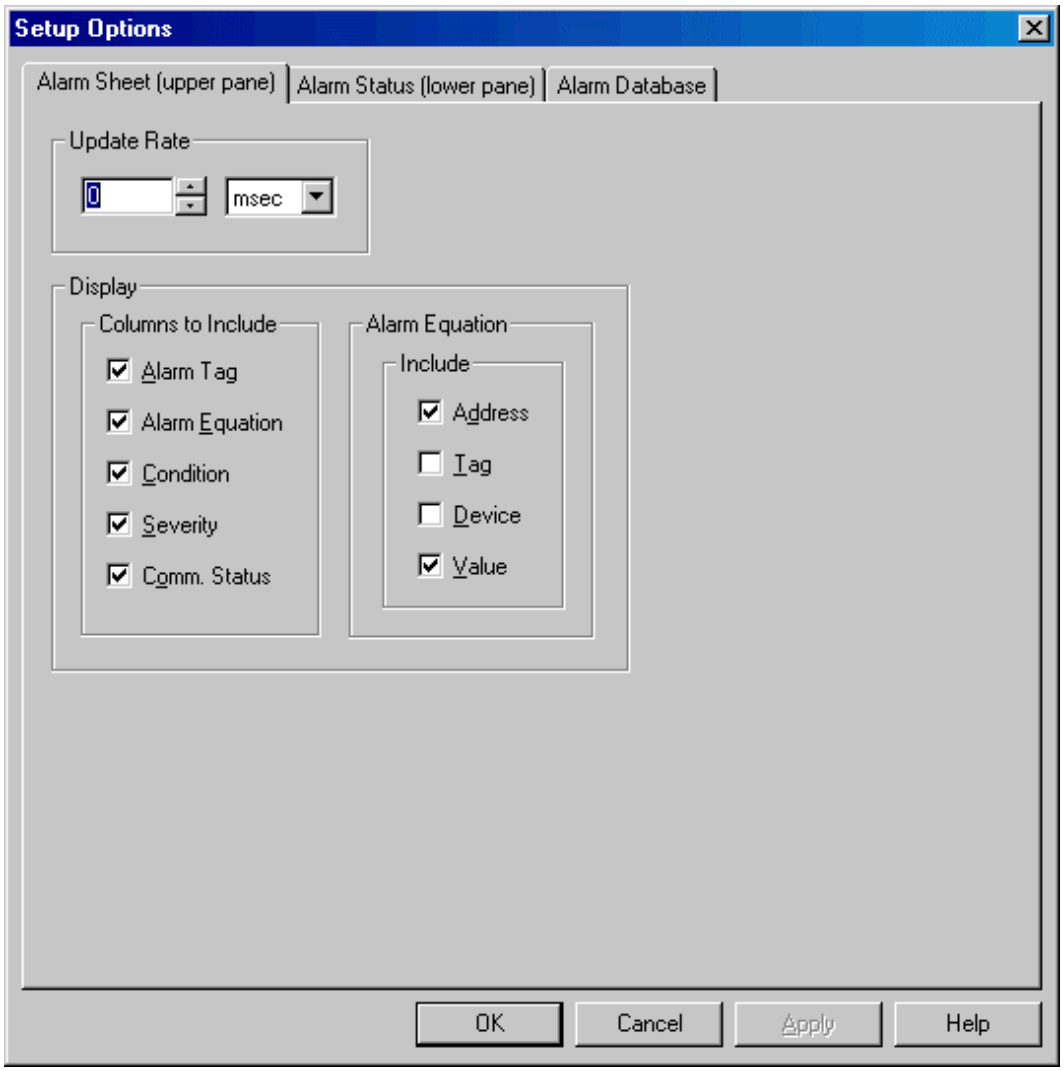
(See **Alarm Sheet Columns** for details on the information shown for each alarm event.)

Setting up the Alarm Sheet (upper pane)

Use the **Alarm Sheet (upper pane)** tab of the **Setup Options** dialog to configure the update rate and the appearance of the Alarm Sheet, which is the upper portion of the **List View** window.

To configure the Alarm Sheet:

1. Select the **Setup / Options** menu option. The **Setup Options** dialog appears with the **Alarm Sheet (upper pane)** tab displayed.



2. Configure the following options and click **OK.**
   - **Update Rate:** The **Update Rate** determines how often the server reads the data and updates the cache. Select the time unit and set the number of those units. Setting the number to 0 reads the data and updates the cache as quickly as possible. The limit is 23 hours.

- **Display:**
  - **Columns to Include:** Select the check box for each column to include in the display. (See **Alarm Sheet Columns**.)
  - **Alarm Equation:** Select the check box for each item to show for addresses in alarm equations. The format for an address is: *Device.Address,Tag,(Value).*

Alarm Sheet Columns

The Alarm Sheet shows the configuration, and if online, the status, of each configured alarm. See **Setting Up the Alarm Sheet** for information on configuring the display.

The Alarm Sheet columns include:

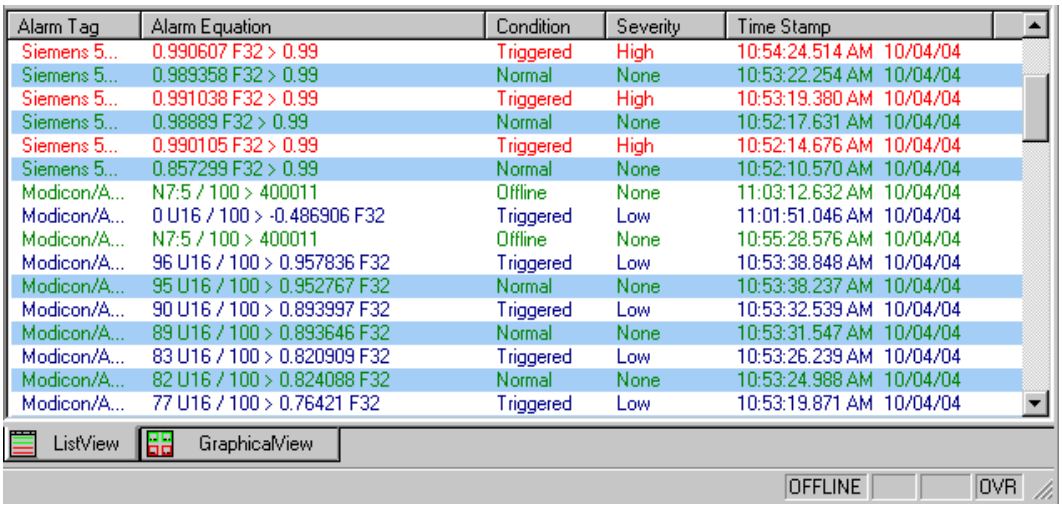
- **Row:** The **Row** displays the Row number, which can range from 1-3,150. The exact limit depends on the package purchased. By default, the limit is 600. Each row represents a single alarm. Row numbers are not configurable.
- **Alarm Tag:** The **Alarm Tag** is the string that identifies the alarm equation.
- **Alarm Equation:** The **Alarm Equation**, or expression, determines when an alarm condition exists. It is made up of constants and/or values that are read from specified FasTrak or OPC Data Access Standard (Version 2.05 or below) communication servers. When the alarm equation evaluates to **TRUE**, the alarm is triggered. Each portion of a register can be displayed or hidden by using the **Alarm Sheet (upper pane)** tab of the **Setup Options** dialog. The alarm equation will display registers in the following format:
  - **FasTrak Register:** Device.address,tag(value)
  - **OPC Register:** OPC Server\OPC Tag(value)

- **Condition:** This is the condition of the alarm at the time and date displayed in the **Time Stamp** column. The possible values are:
  - **Offline:** An alarm that was previously online has been suspended by clearing the **Alarm Active** box in the Edit Alarm dialog, or FTAlarm has been set to offline mode.
  - **Normal:** The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **FALSE**.
  - **Triggered:** The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **TRUE**.
  - **Acknowledged:** An alarm has been **triggered** and then **acknowledged**.
  - **Comm. Error:** An address referred to in the alarm equation cannot be read.
- **Severity: Severity** level is **None** when the alarm is not triggered. When the alarm is triggered, the severity level is that which has been specified by the user when the alarm was configured. The options are **Low**, **Medium low**, **Medium**, **Medium high**, and **High**.
- **Status:** The **Status** shows whether the registers used in the alarm equation are successfully being read. A communications error will be displayed in the following format:
  - **FasTrak Communication Error:** *[device1]:[error1], [device2]:[error2], ...*
  - **OPC Communication Error:** *[OPC Server1]:[error1], [OPC Server2]:[error2], ...*

Alarm Status (lower pane)

Alarm Status Appearance

The Alarm Status is shown on the lower part of the FTAlarm **List View** window. It shows either the current state of the alarms when online or historical alarm information when offline.



- Use the **Alarm Status** setup tab of the **Setup Options** dialog to control which alarms are shown. Access the **Setup Options** dialog by selecting the **Setup / Options** menu option.
- The **Status Bar** at the bottom of the window indicates whether FTAlarm is **Online** or **Offline**, the state of the **Caps-Lock** and **Num-Lock** keys, and whether the edit mode is **Insert** or **Overwrite**. Progress information is also shown.

To view historical alarm information:

1. Switch to **Offline** mode by selecting the **Mode / Offline** menu option or clicking the toolbar button.
2. Select the **Alarm / Status History / Refresh Status History** menu option.

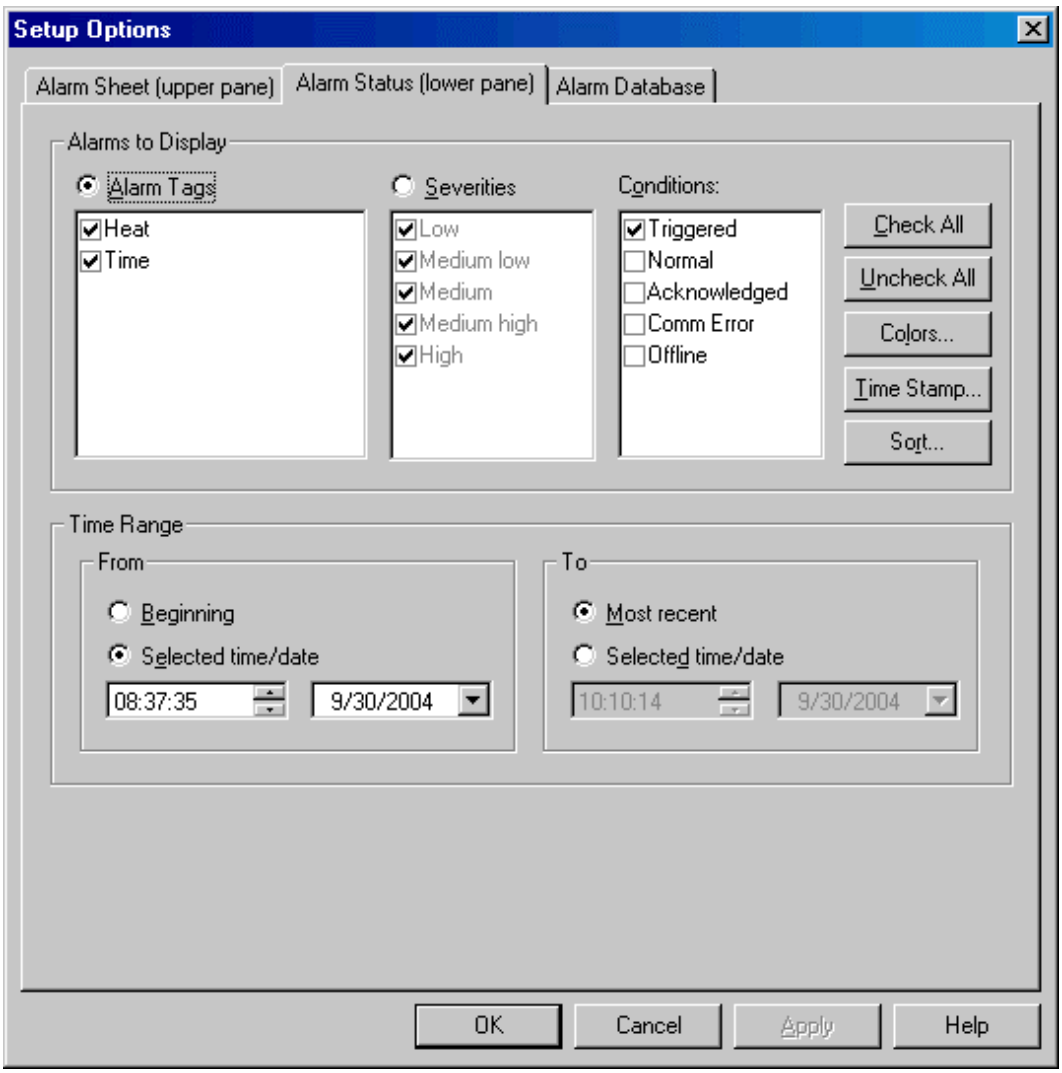
(See **Alarm Status Columns** for details on the information shown for each alarm event.)

Setting up the Alarm Status (lower pane)

Use the **Alarm Status (lower pane)** tab of the **Setup Options** dialog to select the alarms to display in the status area of the Alarm Sheet and configure their appearance.

To configure the Alarm Status:

1. Select the **Setup / Options** menu option. The **Setup Options** dialog appears.
2. Click the **Alarm Status (lower pane)** tab.



3. Configure the following options and click **OK.**
   - **Alarms to Display:**
     - **Alarm Tags:** To display only some of the alarms, select the **Alarm Tags** option button followed by the check box for each alarm to be displayed.
     - **Severities:** To display only alarms of certain severities, select the **Severities** option button followed by the check box for each alarm severity to be displayed.

- **Conditions:** To configure the alarm conditions to be displayed, select the corresponding check boxes.
  - **Triggered:** The alarm is **online**, and the alarm equation evaluates to **TRUE**.
  - **Normal:** The alarm is **online**, and the alarm equation evaluates to **FALSE**.
  - **Acknowledged:** The alarm is **online**, the alarm equation evaluates to **TRUE**, and the alarm has been **acknowledged**. (See **Alarm Acknowledgement**.)
  - **Comm Error:** One or more **communication errors** prevent evaluation of the alarm equation.
  - **Offline:** The alarm is **suspended** or **offline**.

- **Colors:** Click the **Colors** button to access the Colors dialog, used to configure the color coding for alarm conditions and severities. The foreground color of alarms listed in the alarm status screen will be displayed in this color. The condition border on alarm buttons in the graphics view will be displayed in this color.
- **Time Stamp:** Click the **Time Stamp** button to access the Time Stamp dialog, used to configure the display format for the time stamp.
- **Sort:** Click the **Sort** button to access the Sort Alarm Print dialog, used to configure the order in which alarm conditions appear in the status screen. A similar dialog exists to control the order of alarms when printing. The order on the status screen is not necessarily the same as that in print.
- **Time Range:** Define the time range to display historical alarm information.

NOTE: This section does not apply when FTAlarm is online.

  - **From:** Select the beginning of the historical alarm database. To start with the earliest available alarm data, select the **Beginning** option button. To start at a particular date and time, select the **Selected time/date** option button and set the time and date in the fields.
  - **To:** Select the end of the historical alarm database. To end with the latest alarm data, select the **Most Recent** option button. To end at a particular data and time, select the **Selected time/date** option button and set the time and date in the fields.

Alarm Status Columns

Every time the status of an alarm changes, FTAlarm inserts a record in the **database**. If the record matches the criteria that has been set in the **Alarms to Display** section of the **Alarm Status Setup** tab of the **Setup Options** dialog, the information is also shown in the **Alarm Status** display.

The Alarm Status columns include:

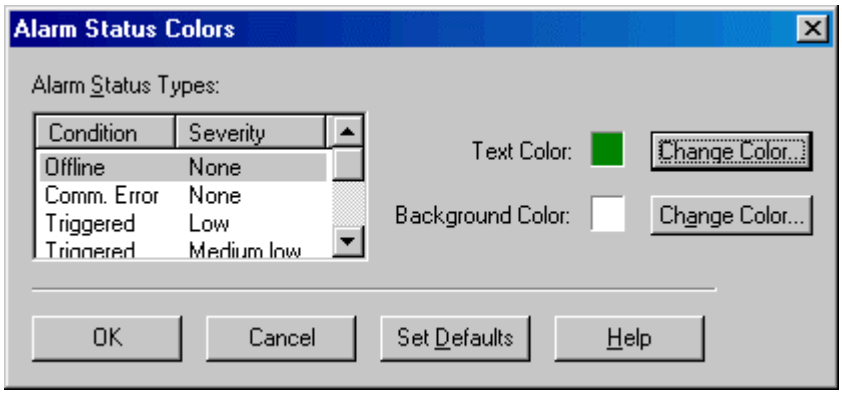
- **Alarm Tag:** The **Alarm Tag** is the string that identifies the alarm equation.
- **Alarm Equation:** The **Alarm Equation** determines when an alarm condition exists. When the alarm equation evaluates to **TRUE**, the alarm is triggered. When the condition is **Normal** or **Triggered**, addresses in the equation are replaced by the values read. When the condition is **Offline** or **Comm. Error**, the address (but not the device name or the tag) is shown.
- **Condition:** This is the condition of the alarm at the time and date displayed in the **Time Stamp** column. The possible values are:
  - **Offline:** An alarm that was previously online has been suspended by clearing the **Alarm Active** box in the Edit Alarm dialog, or FTAlarm has been set to offline mode.
  - **Normal:** The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **FALSE**.
  - **Triggered:** The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **TRUE**.
  - **Acknowledged:** An alarm has been triggered and then acknowledged.
  - **Comm. Error:** An address referred to in the alarm equation cannot be read.
- **Severity:** Severity level is **None** when the alarm is not triggered. When the alarm is triggered, the severity level is that which has been specified by the user when the alarm was configured. The options are **Low**, **Medium low**, **Medium**, **Medium high**, and **High**.
- **Time Stamp:** This is the time at which the condition shown in the **Condition** column changed.

Setting Colors

Use the **Alarm Status Colors** dialog to control the colors of the alarm events shown in the **Alarm Status** (lower pane) of the **List View** window.

To set the colors for an alarm status type:

1. Access the **Setup Options** dialog by selecting the **Setup/Options** menu option.
2. Click the **Alarm Status** (lower pane) tab.
3. Click the **Colors** button. The **Alarm Status Colors** dialog appears.



4. Select the **Alarm Status Type** in the list
5. Click the **Change Color** button corresponding to **Text Color** or **Background Color**. A standard color selection dialog appears.

6. Select the color and click **OK**.
7. To return to the default colors (listed below) click the **Set Defaults** button.

The default text colors for all alarm status types are as follows:

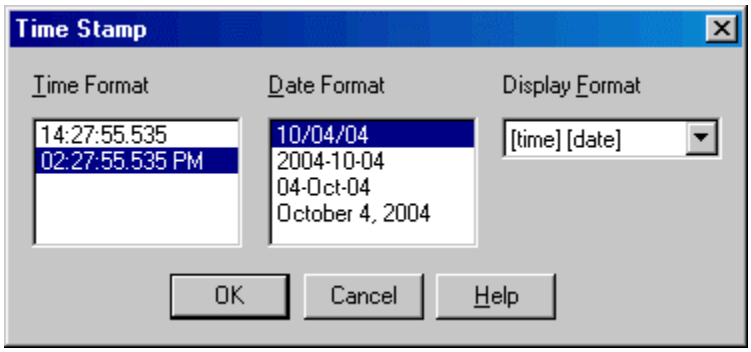
ALARM Condition	ALARM Severity	Color
Normal	None	Green
Offline	None	Green
Comm. Error	None	Blue
Triggered	Low	Blue
Triggered	Medium low	Yellow
Triggered	Medium	Purple
Triggered	Medium high	Orange
Triggered	High	Red

Configuring the Time Stamp

Use the **Time Stamp** dialog to configure the display of the time and date in the time stamp column of the **Alarm Status** (lower pane) of the **List View** window.

To configure the format of the time stamp display:

1. Access the Setup Options dialog by selecting the **Setup/Options** menu option.
2. Click the Alarm Status (lower pane) tab**.**
3. Click the **Time Stamp** button. The **Time Stamp** dialog appears.



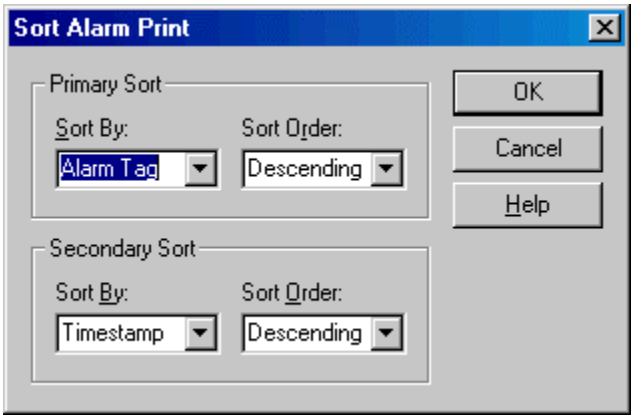
4. Configure the following options and click **OK**.
   - **Time Format:** Select between 24 hour (military) and 12 hour (AM/PM) time.
   - **Date Format:** Select the display format for the date.
   - **Display Format:** Select whether to display date, time, both date and time, and the order in which these options will be displayed. The options include:
     - **[time] [date]**
     - **[date] [time]**
     - **[time]**
     - **[date]**

Sorting Alarms

Use the **Sort Alarm** dialog to control the order in which alarms are displayed.

To set the order of alarms:

1. Access the **Setup Options** dialog by selecting the **Setup/Options** menu option.
2. Click the **Alarm Status** (lower pane) tab.
3. Click the **Sort** button. The **Sort Alarm Print** dialog appears.



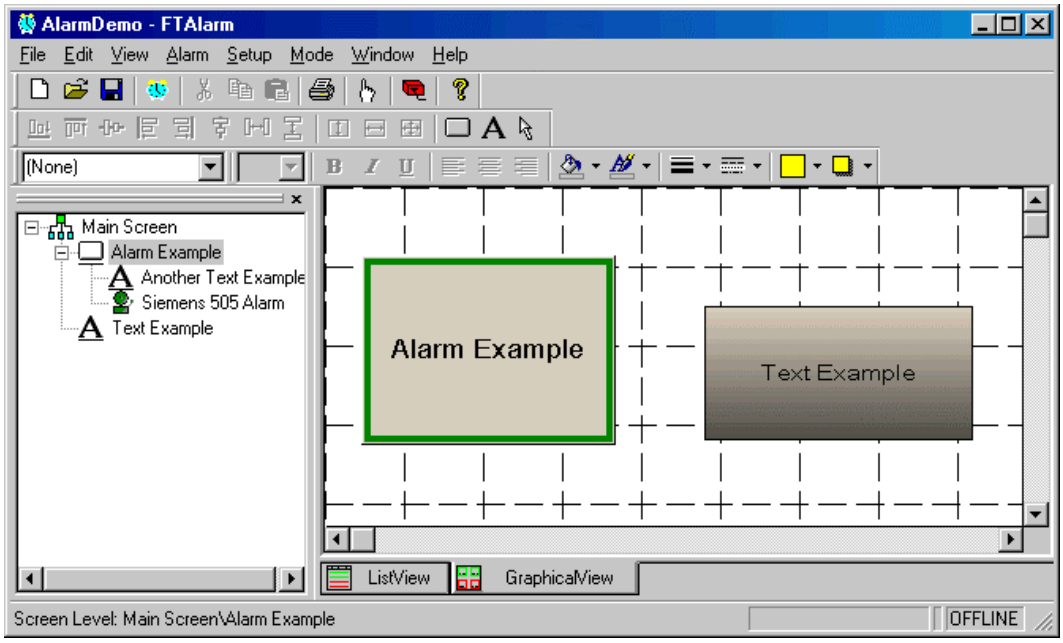
4. Configure the following options and click **OK**.
   - **Primary Sort:** The primary sort is the main sort order.
   - **Secondary Sort:** When several items have the same primary sort value, those items are sorted by a secondary value. For example, if the primary sort is condition, and the secondary is timestamp, the alarms where the condition is **triggered** will be grouped together, sorted by timestamp.
   - **Sort By:** Select the variable by which to sort. The options are:
     - **Alarm Tag:** Alphabetical based on the name of the alarm.
     - **Condition:** Sort by the condition (Triggered, Normal, Acknowledged, Comm. Error, or Offline).
     - **Severity:** Sort by severity of alarm.
     - **Timestamp:** Sort by the date and time when the alarm condition occurred.
   - **Sort Order:** Select ascending or descending order.

Graphical View

Graphical View Overview

The graphical view provides another way to look at, and control, alarm status.

In the graphical view, alarms are represented by buttons. The border of the button indicates the condition of the alarm.



A button can also represent an entire **level** or screen. Such a button reflects the highest priority alarm on that level. This means that you can have a button that shows all is well for a whole collection of alarms, and move in for a detailed view if the button indicates a problem.

A graphic screen can also include text objects.

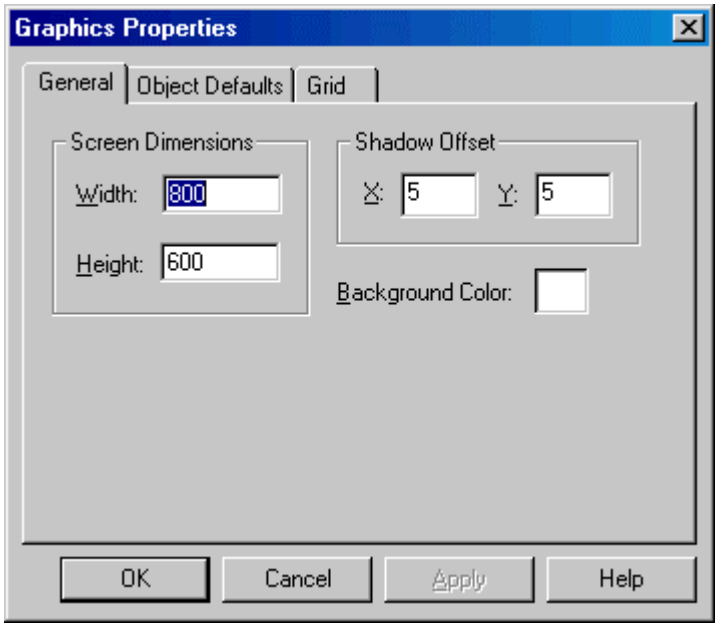
A tree view shows all the buttons, text, and levels. Alarms in the tree view are color-coded to show the alarm status.

Configuring Graphics Properties

Use the **Graphics Properties** dialog to configure the **Graphical View**.

To access the **Graphical View** configuration options:

1. Select the **Setup / Graphics Properties** menu option. The **Graphics Properties** dialog appears.



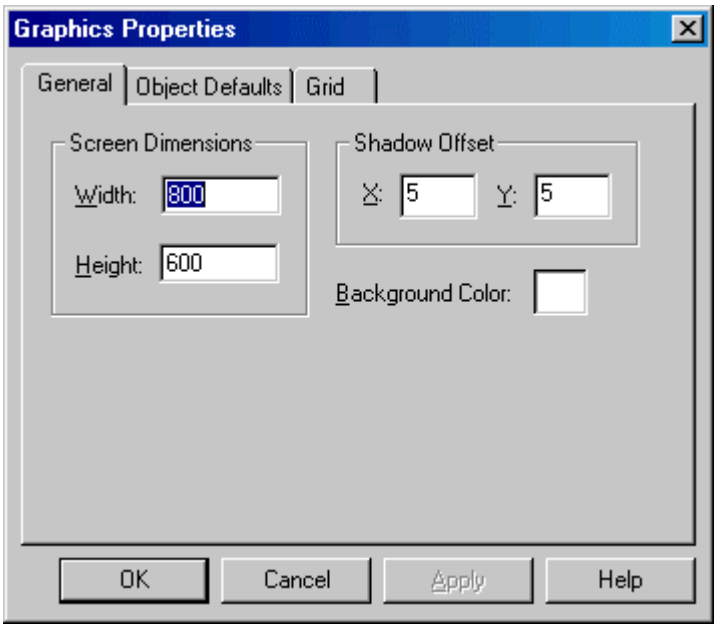
2. Configure graphics properties within the following tabs and click **OK**.
   - **General:** Configure options that apply to the graphical view in general.
     - **Object Defaults:** Configure initial settings for newly created graphic objects.
     - **Grid:** Configure the grid used in design mode to help position graphic objects.

Configuring General Graphics Properties

Use the **General** tab of the **Graphics Properties** dialog to configure options that apply to the graphical view in general.

To configure general graphics properties:

1. Select the **Setup / Graphics Properties** menu option. The **Graphics Properties** dialog appears with the **General** tab displayed.



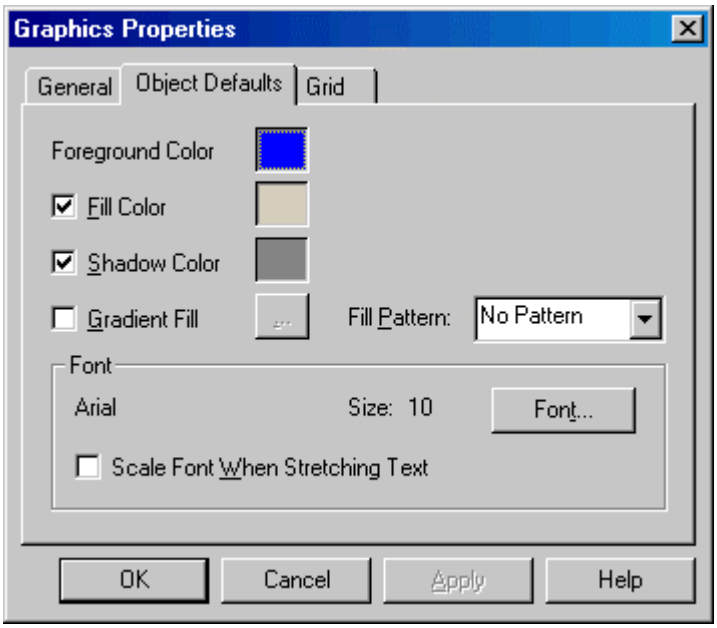
2. Configure the following options and click **OK.**
   - **Screen Dimensions:** Set the size in **pixels** for the graphical view's virtual screen. This is the size of the area on which graphic objects can be placed and not necessarily the size of the physical screen. If the virtual screen is larger than the area physically available to display it, the screen will be scrollable.
   - **Shadow Offset:** To present a three dimensional appearance, a **shadow** can appear under graphic objects and text within them. Set the distance in pixels between the object and the shadow. For no shadow, enter zero for both X and Y.
   - **Background Color:** Set the **background color** on which the controls will appear.

Configuring Object Default Properties

Use the **Object Defaults** tab of the **Graphics Properties** dialog to configure the initial settings for newly created graphic objects. These settings can be changed in individual graphic objects.

To configure the initial settings for newly created graphic objects:

1. Select the **Setup / Graphics Properties** menu option. The **Graphics Properties** dialog appears.
2. Click the **Object Defaults** tab.



3. Configure the following options and click **OK.**
   - **Foreground color:** Click on the color box to configure the foreground color, most often seen as the color of the text.
   - **Fill Color:** Select the check box to specify the color of the background inside an object. Click on the color box to configure the fill color.
   - **Shadow Color:** For a 3-D effect, objects and text can have shadows. To configure FTAlarm to include shadows on new objects, select the check box and click on the color box to set the color for shadows.
   - **Gradient Fill:** Objects can be filled with a gradient, a gradual shift from one color to another. To configure FTAlarm to create new objects with gradient fill, select the check box. Next, click the button to access the Configure Gradient dialog. A gradient fill requires that a background color be specified. A gradient fill and a fill pattern cannot both be present.
   - **Fill Pattern:** Select a pattern from the drop-down menu for the background of the object. The pattern will consist of lines or dots in the foreground color. A gradient fill and a fill pattern cannot both be present.

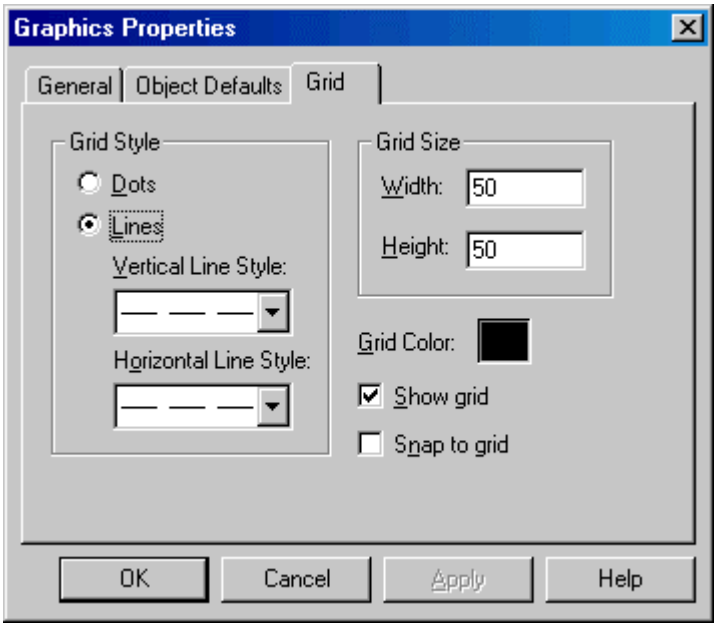
- **Font:** Click the **Font** button to access a standard font specification dialog.
  - If the **Scale Font When Stretching Text** check box is selected, text can be resized by dragging the handles on the text.

Configuring Grid Properties

Use the **Grid** tab to configure the grid used in design mode to help position graphic objects.

To configure grid properties:

1. Select the **Setup / Graphics Properties** menu option. The **Graphics Properties** dialog appears.
2. Click the **Grid** tab.



3. Configure the following options and click **OK.**
   - **Grid Style:** Configure the appearance of the grid.
     - **Dots:** Select the **Dots** option button to display a dot at each corner of each grid square.
     - **Lines:** Select the **Lines** option button to display the grid as lines. Configure the appearance of those lines by selecting the **Vertical Line Style** and the **Horizontal Line Style**.
   - **Grid Size:** Enter **Width** and **Height**, in pixels, to set the distance between grid lines or dots.
   - **Grid Color:** Click the **Grid Color** box to set the color of the grid lines or dots.
   - **Show grid:** Select the **Show grid** check box to show the grid. Clear it to remove the visual grid.
   - **Snap to grid:** When the **Snap to grid** check box is selected, the corners of objects jump from grid point to grid point, for easy alignment.

Drawing Graphic Objects

Adding New Objects

To add a button or text object to a screen:

1. Click on the  button toolbar button or the  text toolbar button. The mouse cursor changes to an object insertion cursor:  or 
2. Click on the screen in the location where one corner of the object will be positioned and drag the mouse to the opposite corner.
   The object will be created with the default options. The cursor remains an object insertion cursor, so more of the same object can be added without re-clicking the toolbar button. Use the  toolbar button to return the cursor to a normal Selection cursor.

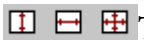
Moving and Sizing Objects

As with most Windows software, objects can be moved by clicking on the interior of the object and dragging. Objects can be sized by clicking and dragging on the handles.

Multiple Object Operations

FTAlarm has several operations to facilitate building a consistent screen by aligning and spacing groups of objects and by resizing them to match. These operations are performed by clicking buttons on the following toolbar. The buttons are only active when more than one object is selected.

The last selected object, indicated by black handles, controls the operations.

- **Alignment:**  These buttons align the selected objects. For example, the first moves objects so that the bottom of each object is at the same height as the bottom of the last selected object.
- **Spacing:**  These buttons space the objects evenly in a horizontal or vertical direction.
- **Sizing:**  These buttons size the objects so the dimensions match. For example, the first resizes the selected objects so that the height of each object matches the last selected object.

Levels

A level is a screen containing one or more alarms, represented by a button on a higher level screen. The color of the button indicates the highest priority alarm status on the level.

This allows a collection of alarms to be monitored as a single object.

Creating a Level

To create a level:

1. Create a button as described in **Drawing Graphic Objects**.
2. Right-click on the button's icon in the tree view and select the **Lower Level** option. The screen appears to clear as editing is taking place in the lower level. The alarm icon in the tree view has changed to a screen icon.
3. Add graphic objects to the new level.

Configuring a Level

To set the properties for a level:

1. Right-click on the button that represents the level, either in the graphic screen or in the tree view.
2. Select the **Properties** item.
3. Click on the **Alarm** tab. For details on the configuration options, see **Button Properties**.

Viewing an Existing Level

There are two ways to view an existing level:

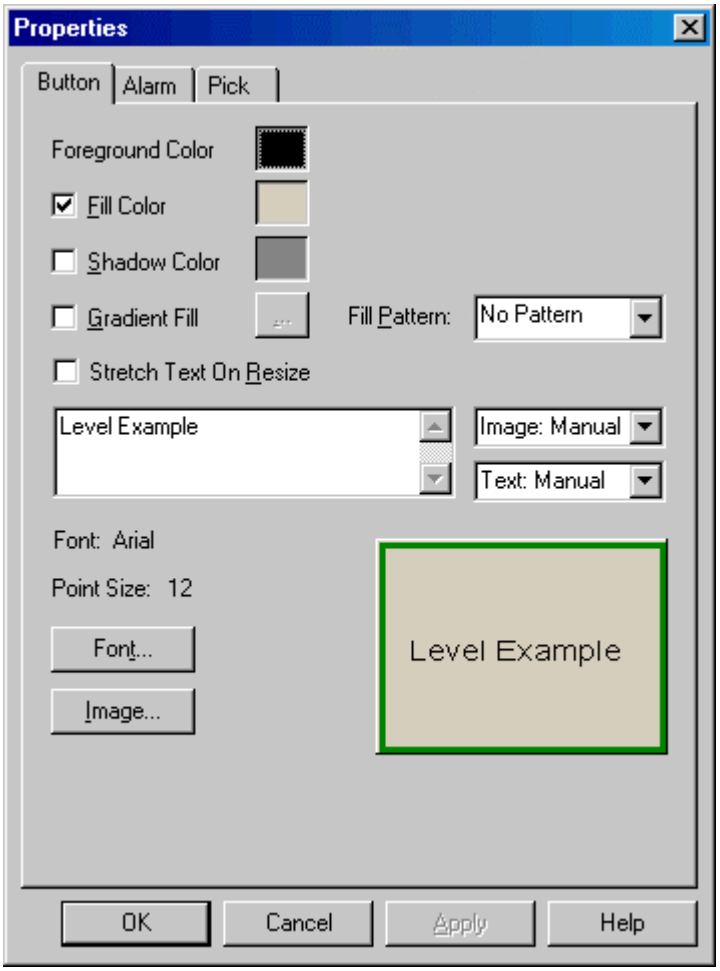
- Right-click on the button that represents it and select the **Next Level** option.
- On the tree view, click on an item in the level.

Configuring Button Properties

Use the **Properties** dialog to configure a button's appearance, configure the alarm or level parameters for a button, or set the action that occurs when a button is clicked.

To configure button properties:

1. Within the **Graphical View** window, right-click the alarm button, either on the screen or on the tree view.
2. Select the **Properties** menu option. The **Properties** dialog appears.



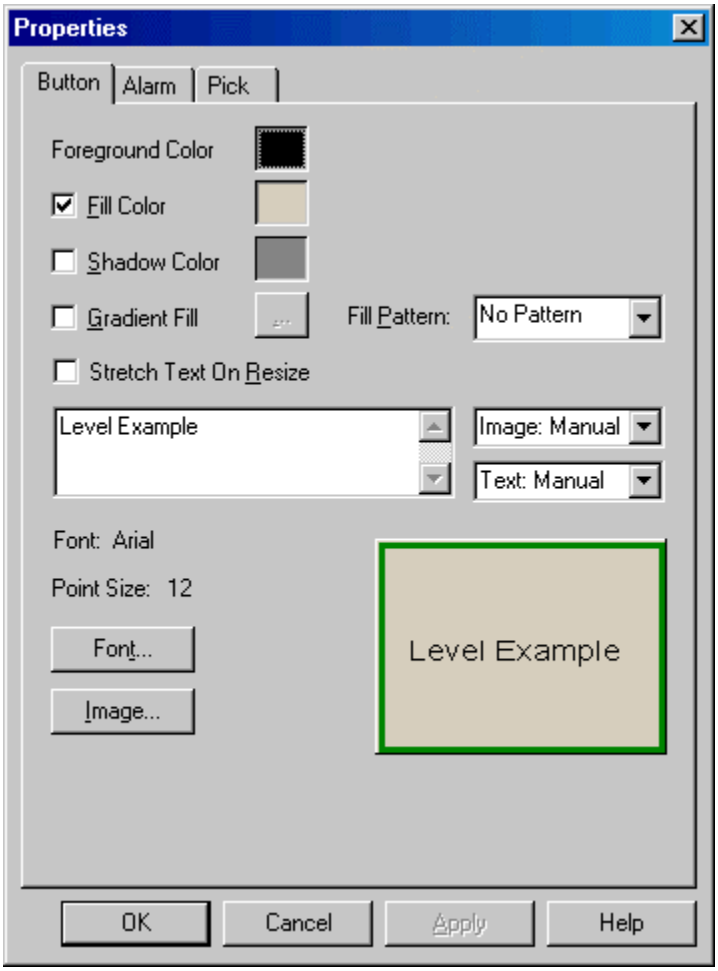
3. Configure button properties within the following tabs and click **OK**.
   - **Button:** Configure the appearance of the button.
   - **Alarm:** Configure the alarm or level parameters for the button.
   - **Pick:** Configure the action that occurs when a button is clicked.

Configuring Button Appearance

Use the **Button** tab of the **Properties** dialog to configure the appearance of the button.

To configure the button's appearance:

1. Within the **Graphical View** window, right-click the button, either in the graphic screen or in the tree view.
2. Select the **Properties** option. The **Properties** dialog appears with the **Button** tab displayed. A preview of the button is shown, updated every time a property is changed.



3. Configure the following options and click **OK**.
   - **Foreground color:** Click on the color box to configure the foreground color, most often seen as the color of the text.
   - **Fill Color:** Select the check box to specify the color of the background inside an object. Click on the color box to configure the fill color.

- **Shadow Color:** For a 3-D effect, objects and text can have shadows. To configure FTAlarm to include shadows on new objects, select the check box and click on the color box to set the color for shadows.

- **Gradient Fill:** Objects can be filled with a gradient, a gradual shift from one color to another. To configure FTAlarm to create new objects with gradient fill, select the check box. Next, click the button to access the Configure Gradient dialog. A gradient fill requires that a background color be specified. A gradient fill and a fill pattern cannot both be present.
- **Fill Pattern:** Select a pattern from the drop-down menu for the background of the object. The pattern will consist of lines or dots in the foreground color. A gradient fill and a fill pattern cannot both be present.
- **Stretch Text on Resize:** When this check box is selected, the text can be resized by dragging the handles.
- Use the unlabeled multi-line text box to enter the text to appear on the button.
- **Image:** Select this alignment option to determine where the image (if any) will be located on the button. The drop-down menu options include:
  - **Manual:** The image will be located where you place it.

    Vctr: **Vertical Center** - The graphic will be centered vertically, but the horizontal position will be where you place it.

    Hctr: **Horizontal Center** - The graphic will be centered horizontally, but the vertical position will be where you place it.

    Vctr, Hctr: **Vertical Center, Horizontal Center** - The graphic will be centered vertically and horizontally.
- **Text:** Select this alignment option to determine where the text (if any) will be located on the button. The drop-down menu options include:

  Manual: The text will be located where you place it.

  Vctr: **Vertical Center** - The text will be centered vertically, but the horizontal position will be where you place it.

  Hctr: **Horizontal Center** - The text will be centered horizontally, but the vertical position will be where you place it.

  Vctr, Hctr: **Vertical Center, Horizontal Center** - The text will be centered vertically and horizontally.
- **Font:** Click the **Font** button to access a standard font specification dialog. If the **Stretch Text On Resize** check box is selected, text can be resized by dragging the handles.

NOTE: The **foreground color** selected overrides the font color.

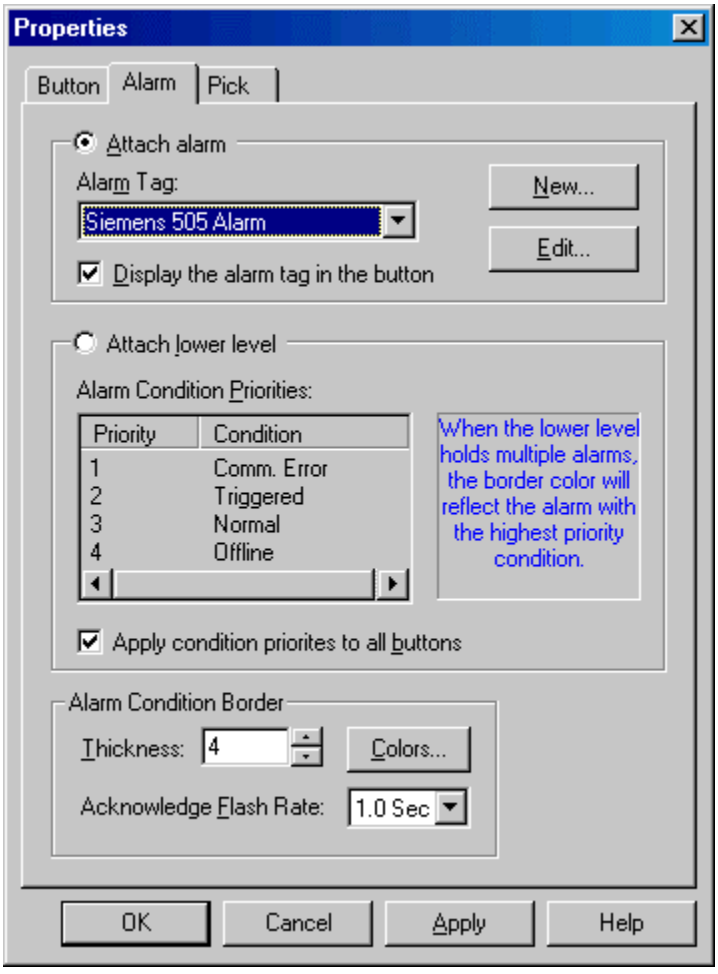
- **Image:** Click the **Image** button to browse for a graphic file (*.BMP, *.DIB, *.WMF, *.EMF) to appear on the button.

Configuring Button Alarm Properties

Use the **Alarm** tab of the **Properties** dialog to configure the alarm or level parameters for the button.

To configure alarm properties for the button:

1. Within the **Graphical View** window, right-click the button, either in the graphic screen or in the tree view, and select the **Properties** option. The **Properties** dialog appears.
2. Click the **Alarm** tab.



3. Configure the following options and click **OK.**
   - **Attach Alarm:** Select the **Attach Alarm** option button to configure the button to represent an alarm.
     - **Alarm Tag:** Select the tag for the alarm that this button will represent.
     - **Display the alarm tag in the button:** Select this check box to use the alarm tag as the text shown on the button.
     - **New:** Click the **New** button to access the **New Alarm** dialog.

    - **Edit:** Click the **Edit** button to edit the selected alarm in the **Edit Alarm** dialog.
- **Attach lower level:** Select the **Attach lower level** option button to configure the button to represent a **level**.
    - **Alarm Condition Priorities:** The button represents a level, which may include several alarms. The border reflects the state of the alarm in the highest priority condition. This list shows which alarm condition has priority. For example, in the illustration, Comm. Error has Priority 1. If any alarm on the level is in a Comm. Error state, the border of the button will be the color that represents comm. errors. Triggered has priority 2. If no alarms are in Comm. Error state, but at least one is triggered, the border of the button will be the color that represents triggered alarms. The priorities can be adjusted by dragging the lines in the list.
    - **Apply condition priorities to all buttons:** If this check box is selected, when the **Apply** or **OK** buttons are selected, the priorities that have been configured will be applied to all level buttons in the project.
- **Alarm Condition Border:** The condition of the alarm (or level) represented by the button is indicated by a border on the button. These options configure that border.
    - **Thickness:** Select the width of the border.
    - **Colors:** Click the Color button to set the colors for the various alarm conditions.
    - **Acknowledge Flash Rate:** Set the rate at which the border will flash to indicate that the alarm must be acknowledged.

Configuring Button Pick Properties

Use the **Pick** tab of the **Properties** dialog to configure what happens when the user clicks the button.

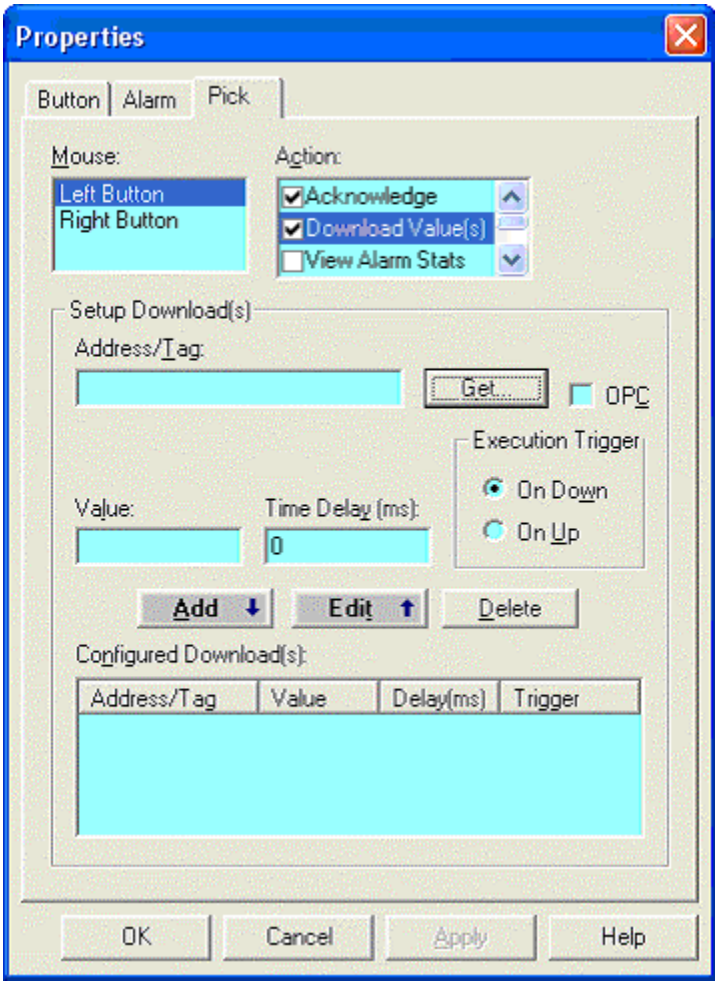
To configure pick properties for the button:

1. Within the **Graphical View** window, right-click the button, either in the graphic screen or in the tree view, and select the **Properties** option. The **Properties** dialog appears.
2. Click the **Pick** tab.

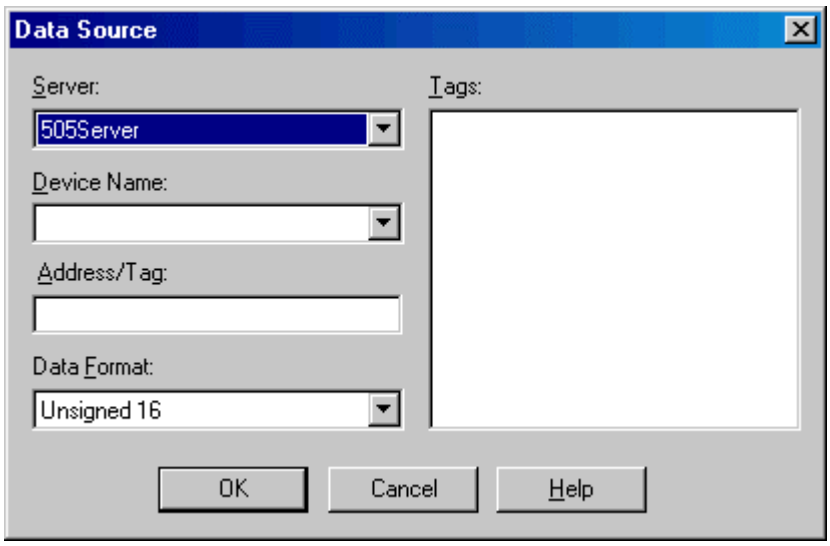
3. Configure the following options and click **OK.**
   - **Mouse:** Select the mouse button that you are configuring.
   - **Action:** Select the check boxes for the actions to be performed when the user clicks the selected mouse button. Some actions require additional configuration. When one of those actions is highlighted, extra controls will appear. When only one action check box is selected, the action will occur immediately. When more than one is checked, each of the selected items will be performed.

Downloading Value(s)

When the **Download Values** action check box is selected, **Setup Download(s)** fields are shown:



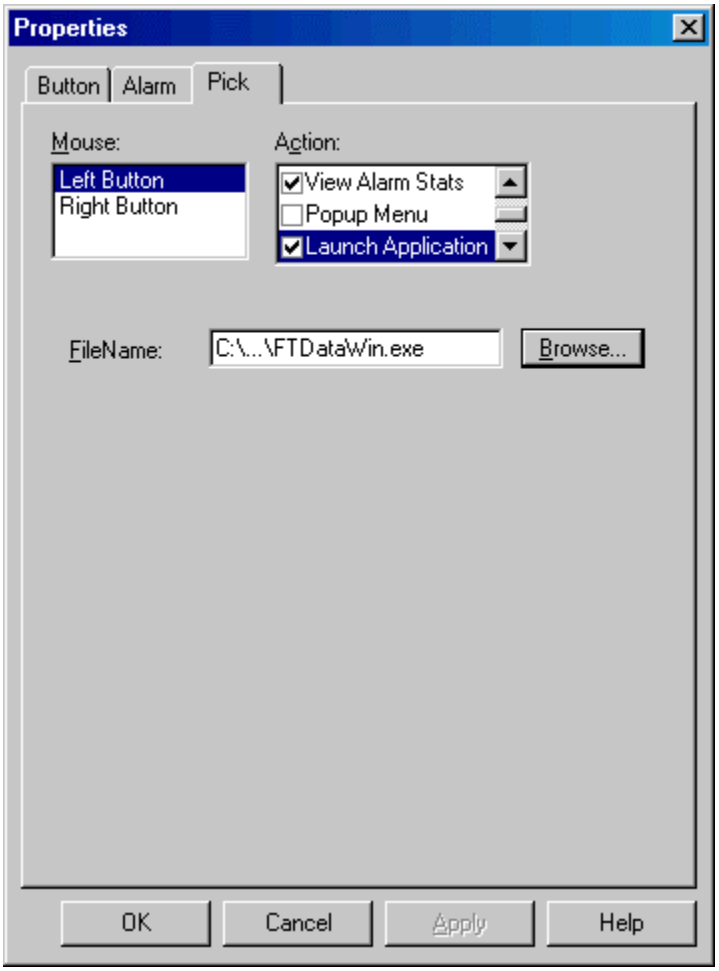
- **Address/Tag:** Select the **OPC** check box to choose an OPC tag or leave the box unchecked to choose a FasTrak register.
  - **FasTrak Register:** Enter the **FasTrak register** where the value is to be downloaded or click the **Get...** button to choose a FasTrak register from a pre-configured device. The **Data Source** dialog will appear.



  - **OPC Tag:** Select the **OPC** check box. Enter the OPC tag where the value is to be downloaded or click the **Get...** button to choose an OPC tag from the **OPC Tag Browser** dialog. When the **OPC Tag** check box is selected, a **format** field appears. Change the format for the OPC tag by selecting a format from the drop-down menu.
- **Value:** Enter the value to be downloaded.
- **Time Delay:** Enter the time in milliseconds to wait after the mouse click before downloading the value.
- **Execution Trigger:** Select whether to download when the mouse button is pressed or when it is released.
- **Configured Download(s):** A Download Value(s) action may download a large number of values. This list shows the downloads that are configured for this action. When the fields for a download are complete, click the **Add** button to add the download to the list. Click the **Edit** button to edit an existing download.

Launching an Application

When the **Launch Application** action checkbox is selected, a **FileName** field is shown:



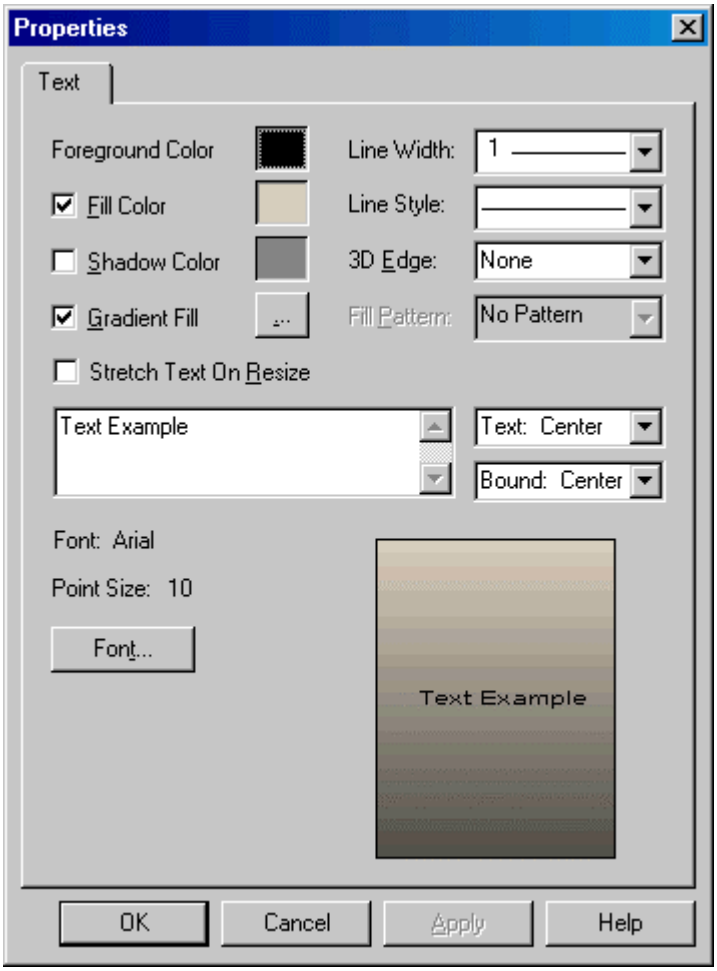
- Type the path and file name of the application to be launched, or click the **Browse** button to browse for the application.

Configuring Text Object Properties

Use the **Text** tab of the **Properties** dialog to configure text objects.

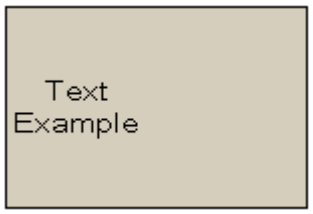
To configure text objects:

1. Within the **Graphical View** window, right-click the text button, either in the graphic screen or in the tree view.
2. Select the **Properties** menu option. The **Properties** dialog appears. A preview of the text object is shown, updated every time a property is changed.



3. Configure the following options and click **OK**.
   - **Foreground color:** Click on the color box to configure the foreground color, most often seen as the color of the text.
   - **Fill Color:** Select the check box to specify the color of the background inside an object. Click on the color box to configure the fill color.
   - **Shadow Color:** For a 3-D effect, objects and text can have shadows. To configure FTAlarm to include shadows on new objects, select the check box and click on the color box to set the color for shadows.

- **Gradient Fill:** Objects can be filled with a gradient, a gradual shift from one color to another. To configure FTAlarm to create new objects with gradient fill, select the check box. Next, click the button to access the Configure Gradient dialog. A gradient fill requires that a background color be specified. A gradient fill and a fill pattern cannot both be present.
- **Line Width:** Set the width of the line around the text object.
- **Line Style:** Select the style of line (solid, dots, dashes, etc). For a text object with no border, select **None**.
- **3D Edge:** Select the 3D effect for the text object. When a 3D effect is used, the line width and style options are not used.
- **Fill Pattern:** Select a pattern for the background of the object. The pattern will consist of lines or dots in the foreground color. A gradient fill and a fill pattern cannot both be present.
- **Stretch Text on Resize:** When this box is checked, the text can be resized by dragging the handles.
- Enter the text to appear on the button in the unlabeled multi-line text box.
- **Text:** Configure the way lines will be aligned if the text includes multiple lines. For example, a text object could have **Text: Center** and **Bound: Left** selected. The lines of text would be centered relative to one another, and the resulting block of text positioned as far left as possible.



- **Bound:** Configure the placement of the text box within the text object.
- **Font:** Click the **Font** button to access a standard font specification dialog. If the **Stretch Text On Resize** box is checked, text can be resized by dragging the handles on the text.

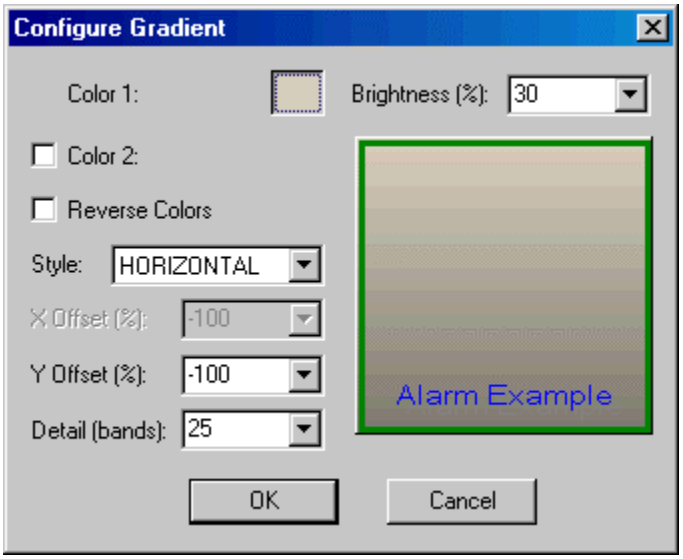
NOTE: The **foreground color** selected overrides the font color.

Configuring a Gradient

The background of a graphic object can be a gradient - a smooth transition from one color to another.

To configure a gradient, use the **Configure Gradient** dialog, which can be accessed from the **Graphics Properties** dialog or the **Properties** dialog. To configure a gradient:

1. Access the **Graphics Properties** dialog by selecting the **Setup / Graphics Properties** menu option. Click the **Object Defaults** tab. Select the **Gradient Fill** check box and click the  button. The **Configure Gradient** dialog appears.
   OR
2. Within the **Graphical View** window, access the **Properties** dialog by right-clicking the button or text object, either in the graphic screen or in the tree view. Select the **Properties** menu option. Select the **Gradient Fill** check box and click the  button. The **Configure Gradient** dialog appears.



3. Configure the following options and click **OK.**
   - **Color 1:** The first color in the gradient. This defaults to the fill color. To change the color, click the color box.
   - **Brightness (%):** If the second color is not specified, gradient moves to a darker or lighter version of Color 1. For a brighter gradient, select a value above 50%; for a darker gradient, select a value below 50%.
   - **Color 2:** To define a second color (rather than a darker or brighter version of Color 1) select the check box and click the color box.
   - **Reverse Colors:** To reverse the direction of the transition between colors, select the Reverse Colors check box.

- **Style:** Select the type of gradient by selecting from the drop-down menu. The options are:
  - **Horizontal:** Shown in the **Configure Gradient** dialog.

Vertical: 

Square: 

Circular: 

Elliptical: 

- **X Offset (%), Y Offset (%):** Select percentages from the **X Offset (%)** and **Y Offset (%)** drop-down menus to specify where the gradient will start. A value of 0 results in a centered gradient as illustrated below:

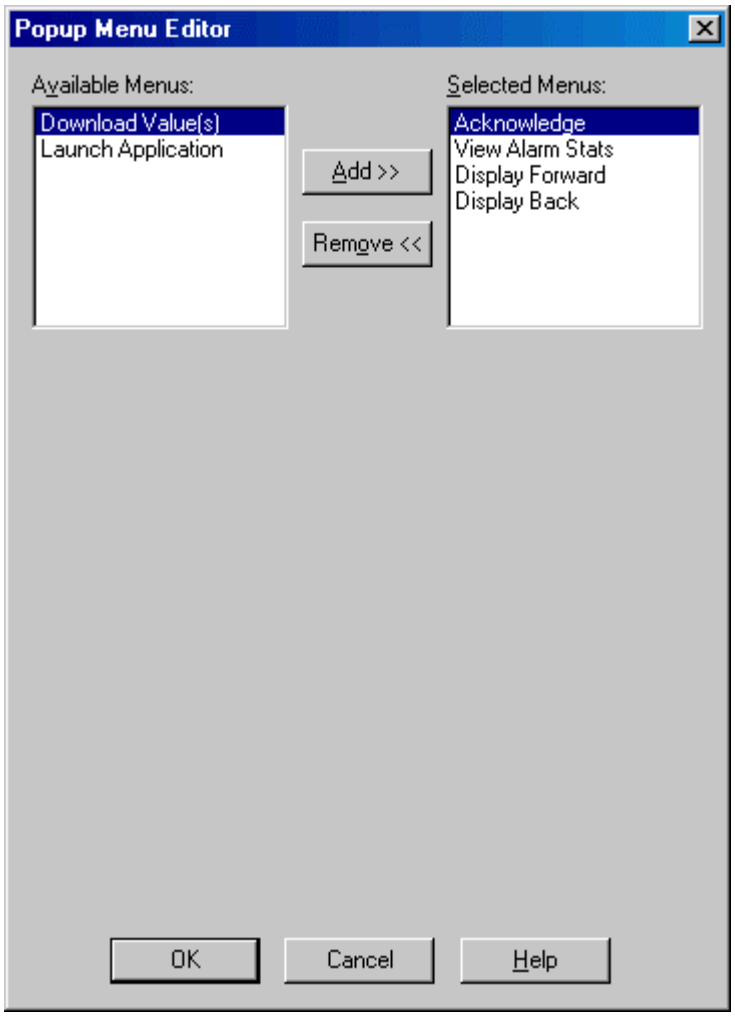
- **Detail (bands):** From the drop-down menu, select the number of bands the gradient will include to configure just how smooth the transition is. A higher number will produce a smoother transition.

Configuring the Popup Menu

Use the **Popup Menu Editor** to control the popup menu that appears when a user clicks on a button.

To configure the popup menu:

1. Within the **Graphical View** window, right-click the button, either in the graphic screen or in the tree view, and select the **Properties** option. The **Properties** dialog appears.
2. Click the **Pick** tab.
3. Select the **Popup Menu** check box from the list of **Actions**.
4. Click the **Edit Menu** button. The **Popup Menu Editor** appears.



5. Use the **Add > >** and **Remove < <** buttons to place the desired menu items in the **Selected Menus** list.

Alarm Database

FTAlarm records events in a database, in either Microsoft Access or SQL format.

- **Alarms:** The **Alarms** table records an entry to the database whenever the condition changes - alarms going off, being acknowledged, returning to normal, etc.
- **AutoPrint:** The **AutoPrint** table records alarm information that will be **auto printed**. This table is cleared when the information is printed, so the options to automatically remove old data are not available.
- **OutCalls:** The **OutCalls** table records calls that FTAlarm makes to report alarms. (See **Pager/Phone**.)
- **InCalls:** The **InCalls** table records call-in activity by a remote user.

Alarms Table

Every time the condition of an alarm changes, FTAlarm inserts a record in the Alarms table.

The table contains the following fields:

- **Alarm Tag**: The **Alarm Tag** is the string that identifies the alarm equation.
- **Alarm Equation**: The **Alarm Equation**, or expression, determines when an alarm condition exists. It is made up of constants and/or values that are read from specified FasTrak or OPC Data Access Standard (Version 2.05 or below) communication servers. When the alarm equation evaluates to **TRUE**, the alarm is triggered. When the condition is **Normal** or **Triggered**, addresses in the equation are replaced by the values read. When the condition is **Offline** or **Comm. Error**, the address (but not the device name or the tag) is recorded. The alarm equation will display registers in the following format:
  - **FasTrak Register:** Device.address,tag(value)
  - **OPC Register:** OPC Server\OPC Tag(value)
- **Condition**: This is the condition of the alarm at the time and date displayed in the **Time Stamp** column. The possible values are:
  - **Offline**: An alarm that was previously online has been suspended by clearing the **Alarm Active** check box in the alarm dialog, or FTAlarm has been set to offline mode.
  - **Normal**: The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **FALSE**.
  - **Triggered**: The addresses referred to in the alarm equation are all **online**, and the alarm equation evaluates to **TRUE**.
  - **Comm. Error**: An address referred to in the alarm equation cannot be read .

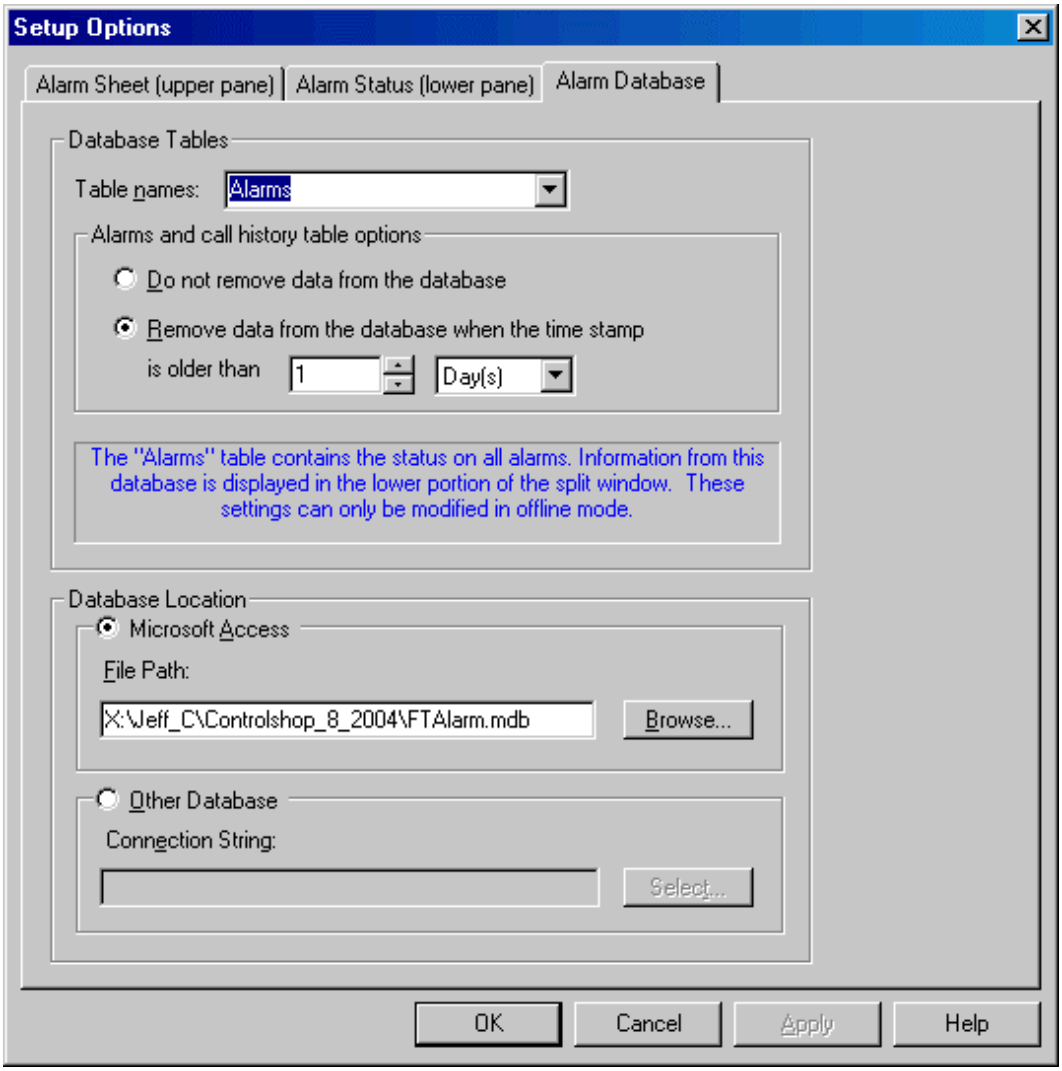
- **Severity**: Severity level is **None** when the alarm is not triggered. When the alarm is triggered, the severity level is that which has been specified by the user when the alarm was configured. The options are **Low**, **Medium low**, **Medium**, **Medium high**, or **High**.
- **Time Stamp**: This is the time at which the condition shown in the Condition column changed.

Alarm Database Setup

Use the **Alarm Database** dialog to configure the database.

To configure the Alarm Database:

1. Select the **Setup / Options** menu option. The **Setup Options** dialog appears.
2. Click the **Alarm Database** tab.



3. Configure the following options and click **OK**.
   - **Table names:** To configure the options for a table, select that table from the list.
     - **Alarms:** The **Alarms** table records all the alarm conditions - alarms going off, being acknowledged, returning to normal, etc.
     - **AutoPrint:** The **AutoPrint** table records alarm information that will be **auto printed**. This table is cleared when the information is printed, so the options to automatically remove old data are not available.

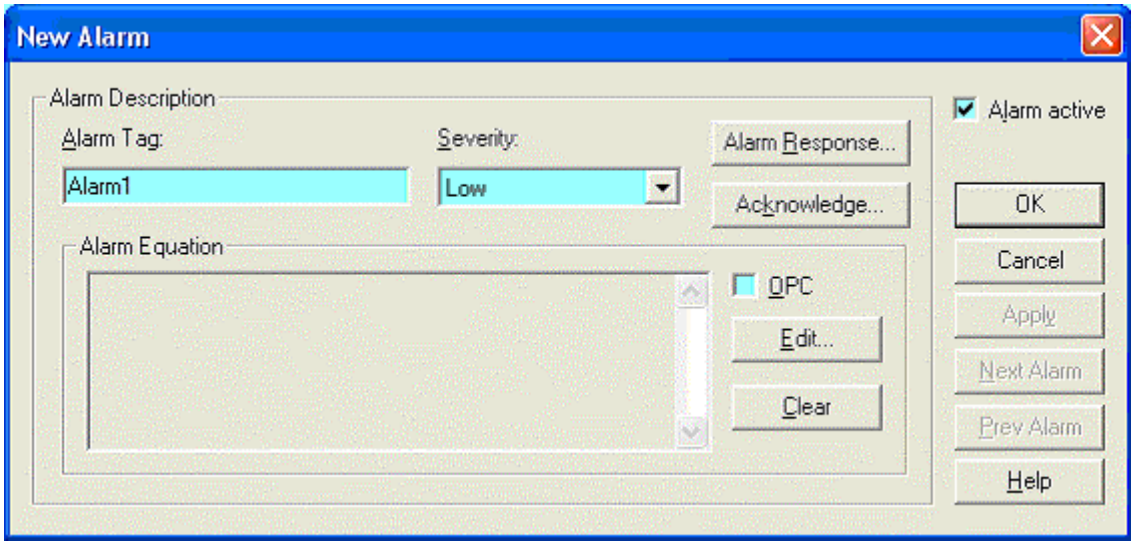
  - **OutCalls:** The **OutCalls** table records calls that FTAlarm makes to report alarms. See **Pager/Phone** for details.
  - **InCalls:** The **InCalls** table records call-in activity by a remote user.
- **Alarms and call history table options:** Use these settings to configure automatic deletion of old alarm and call data.
  - Select the **Remove data from the database when the time stamp is older than** option button to automatically delete old data and specify the time unit and number of those units.
  - Select the **Do not remove data from the database** option button to preserve the data indefinitely.
- **Database Location:**
  - **Microsoft Access:** To build the database in **Microsoft Access** format, select the **Microsoft Access** option button and set the **File Path** to the name of the **Access** (.MDB) file. If the file does not exist, it will be created.
  - **Other Database:** To build the database in **SQL**, select the **Other Database** option button and click the **Select** button to configure the **Data Link Properties**. The database file must exist before you can select it.

Adding, Editing and Deleting Alarms

Creating a New Alarm

To create a new alarm:

1. Select the **Alarm / New** menu option. (This menu option is only available in offline mode.) The **New Alarm** dialog appears.



2. Configure the following options and click **OK**.
   - **Alarm Tag:** The **Alarm Tag** identifies the alarm. This field is required and must be unique.
   - **Severity:** Select the severity of this alarm. The options are:
     - Low
     - Medium low
     - Medium
     - Medium High
     - High
   - **Alarm Active:** Select this check box to turn the alarm on or clear it to turn the alarm off.
   - **Alarm Response:** Click this button to access the Alarm Response dialog.
   - **Acknowledge:** Click this button to access the Alarm Acknowledgement Setup dialog.
   - **Alarm Equation:** The **Alarm Equation** represents an expression involving an unlimited number of addresses and/or constants that will be evaluated to determine if the alarm is triggered. When the alarm equation evaluates to **TRUE**, the alarm is triggered. Addresses are selected from a FasTrak or OPC Data Access Standard (Version 2.05 or below) communication server.

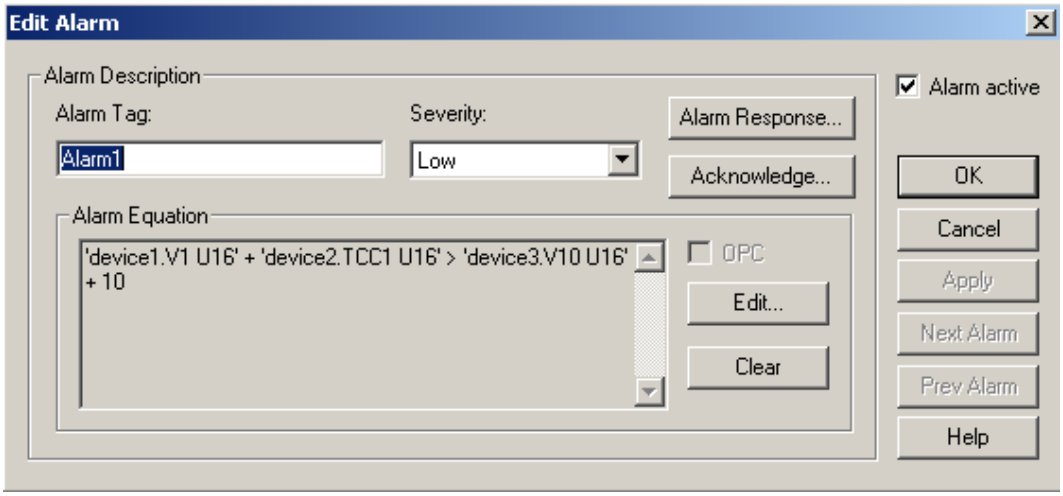
- **OPC:** Select the **OPC** check box to select an address from an OPC Data Access Standard (Version 2.05 or below) communication server.
- **Edit:** Click the **Edit** button to add an alarm equation or edit the existing alarm equation. (See **Setting an Alarm Expression**.)
- **Clear:** When an expression is added via the **Edit** button, the expression is displayed as **read only** in the **Alarm Equation** box, and the **OPC** check box is disabled. Click the **Clear** button to erase the expression and enable the **OPC** check box.

Editing an Alarm

Alarms can only be edited in offline mode.

To edit an existing alarm:

1. Click the alarm in the Alarm Sheet and then select the **Alarm / Edit** menu option or double-click the alarm in the Alarm Sheet. The **Edit Alarm** dialog appears.



2. Configure the following options and click **OK**.
   - **Alarm Tag:** The **Alarm Tag** identifies the alarm. This field is required and must be unique.
   - **Severity:** Select the severity of this alarm. The options are:
     - Low
     - Medium low
     - Medium
     - Medium High
     - High
   - **Alarm Active:** Select this check box to turn the alarm on or clear it to turn the alarm off.
   - **Alarm Response:** Click this button to access the Alarm Response dialog.
   - **Acknowledge:** Click this button to access the Alarm Acknowledgement Setup dialog.
   - **Alarm Equation**: The **Alarm Equation** represents an expression involving an unlimited number of addresses and/or constants that will be evaluated to determine if the alarm is triggered. When the alarm equation evaluates to **TRUE**, the alarm is triggered. Addresses are selected from a FasTrak or OPC Data Access Standard Version 2.0 communication server.

- **OPC:** Select the **OPC** check box to select an address from an OPC Data Access Standard Version 2.0 communication server.
- **Edit:** Click the **Edit** button to edit the alarm equation. (See **Setting an Alarm Expression**.)

Deleting Alarms

Alarms can only be deleted in offline mode.

To delete alarms:

1. Select the alarms to be deleted in the Alarm Sheet.
2. Select the **Alarm / Delete** menu option or press the [**Del**] key. The **Delete Alarms** confirmation dialog appears.

3. Click the **Yes** button to confirm the alarms to be deleted.

Cutting, Copying, and Pasting Alarms

The Alarm Sheet supports cut, copy, and paste operations.

When pasting alarms that already exist, FTAlarm appends a number to the tag to make it unique. For example, if an alarm with the tag *MyAlarm* is copied and pasted back into the Alarm Sheet, the new alarm will have the tag *MyAlarm-2*.

Cut	Copy	Paste
Edit / Cut	Edit / Copy	Edit / Paste
[Ctrl-X]	[Ctrl-C]	[Ctrl-V]
]Shift-Delete]	[Ctrl-Insert]	[Shift-Insert]

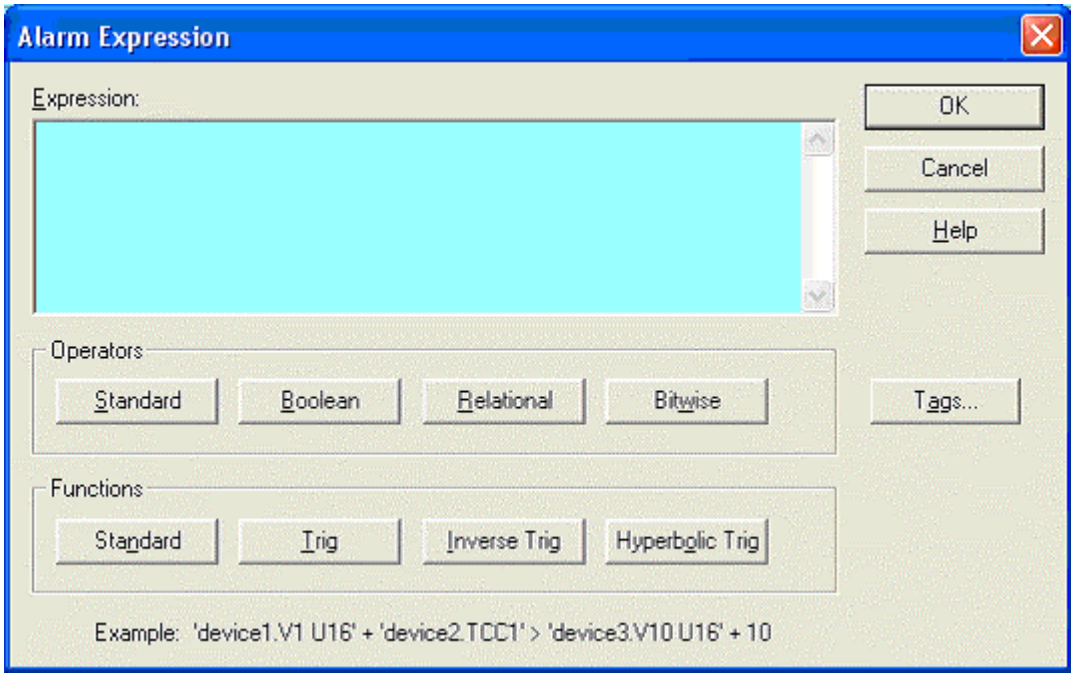
Alarm Details

Setting an Alarm Expression

An alarm expression is an unlimited, user-defined equation involving constants, operators and functions, that will be evaluated to determine if the alarm is triggered. Addresses can be selected from any configured FasTrak or OPC Data Access Standard (Version 2.05 or below) communication server. Use the **Alarm Expression** dialog to add or edit alarm expressions.

To set an alarm expression:

1. Access the **New Alarm** dialog by selecting the **Alarm / New** menu option or access the Edit Alarm dialog by clicking an alarm in the Alarm Sheet and then selecting the **Alarm / Edit** menu option or double-clicking an alarm in an existing Alarm Sheet.
2. In either the **New Alarm** or the **Edit Alarm** dialog, click the **Edit** button. The **Alarm Expression** dialog appears.



- **Operators**: Choose operators by clicking on the **Standard**, **Boolean**, **Relational**, and **Bitwise** buttons to display drop down boxes of operators. When an operator is selected, it will be inserted into the **Expression** edit box at the cursor location. Any highlighted text will be replaced with the selection. (See **Operators and Functions** for details.)
- **Functions**: Choose functions by clicking on the **Standard**, **Trig**, **Inverse Trig**, and **Hyperbolic Trig** buttons to display drown down boxes of functions. When a function is selected, it will be inserted into the **Expression**

edit box at the cursor location. Any highlighted text will be replaced with the selection. (See **Operators and Functions** for details.)

- **Tags**: Click on the **Tags** button to select a tag. The **Tag** dialog that appears will depend on the type of communication server being used: (See **FasTrak Tag** or **OPC Tag** for details.)

Operators and Functions

The **Alarm Expression** dialog allows you to trigger an alarm on an expression involving an unlimited number of addresses and/or constants. Addresses can be selected from any configured device belonging to any registered FasTrak or OPC server. When typing a FasTrak address, the device and address are separated by a period and enclosed in single quotes.
A format specification may be included within the single quotes following the device.address. For example: 'device1.V1 U16'
You can also specify an address by tag name. For example: 'device1.TagForV1 U16'

The format for OPC addresses is vendor specific.

At least one address is required in the equation.

Available operators and functions include:

Standard Operators	**Boolean Operators**	**Bitwise Operators**	**Standard Functions**	**Trig Functions**	**Inverse Trig Functions**	**Hyperbolic Trig Functions**
+	!	&	Exp( )	Sin( )	ASin( )	Sinh( )
-	&&	|	Ln( )	Cos( )	ACos( )	Cosh( )
*	||	!& (XOR)	Log( )	Tan( )	ATan( )	Tanh( )
/	= =		Abs( )	Sec( )	ASec( )	Sech( )
%	!=		Sqrt( )	Csc( )	ACsc( )	Csch( )
^ (power)	< =		Ceil( )	Cot( )	ACot( )	Coth( )
- (unary)	> =		Floor( )			
(	>		Rand( )			
)	<					
	?: (if else)					

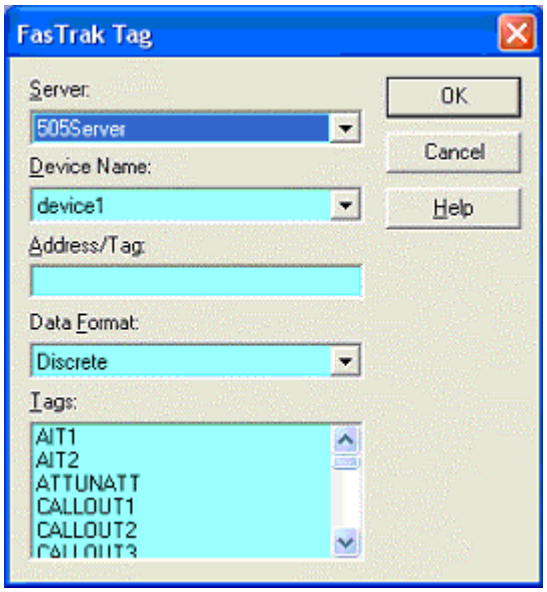
Standard Operators	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
^	Power
-	Unary sign
(	
)	
Boolean Operators	
!	Not
&&	And
||	Or
= =	Equal To
!=	Not Equal To
< =	Less Than Or Equal To
> =	Greater Than Or Equal To
>	Greater Than
<	Less Than
?:	If (condition1) return(condition2) else return(condition3)
Bitwise Operators	
&	Bitwise And
|	Bitwise Or
!&	Bitwise Exclusive Or

Selecting a FasTrak Tag

The FasTrak Tag dialog is used to select a tag to represent an address in the PLC. (Refer to **Selecting an** OPC Tag ***to select an OPC tag.)***

To select a FasTrak tag:

1. Access the **New Alarm** dialog by selecting the **Alarm / New** menu option or access the Edit Alarm dialog by clicking an alarm in the Alarm Sheet and then selecting the **Alarm / Edit** menu option or double-clicking an alarm in an existing Alarm Sheet.
2. In either the **New Alarm** or the **Edit Alarm** dialog, click the **Edit** button. The Alarm Expression dialog appears.
3. Click the **Tags** button. The **FasTrak Tag** dialog appears.



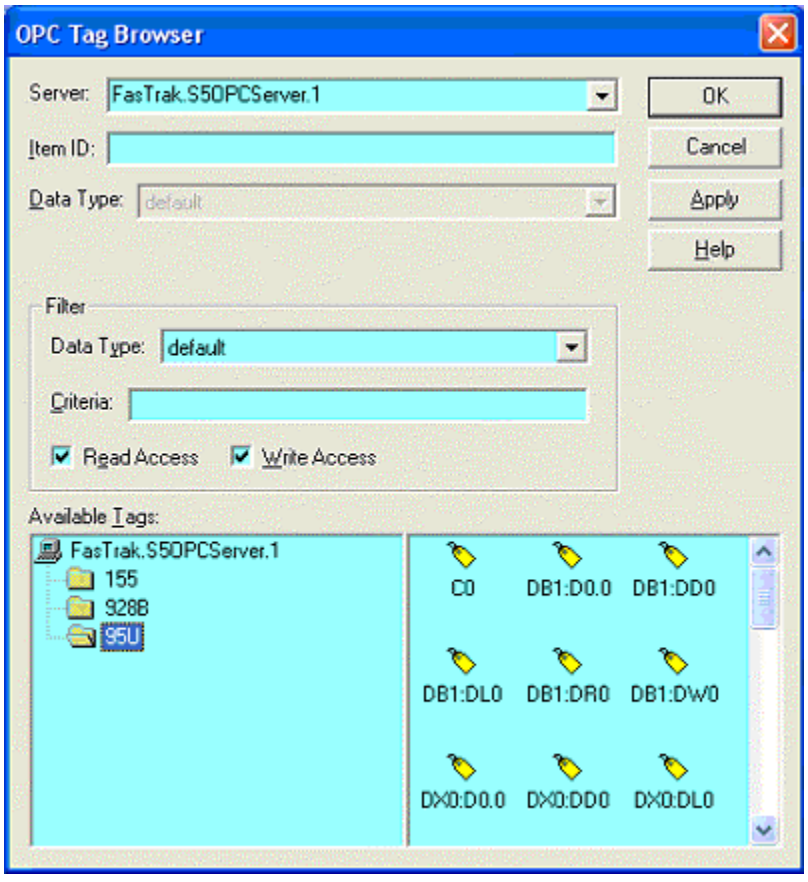
4. Configure the following options and click **OK**.
   - **Server:** Lists the FasTrak server that the current Alarm Sheet is attached to.
   - **Device Name:** Choose from the list of devices that the current Alarm Sheet is attached to.
   - **Address/Tag:** Manually enter an address or tag from a selected device or click on an item in the **Tags** pane to display the corresponding address.
   - **Data Format:** Affects how the value is displayed in the Alarm Sheet.

Selecting an OPC Tag

The OPC Tag Browser is used to select a tag to represent an address in the PLC. (Refer to **Selecting a FasTrak Tag** to select a FasTrak tag.)

To select an OPC tag:

1. Access the **New Alarm** dialog by selecting the **Alarm / New** menu option or access the Edit Alarm dialog by clicking an alarm in the Alarm Sheet and then selecting the **Alarm / Edit** menu option or double-clicking an alarm in an existing Alarm Sheet.
2. Within the **New Alarm** or the **Edit Alarm** dialog the **OPC** check box must be selected to select an OPC tag. In the **New Alarm** or the **Edit Alarm** dialog, click the **Edit** button. The **Alarm Expression** dialog appears.
3. Click the **Tags** button. The **OPC Tag** dialog appears.



4. Configure the following options and click **OK**.
   - **Server:** Lists the OPC server that the current Alarm Sheet is attached to.
   - **Item ID:** Identifies the tag. Manually enter or modify a tag, or select a tag from the **Available Tags** pane.

- **Data Type:** There are 13 different data types to choose from, which will affect how the value is displayed in the Alarm Sheet. The default will display the canonical (native) data type.
- **Filter:** Controls which tags display in the **Available Tags** pane.

Alarm Response

Configuring Alarm Response

Use the **Alarm Responses** dialog to configure what happens when the alarm is triggered.

To configure alarm response:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Click the **Alarm Response** button. The **Alarm Responses** dialog appears.

3. Configure the following options and click **OK**.
   - **Response Types**: Select the check boxes for the desired responses.
     - **Audio:** Play a WAV file or use the voice synthesis system.
     - **Flash Window:** Flash FTAlarm's title window and status bar icon.
     - **Print Report:** Print the status of the alarm after it has been triggered. The printed report will contain the information listed in the alarm status window for the corresponding triggered alarm occurrence. An optional message can be configured to follow the alarm status information.
     - **Send Mail:** Send an email message to selected recipients after an alarm has been triggered.

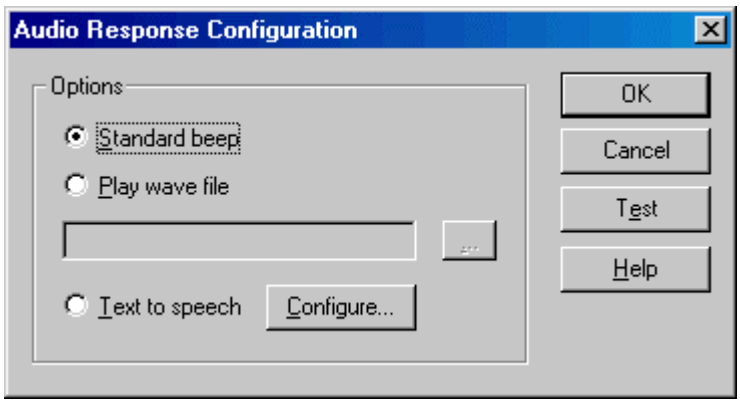
  - **Pager/Phone:** Call and/or page one or more recipients after an alarm has been triggered.
- **Configure:** When a response type check box is selected, clicking the **Configure** button accesses the configuration dialog for that response. There is no configuration dialog for **Flash Window**.
- **Repeat Audio Response:** Use the **Repeat Audio Response** field to control how frequently the sounds is repeated while the alarm is triggered. The delay time guarantees that the alarm response will not repeat itself within the selected time. It does not guarantee that the response will repeat at this rate - that depends on the length of the .WAV file or the length of the text. A repeat response time can be set for all responses except **Flash Window**. The **Audio** and **Flash Window** responses will respond multiple times while an alarm is triggered but the remaining responses respond at most once per trigger but no sooner than the repeat response rate.

Configuring an Audio Response Alarm

Use the **Audio Response Configuration** dialog to configure FTAlarm to announce an alarm using sound.

To configure audio response:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Select the **Audio** check box in the **Response Types** list and click the **Configure** button. The **Audio Response Configuration** dialog appears.



4. Configure the following options and click **OK**.
   - **Standard beep:** Select the **Standard beep** option button to set the computer to beep repetitively until the alarm is acknowledged.
   - **Play wave file:** Select the **Play wave file** option button to play a .WAV file to announce the alarm. Click the  browse button to select the file. When the alarm is triggered, the file is played in a loop until the alarm is acknowledged or the alarm is no longer triggered.
   - **Text to speech:** Select the **Text to speech** option button to use a spoken announcement for the alarm. Click the **Configure** button. (See **Configuring a Text to Speech Alarm**.)
   - **Test:** Click the **Test** button to hear the results.

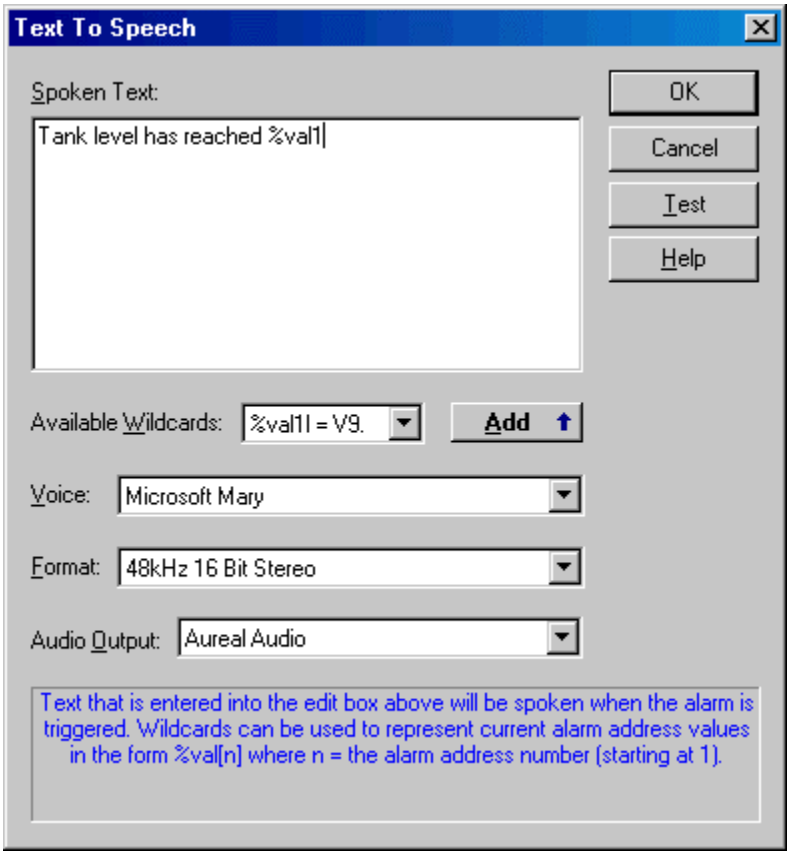
All the sounds repeat until the alarm is acknowledged. Use the **Repeat Audio Response** control on the **Alarm Response** dialog to control how frequently the sound is repeated while the alarm is triggered.

Configuring a Text To Speech Alarm

Use the **Text To Speech** dialog to configure a spoken announcement for an alarm.

To configure a spoken alarm announcement:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Access the **Audio Response Configuration** dialog by selecting the **Audio** check box in the **Response Types** list and clicking the **Configure** button.
4. Select the **Text to speech** option button and click the **Configure** button. The **Text To Speech** dialog appears.



5. Configure the following options and click OK.
   - **Spoken Text:** Enter the desired text to announce the alarm. The text can include wildcards, as described below.
   - **Available Wildcards:** Wildcards, representing the PLC data points used in the alarm equation, can be used in the spoken text. This allows alarms to be set that speak the value that triggered the alarm. In the illustration, the alarm would announce the value read from address V9. To add a wildcard to the

spoken text, select the wildcard from the drop-down list and click the **Add** button.

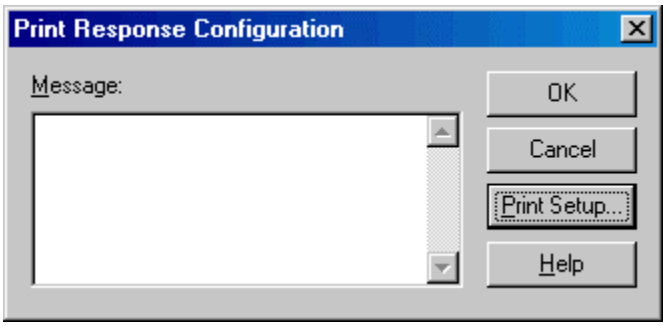
- **Voice:** Select the speaking voice from the **Voice** drop-down list. Options include one female and two male voices.
- **Format:** Select the sound output format from the **Format** drop-down list.
- **Audio Output:** Select the output device from the **Audio Output** drop-down list.
- **Test:** Click the **Test** button to hear the results. A value of 0 will be substituted for all wildcards while offline.

Configuring a Printed Report

Use the **Print Response Configuration** dialog to configure a report that will be printed when the alarm is triggered. The report contains the same information as the status window line for the alarm. The information may be followed by the text in the **Message** field described below.

To configure a printed report:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Select the **Print Report** check box in the **Response Types** list and click the **Configure** button. The **Print Response Configuration** dialog appears.



4. Configure the following options and click **OK**.
   - **Message:** Enter the optional text to be printed following the alarm status information.
   - **Print Setup:** Click the **Print Setup** button to access the Windows print setup dialog. The settings configured here are specific to this alarm, and do not affect the settings for other applications, or other alarms. It is possible to configure FTAlarm to print individual alarms on separate printers.

Configuring an Email Response

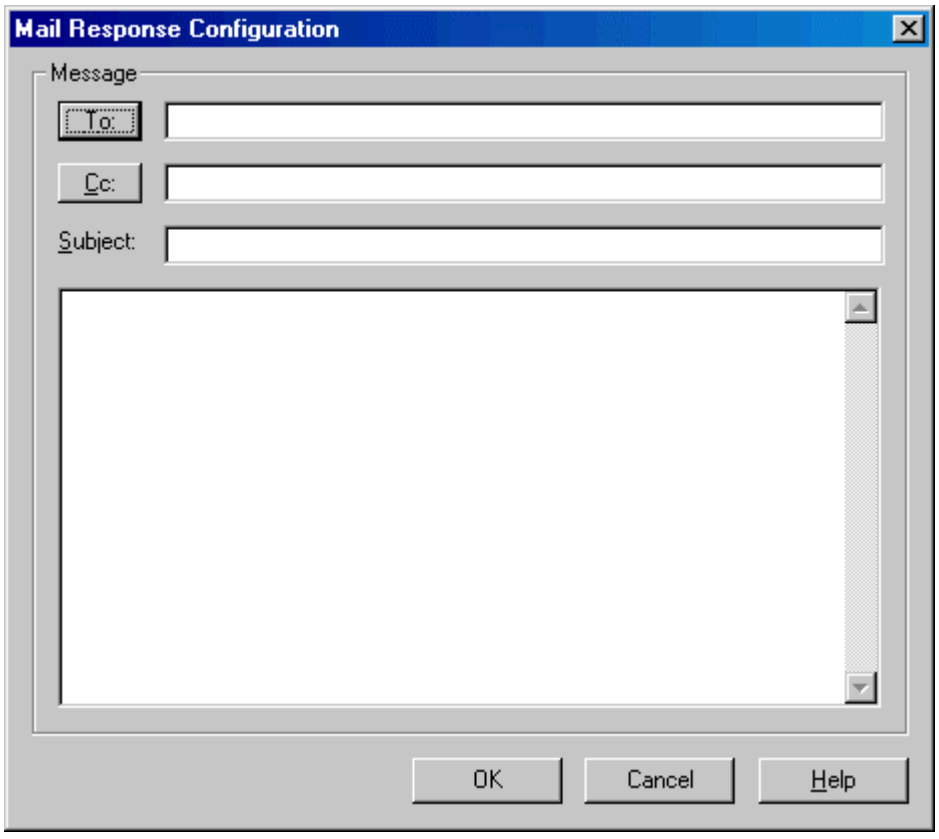
FTAlarm can be configured to send an email (via Microsoft Outlook or Outlook Express) when an alarm is triggered.

Microsoft Outlook or Outlook Express must be the default email client. (The default email client is selected on the **Programs** tab of the Windows **Internet Properties** dialog.)

An email message will be sent once per trigger and no sooner than the repeat response time specified on the Alarm Responses dialog. To send email via a modem which may not be online when the alarm is triggered, check the **Connect automatically** box in the Windows **Dial-up Connection** dialog. The **Dial-up Connection** dialog is part of Windows, not FTAlarm.

To configure FTAlarm to send an email:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Select the **Send Mail** check box in the **Response Types** list and click the **Configure** button. The **Mail Response Configuration** dialog appears.



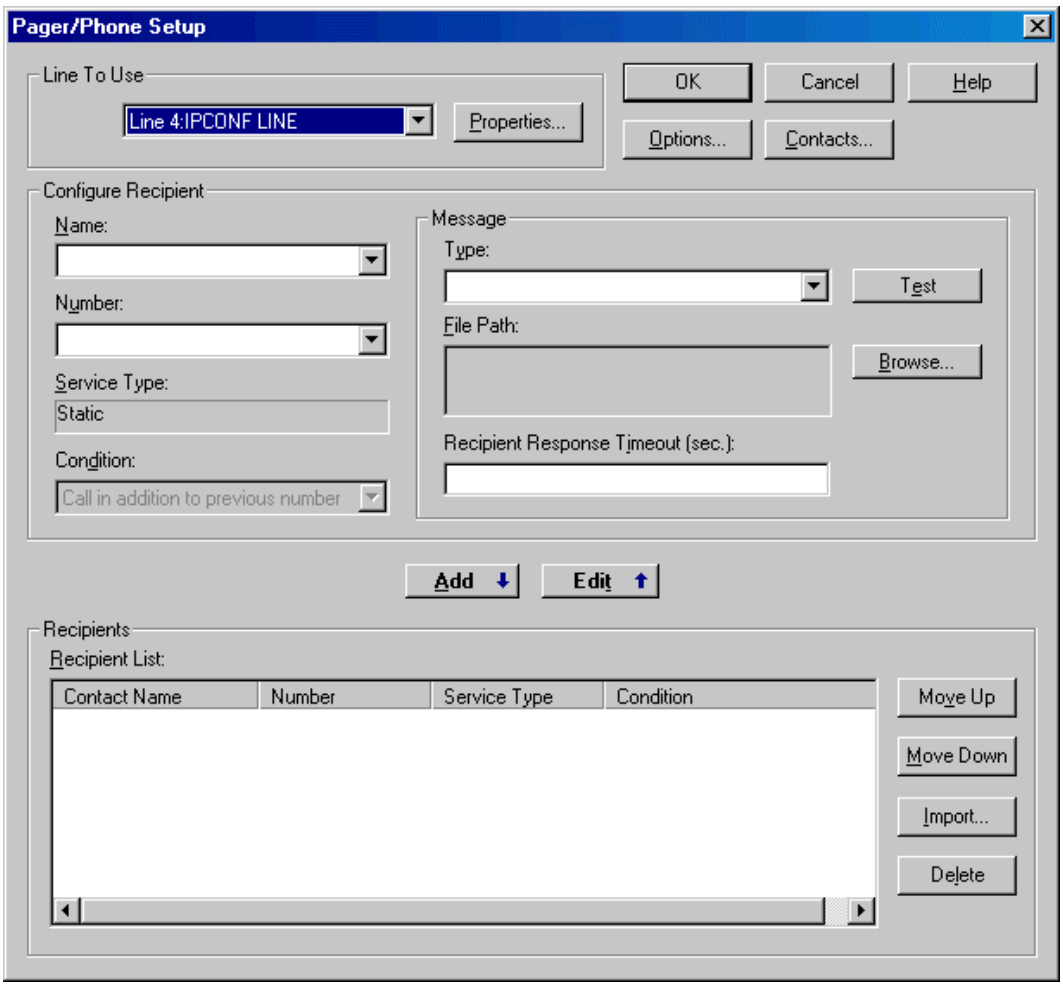
4. **To:** Enter the email address or addresses of the intended recipient or recipients or click the **To** button to access the Microsoft Outlook or Outlook Express address book.
5. **Cc:** Enter the email address or addresses of those who should receive a courtesy copy or click the **Cc** button to access the Microsoft Outlook or Outlook Express address book.
6. **Subject:** Enter the subject line that will appear on the email.
7. Enter the text of the message in the large box.
8. Click **OK**.

Configuring a Pager / Phone Call

FTAlarm can be configured to call one or more telephones or pagers when an alarm is triggered.

To configure FTAlarm to call or page:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Select the **Pager / Phone** check box in the **Response Types** list and click the **Configure** button. The **Pager / Phone Setup** dialog appears.



4. Configure the following options and click **OK**.
   - **Line To Use:** Select the telephone line that FTAlarm will use.
   - **Options:** Click the **Options** button to access the **Phone and Modem Options** dialog. This is the same dialog as the one found in the Windows Control Panel.
   - **Contacts:** Click the **Contacts** button to configure the list of contacts.

- **Configure Recipient:**
  - **Name:** Select a recipient of the call or page from the list of contacts.
  - **Number:** If the type is **Numeric,** enter the number to be sent to the pager.
  - **Condition:** Select the condition where this recipient will be contacted. The options are **Call in addition to the previous number** (in order to contact more than one individual) or **Call if previous contact is unreachable** (if this contact is a backup to the other). A contact is considered unreachable if they are not recorded as on-call in the **Call Schedule**, the number does not connect, or the contact does not respond by dialing **1** within the specified time.
  - **Message:** Specify the message to be sent or spoken to this contact. Different contacts can receive different messages for the same alarm. The types available depend on the **Service Type** for the selected contact.
    - **Type:** Select the type of message. If the service type is **Numeric**, the only option is **Numeric**. If the service type is **Voice**, the options are **Text-To-Speech** and **Wave File**.
    - **File Path:** If the type is **Wave File**, click the **Browse** button to browse for the wave file. The format that the wave file was recorded in must be compatible with the voice modem being used. This is usually at 8000 bps, 1 channel (mono), and 16 bits per sample. If the wave file is recorded in any other format, the wave file may not be audible over the phone. If the type is **Text-To-Speech**, click the **Configure** button to access the Text To Speech Setup dialog.
    - **Recipient Response Timeout:** Set the number of seconds that FTAlarm will wait for a response (the contact dialing **1**) before considering that contact unreachable.
- **Recipients:**
  - **Recipient List:** When the recipient has been selected and the message specified, click the **Add** button to add that recipient to the list. To edit a recipient's information, highlight that recipient and click the **Edit** button to move the information from the list to the editable fields. When the edits are complete, click the **Add** button to move the recipient's information back to the list.
  - **Move Up /Move Down:** Click the **Move Up** and **Move Down** buttons to move the highlighted call recipient up or down in the list, thus controlling the order in which they are called.
  - **Import:** Click the Import button to copy some or all of the recipient list from another alarm.

- **Test:** Click the **Test** button to simulate the alarm being triggered. FTAlarm will attempt to call the current recipient and play the .WAV file or text-to-speech.

User Interaction

When the user answers the call:

1. FTAlarm plays the .WAV file or the text-to-speech.
2. FTAlarm prompts the user for the user name.

3. The user types the user name by pressing the number keys that correspond to the letters and ends input by pressing the # key. If there are duplicate numbers to alpha conversions (for example, BAT and CAT are both entered as 228) FTAlarm will offer the user a menu to choose from the duplicate results. In the example above, FTAlarm would present the options as "*Press 1 to select bat. Press 2 to select cat*".
4. FTAlarm prompts the user for the password.
5. The user types the password by pressing the number keys that correspond to the letters, and ends input by pressing the # key.
6. FTAlarm prompts the user with a series of menus that depends on the specific situation.

The following rules apply to FTAlarm-user remote interaction via a phone line:

1. The user has 10 seconds to respond to **one-key** options. If nothing is entered within this time, the options will be repeated. If nothing is entered on the second try, FTAlarm will respond with "*Invalid user response. FTAlarm remote access will terminate.*" FTAlarm will hang up at this time. If the user is in the middle of a response and a timeout occurs, FTAlarm will respond with "*Invalid user response*" and the options will be repeated.
2. The user has one minute to respond to **multi-key** options such as user name, password, address, value, etc. If nothing is entered and there is a timeout, FTAlarm will respond with "*Invalid user response. FTAlarm remote access will terminate.*" FTAlarm will hang up at this time. If the user is in the middle of a response and a timeout occurs, FTAlarm will respond with "*Invalid user response*" and the options will be repeated.
3. The user will enter user names, passwords, devices, alarms, and tags by pressing the number key that corresponds to the desired letter. The user will conclude the entry by pressing the # key. FTAlarm will check for duplicate numeric to alpha conversions when the user enters one of the above. If a duplicate is found, the user will be provided with a menu to choose one of the duplicate matches. For example BAT and CAT differ alphabetically but they both convert numerically to 228. The menu options "*Press 1 to select bat. Press 2 to select cat*" will be offered to the user in this case.
4. Users will enter addresses and values as follows:
   Select a letter by pressing the corresponding number followed by the position on the key (1-3). Complete the selection by pressing the # key. Select a number by pressing the corresponding number key followed by the # key. Use the * key to represent a decimal. At any time choose the * key twice to select a non-alphanumeric key other than the decimal key. When the * key is pressed twice, the following options will be listed:
   - Press **1** to insert a plus character.
   - Press **2** to insert a minus character.

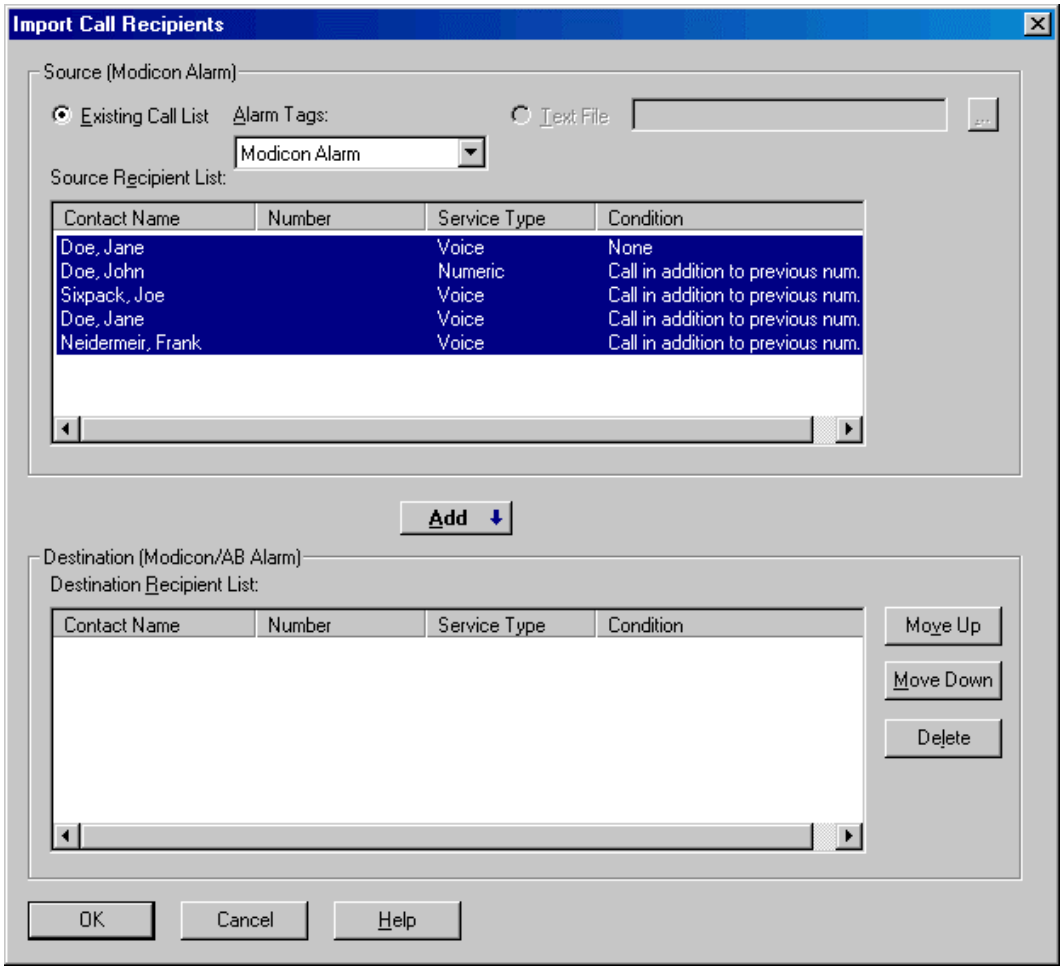
- Press **3** to insert a colon character.
- Press **4** to insert a space character.
- Selecting 1-4 will insert the character into the address or value. The user can then resume entering further digits via the method above. When finished entering an address or value, the user must select the # key twice.

Importing Call Recipients

When editing a Pager/Phone Setup for an alarm, you can recipients can be imported from another alarm.

To import call recipients from an alarm:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Access the **Pager / Phone Setup** dialog by selecting the **Pager/Phone** check box in the **Response Types** list and clicking the **Configure** button.
4. Click the **Import** button. The **Import Call Recipients** dialog appears.



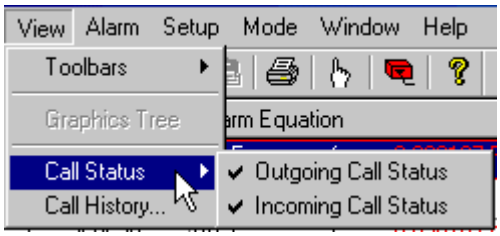
5. Configure the following options and click **OK**.
   - Select the alarm tag from which to import recipients. The **Source Recipient List** shows recipients for that alarm.
   - By default, the entire recipient list is selected. To import the entire list, simply click the **Add** button.
   - To import selected recipients, highlight one or more and click the **Add** button. You may continue selecting recipients and clicking the **Add** button as often as needed.
   - Use the **Move Up** and **Move Down** buttons to configure the order in which recipients are called.

Displaying Call Status

Call status information may be displayed when incoming or outgoing calls are in progress.

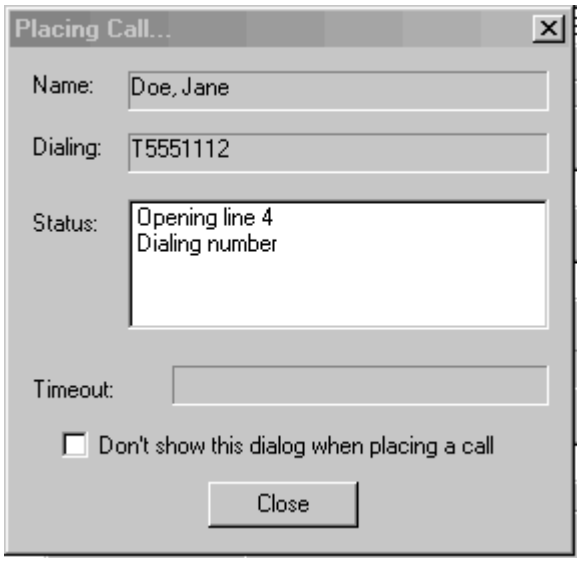
To configure whether call status dialogs will be displayed:

1. Select the **View / Call Status** menu option. A check mark on the menu indicates that a status dialog will be displayed for that call type.



- Call status dialogs are modeless - they do not have to be closed in order to perform other tasks.
- When there are multiple calls in process, each will have a corresponding status window.

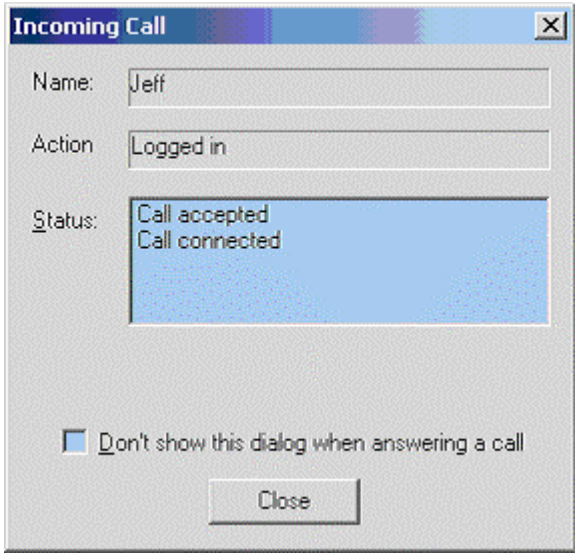
Outgoing Call



- The recipient's name appears in the **Name** field.
- The number being dialed appears in the Dialing field, with a **T** to indicate tone dialing or a **P** to indicate pulse dialing.
- The **Status** field shows the progress of the call.
- To turn off the display of **Placing Call** dialogs, select the **Don't show this dialog when placing a call** check box. This is equivalent to clearing the **View / Call Status / Outgoing Call Status** menu option as shown above.

Incoming Call

Incoming calls are possible after configuring **Remote Access**.



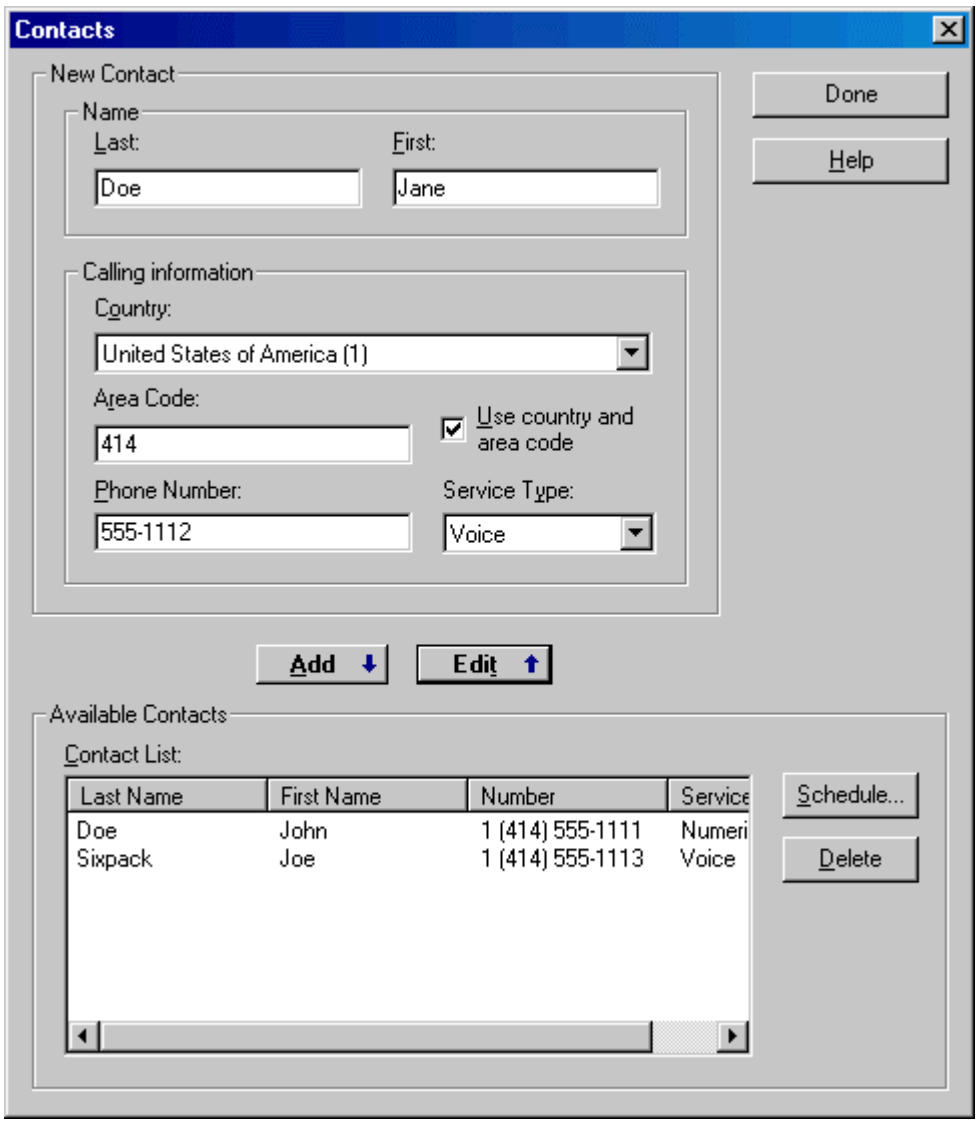
- The caller's name appears in the **Name** field, once the login process has identified the caller.
- The **Action** field indicates the action the caller is performing, as determined by where they are in the voice menu system.
- The **Status** field shows the progress of the call.
- To turn off the display of **Incoming Call** dialogs, select the **Don't show this dialog when answering a call** check box. This is equivalent to clearing the **View/Call Status/Incoming Call Status** menu option as shown above.

Configuring Contacts

Pager / Phone recipients are selected from a list of Contacts. Use the **Contacts** dialog to manage the list.

To configure contacts:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Access the **Pager / Phone Setup** dialog by selecting the **Pager/Phone** check box in the **Response Types** list and click the **Configure** button.
4. Click the **Contacts** button. The **Contacts** dialog appears.



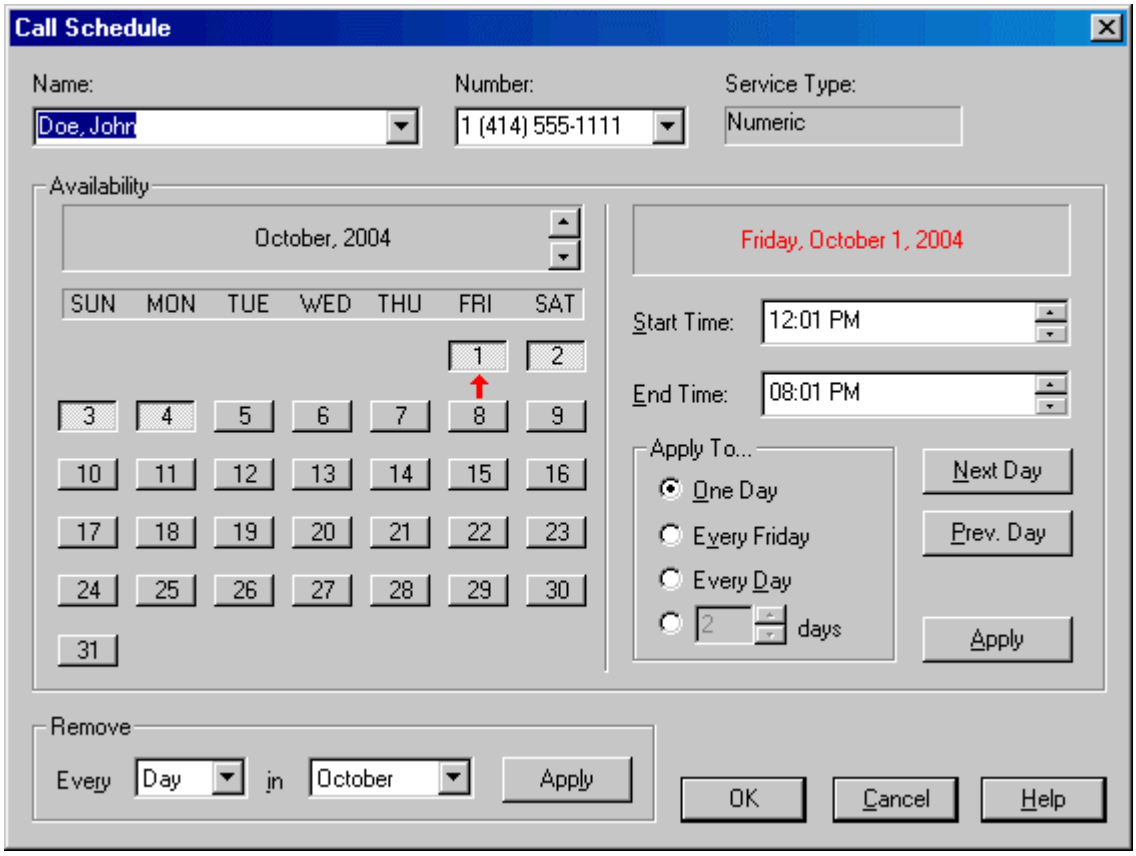
5. Configure the following options and click **OK**.
   - **Name:** Enter a contact's **First** and **Last** name in the **Name** group box.
   - **Calling Information:** The country code and area code default to the values found in the Windows **Phone and Modem Options** dialog. This dialog can be accessed through the Windows Control Panel or by clicking the **Options** button on the Pager/Phone Setup dialog.
     - **Country:** Select the country in which the contact is located.
     - **Area Code:** Enter the area code for the recipient. If this area code matches the area code specified in the Windows **Phone and Modem Options** dialog when the alarm is triggered, only the phone number will be dialed, unless the **Use country and area code** check box is selected. If the area codes differ, the contact's area code will be dialed.
     - **Use country and area code:** If this box is checked, the country and area codes will be dialed even if the contact's country and area code are the same as those specified in the Windows **Phone and Modem Options** dialog when the alarm is triggered.
     - **Phone Number:** Enter the contact's phone number, without area code.
     - **Service Type**: Select **Voice** or **Numeric** from the drop-down list.
   - **Available Contacts:**
     - **Contact List:** The contact list shows the configured contacts in the database. When the information for the current contact is complete, click the **Add** button to move the information to the list. To edit an existing contact, highlight it in the list and click the **Edit** button to move it to the editable fields. Click the **Add** button to move the edited information back to the list.
     - **Schedule:** To schedule on-call times for a contact, select the contact in the list and click the **Schedule** button.

Configuring Call Schedule

Use the **Call Schedule** dialog to configure the on-call times for a contact. If a contact is not **On Call** when the alarm is triggered, then FTAlarm will not attempt to call the contact.

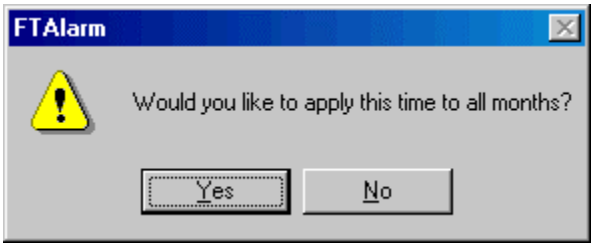
To configure the on-call times for a contact:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Access the **Alarm Responses** dialog by clicking the **Alarm Response** button.
3. Access the **Pager / Phone Setup** dialog by selecting the **Pager/Phone** check box in the **Response Types** list and click the **Configure** button.
4. Access the Contacts dialog by clicking the **Contacts** button.
5. Select the contact in the **Contacts List**.
6. Click the **Schedule** button. The **Call Schedule** dialog appears.



7. Configure the following options and click **OK**.
   - **Name:** Select the name of the contact to be scheduled. This field cannot be edited here.

- **Number:** If the named contact has more than one phone number, select the desired phone number from the drop-down list.
- **Service Type:** The service type (voice or numeric) as set in the **Contacts** dialog. This field cannot be edited here.
- **Availability:** This calendar-style dialog allows you to set available hours within specified days. Days with on-call time are shown as depressed buttons. If the button is in the raised position, the contact is not available that day. A day can be turned "on or off" by clicking the button for that date. The day being edited is marked with a red arrow. Use the scroll arrows next to the month and date to view and edit other months. One year of information is stored. For example, on November 1, 2004, the month of October in 2004 is dropped and October of 2005 becomes available for scheduling.
  - **Start Time / End Time:** Enter the times during the day when this contact is available to take calls or pages.
  - **Apply To:** By default, the time information entered above is applied to the date marked with the red arrow when the **Apply** button is clicked. By selecting other options, quickly apply those times to many dates.
    - **One Day:** Pressing the **Apply** button applies the times to the date marked by the red arrow.
    - **Every** {day of week}**:** The day of week shown here reflects that of the date marked by the red arrow. Pressing the **Apply** button applies the times to the each instance of the selected day of the week. The following dialog appears.



- Clicking the **Yes** button applies the times to both current and future dates for the 12 months starting at the current month. Pressing the **No** button applies the times to the indicated date and that day of the week up to the end of the current month.
  - **Every Day:** Pressing the **Apply** button applies the times to every day. A dialog appears as shown above. Clicking the **Yes** button applies the times to all days for the 12 months starting with the current month. Pressing the **No** button applies the times to each day in the current month.
  - n **days:** Pressing the **Apply** button applies the times to the indicated number of days, starting with the date marked by the red arrow.
  - **Next Day:** Moves the red arrow to the next day.

    - **Prev. Day:** Moves the red arrow to the previous day.
- **Remove:** Remove on-call time information.
    - **Every:** Select **DAY** or a day of the week.
    - **in:** Select a month or **every month**.
    - **Apply:** Click **Apply** to remove the information for the dates indicated by the other two fields.

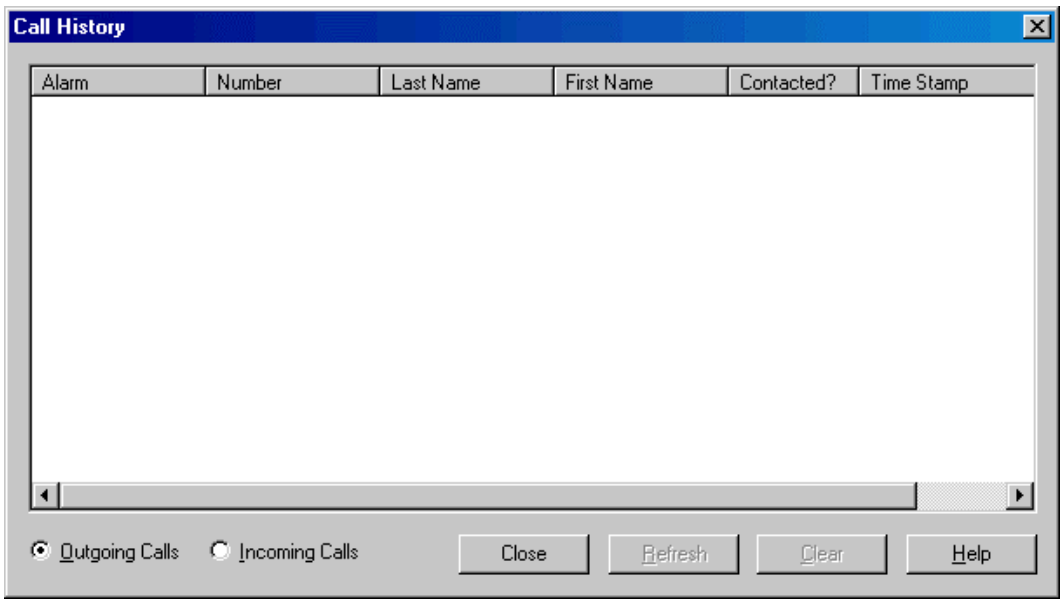
Viewing Call History

The **Call History** dialog displays the status of each call that was attempted as a result of a triggered alarm, and any incoming calls.

Incoming calls are only possible if **Remote Access** is configured.

To view call history:

1. Select the **View/Call History** menu option. The **Call History** dialog appears.



2. Configure the following options and click **OK**.
   - **Incoming Calls / Outgoing Calls:** Select the option button for the calls to be displayed.
   - **Refresh:** Click the **Refresh** button to re-read the database in case any new calls have been attempted since the dialog was opened.
   - **Clear:** Click the **Clear** button to clear call information from the database. The information can also be cleared automatically by age. (See **Alarm Database**.)

Alarm Acknowledgement

Alarm Acknowledgement Overview

Alarm acknowledgement is the process of registering the fact that the alarm has been adequately announced. Acknowledgement is either by manual intervention or time.

When an alarm is acknowledged several things happen:

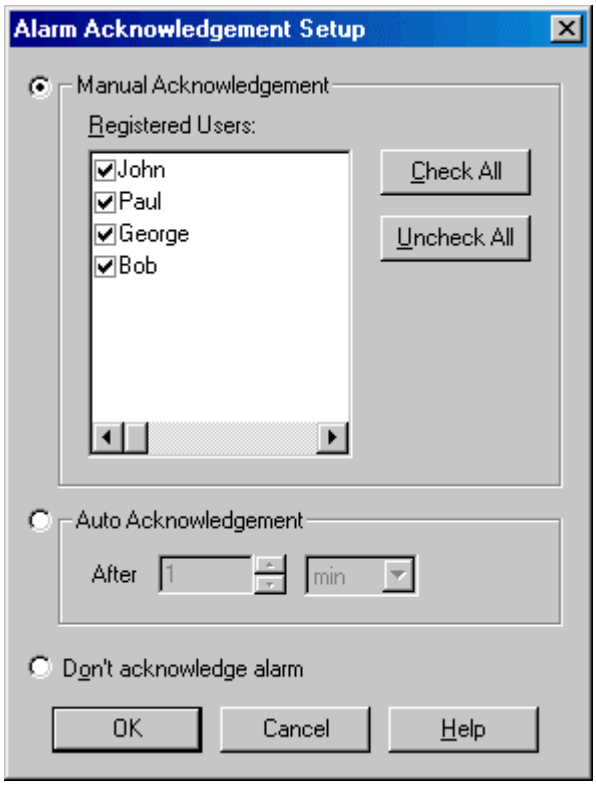
- The acknowledged alarm is removed from the Alarm Acknowledgement dialog. If this is the only alarm in the dialog, the dialog is removed.
- Any audio, flash window, or other repetitive responses for the alarm are halted.
- An entry is logged to the Database and Alarm Status Sheet (if configured) listing:
  - Alarm Tag
  - Alarm Equation
  - Condition
  - Severity
  - Time of Acknowledgement

Configuring an Alarm Acknowledgement

Each alarm can be configured to require an acknowledgement when it is triggered.

To configure an alarm for acknowledgement:

1. Access the **Edit Alarm** dialog by clicking the alarm in the Alarm Sheet and selecting the **Alarm / Edit** menu option or double-clicking the alarm in the Alarm Sheet.
2. Click the **Acknowledge** button. The **Alarm Acknowledgement Setup** dialog appears.

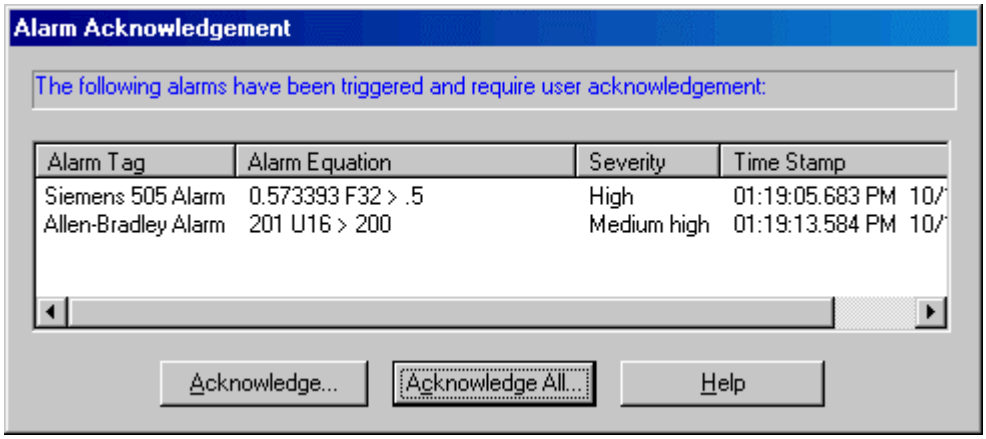


3. Configure the following options and click **OK**.
   - **Manual Acknowledgement:** Select the **Manual Acknowledgement** option button to configure the alarm to require a local user's acknowledgement. Select the **Registered Users** who are authorized to acknowledge this alarm. The list shows users that were added using the FTAlarm Users dialog. When **Manual Acknowledgement** is selected and the alarm is triggered, an Alarm Acknowledgement dialog appears.
   - **Auto Acknowledgement:** Select the **Auto Acknowledgement** option button to configure the alarm to be acknowledged after a period of time. Select the time unit and set the number of those units.
   - **Don't acknowledge alarm:** Select the **Don't acknowledge alarm** option button if the acknowledgement features with this alarm will not be used.

Repetitive responses will continue until the alarm equation evaluates to **FALSE**.

Acknowledging an Alarm

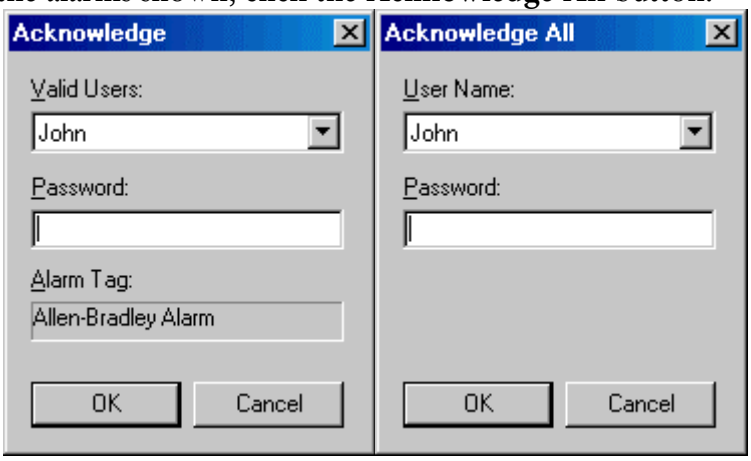
When an alarm that is configured for manual acknowledgement is triggered, the **Alarm Acknowledgement** dialog appears.



The **Alarm Acknowledgement** dialog can show multiple alarms.

To acknowledge one or more alarms:

1. To acknowledge one alarm, select the alarm in the list and click the **Acknowledge** button, or double-click the alarm in the list. To acknowledge all the alarms shown, click the **Acknowledge All** button.



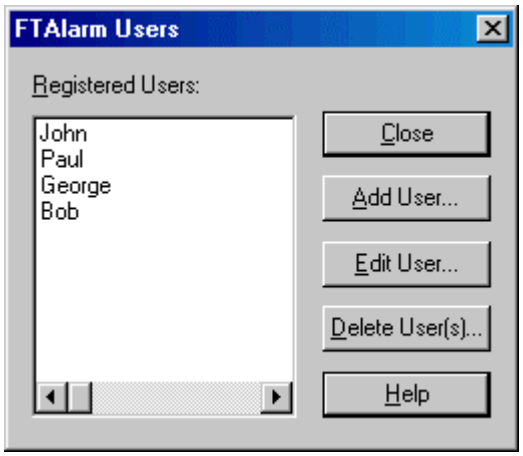
2. Select the user name from the list.
3. Enter the **Password** and click **OK.**

Registering FTAlarm Users

Only registered users can acknowledge an alarm.

To register users:

1. Select the **Alarm / Users** menu option. The **FTAlarm Users** dialog appears.

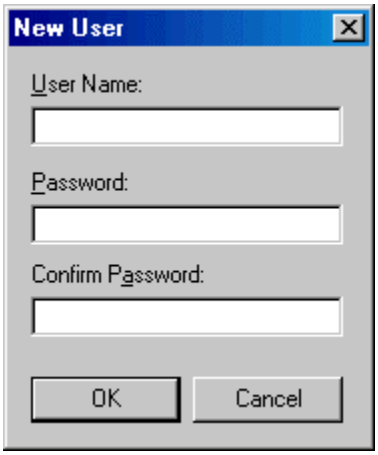


   - **Registered Users**: The **Registered Users** list shows currently registered users.
2. Click the following buttons to access configuration options.
   - **Add User:** Add a user to the list.
   - **Edit User:** Edit a user's information.
   - **Delete User(s):** Delete one or more users from the list.

Adding a User

To add a user to the list of users:

1. Access the **FTAlarm Users** dialog by selecting the **Alarm / Users** menu option.
2. Click the **Add User** button. The **New User** dialog appears.

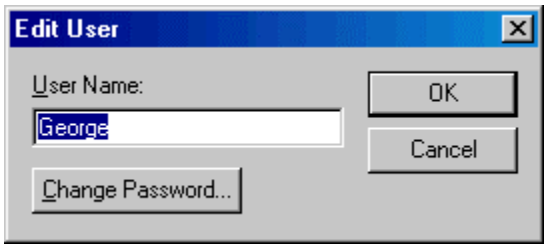


3. Enter the **User Name**.
4. Enter the new **Password**.
5. Enter the password again in the **Confirm Password** field to verify that it was entered correctly and click **OK**.

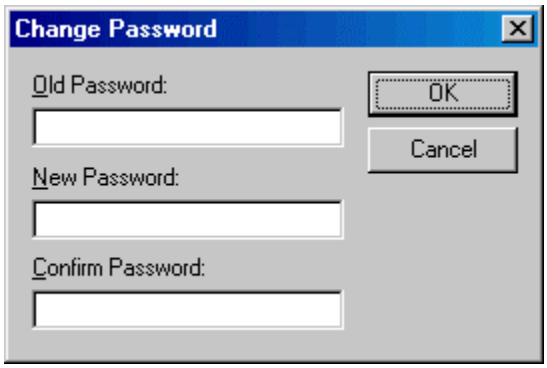
Edit a User's Information

To edit information for a user to the list of users:

1. Access the **FTAlarm Users** dialog by selecting the **Alarm / Users** menu option.
2. Click the **Edit User** button. The **Edit User** dialog appears.



3. Configure the following options and click **OK**.
   - **User Name:** Edit the user name.
   - **Change Password:** To change the password, click the **Change Password** button. The **Change Password** dialog appears.



4. Enter the current password in the **Old Password** field.
5. Enter the **New Password**.
6. Enter the password again in the **Confirm Password** field to verify that it was entered correctly and click **OK**.

Deleting Users

To delete users from the list of users:

1. Access the **FTAlarm Users** dialog by selecting the **Alarm / Users** menu option.
2. Select the users to be deleted and click the **Delete User(s)** button. The **Delete Users** dialog appears.

3. Confirm the deletion by clicking the **Yes** button.

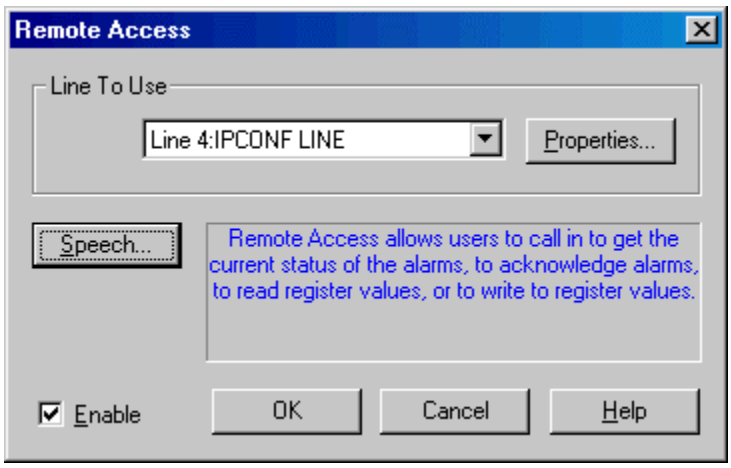
Configuring Remote Access

The remote access feature allows users to interact with FTAlarm by telephone. When remote access is configured, users can call into:

- Get the current status of alarms
- Read register values
- Acknowledge alarms
- Write register values

To configure remote access:

1. Select the **Setup / Remote Access** menu option. The **Remote Access** dialog appears.



2. Configure the following options and click **OK**.

- **Enable:** Select the **Enable** check box to enable remote access.
- **Line To Use:** Select the **Line to Use** from the drop-down list. The phone lines are configured using the Windows **Phone and Modem Options** dialog on the Windows Control panel.
- **Speech:** Click the **Speech** button to configure the greeting. (See **Text To Speech**.)

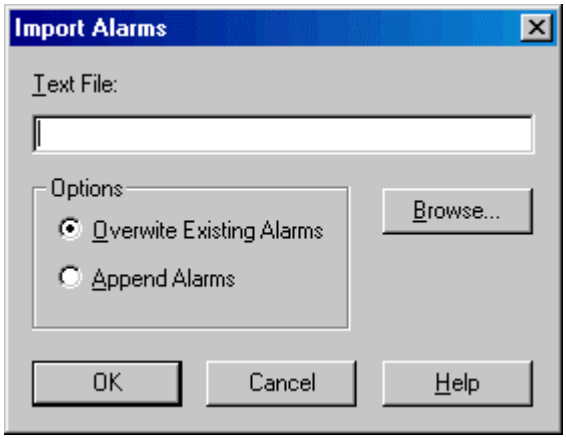
Importing / Exporting Alarms

Importing Alarms

Alarms can be exported to, and imported from, text files. This can be useful when creating many alarms that are slight variations of one another. Exporting to an Excel file, copying and pasting the basic alarm, and then modifying the copies can be much quicker than creating each alarm in FTAlarm. (For details on the file format, see **Alarm Text File Format**.)

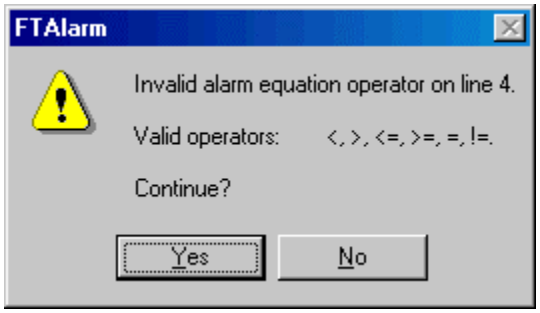
To import alarms from a text file:

1. Make sure all the **devices** used in the equations in the text file are configured. Alarms containing undefined devices will not be imported.
2. Select the **File /Import/ Alarms** menu option. The **Import Alarms** dialog appears.



3. Click the **Browse** button to browse for the text file containing the alarms.
4. Select one of the following options:
   - **Overwrite Existing Alarms:** The alarms in the import file will replace the existing alarms. Alarms that were in the existing project but not in the import file will be deleted.
   - **Append Alarms:** The alarms in the import file will be added to the existing project. When the alarm tag from an alarm in the import file is the same as that of an existing alarm, the imported alarm will have *-2* appended to the tag.

5. Click the **OK** button. If there are lines that are not valid, error dialogs will appear:



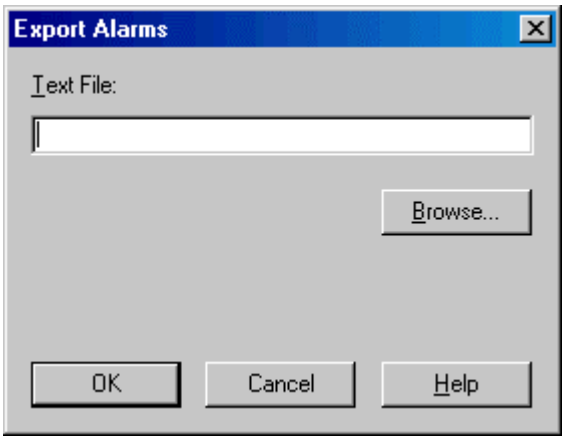
6. Select **Yes** to continue importing alarms or **No** to stop. Selecting **No** does not reverse the import of already processed lines. Alarm lines that are not valid are skipped. When the import process is complete, a similar dialog will report the results.

Exporting Alarms

Alarms can be exported to, and imported from, text files. The alarm text file contains references to devices, but does not contain the device configuration. The device configuration is stored as described in **Selecting the Configuration File**. (For details on the file format, see **Alarm Text File Format**.)

To export alarms from a text file:

1. Select the **File / Export / Alarms** menu option. The **Export Alarms** dialog appears.



2. Click the **Browse** button to browse for the text file where the alarms will be exported.
3. Click the **OK** button.

Alarm Text File Format

Each alarm is represented by one line in the text file. Fields are separated by tab characters. Each field is represented by the field name followed by a colon '**:**' followed by the value. For example:

```
ALARM TAG:Siemens 505 Alarm
```

Fields can be in any order. The **ALARM TAG**, **EQU TYPE**, and **EQU STR** fields are required on each line. The rest of the fields are optional. For example:

```
ALARM TAG:Siemens 505 Alarm EQU TYPE:Simple EQU
STR:'device1.V9. F32' > '0.99 F32' SEVERITY:High
ACTIVE:Yes AUDIO RESP:No FLASH WIN RESP:Yes
```

The file can be edited using third party software such as Microsoft Excel or Notepad.

The following table lists the fields. The configuration value in bold text is the default, and will be used if the field is not present in the line of text.

HEADER	CONFIG VALUES	REQUIRED
ALARM TAG:	String - from 1 to 32 characters.	YES
EQU TYPE:	Simple, Complex	YES
EQU STR:	Any combination of the following: Operand - '[device name].[address] [format]' Constant – "[value] [format]" Operands and constants can be combined.	YES
SEVERITY:	**Low**, Medium low, Medium, Medium high, High	NO
ACTIVE:	**Yes**, No	NO
AUDIO RESP:	**Yes**, No	NO
AUDIO TYPE:	Wave, **Beep, TTS**	NO
WAVE FILE:	[file path and name]	NO
AUDIO TTS TEXT:	[Text string minus any tab, comma, CR, LF chars]	NO
AUDIO TTS VOICE:	0 (Microsoft Mary)	NO
AUDIO TTS FORMAT:	39 (48 kHz 16 Bit Stereo)	NO
AUDIO TTS OUTPUT:	Registry path of non-modem output device	NO
AUDIO RESP DELAY:	From **1 sec** to 23 hours	NO
FLASH WIN RESP:	**Yes**, No	NO
PRINT RESP:	Yes, **No**	NO
PRINTER NAME:	[Printer name used in print setup]	NO

PRINT RESP DELAY:	From 1 sec to 23 hours **(30 min default)**	NO
PRINT MESSAGE:	[Text string minus any tab, comma, CR, LF chars]	NO
MAIL RESP:	Yes, **No**	NO
MAIL SUBJECT:	[Text string minus any tab, comma, CR, LF chars]	NO
MAIL MESSAGE:	[Text string minus any tab, CR, LF chars]	NO
MAIL TO RECIPS:	[Valid configured contact 1];[Valid configured contact 2];...	NO
MAIL CC RECIPS:	[Valid configured contact 1];[Valid configured contact 2];...	NO
MAIL RESP DELAY:	From 1 sec to 23 hours **(30 min default)**	NO
PAGER/PHONE RESP:	Yes, **No**	NO
CALL RECIP_[nbr] LINE:	0 - ?	NO
CALL RECIP_[nbr] NAME:	32 char last name and 32 char first name	NO
CALL RECIP_[nbr] NUMBER:	Any alphanumeric combination	NO
CALL RECIP_[nbr] SERVICE TYPE:	"Voice" or "Numeric"	NO
CALL RECIP_[nbr] MSG TYPE:	"NUM_MTYPE", "WAVE_MTYPE", or "TTS_MTYPE"	NO
CALL RECIP_[nbr] PAGER NBR:	Numeric text	NO
CALL RECIP_[nbr] ANSWER DELAY:	1-120 seconds **(10 sec default)**	NO
CALL RECIP_[nbr] WAVE PATH:	[file path and name]	NO
CALL RECIP_[nbr] TIMEOUT:	1-120 seconds **(60 sec default)**	NO
CALL RECIP_[nbr] TTS TEXT:	[Text string minus any tab, comma, CR, LF chars]	NO
CALL RECIP_[nbr] TTS VOICE:	0 (Microsoft Mary)	NO
CALL RECIP_[nbr] TTS FORMAT:	39 (48 kHz 16 Bit Stereo)	NO
CALL RECIP_[nbr] TTS OUTPUT:	Registry path of modem output device	NO
CALL RECIP_[nbr] CONDITION:	"CALL_NO_COND", "CALL_IN_ADD", or "CALL_ON FAIL"	NO

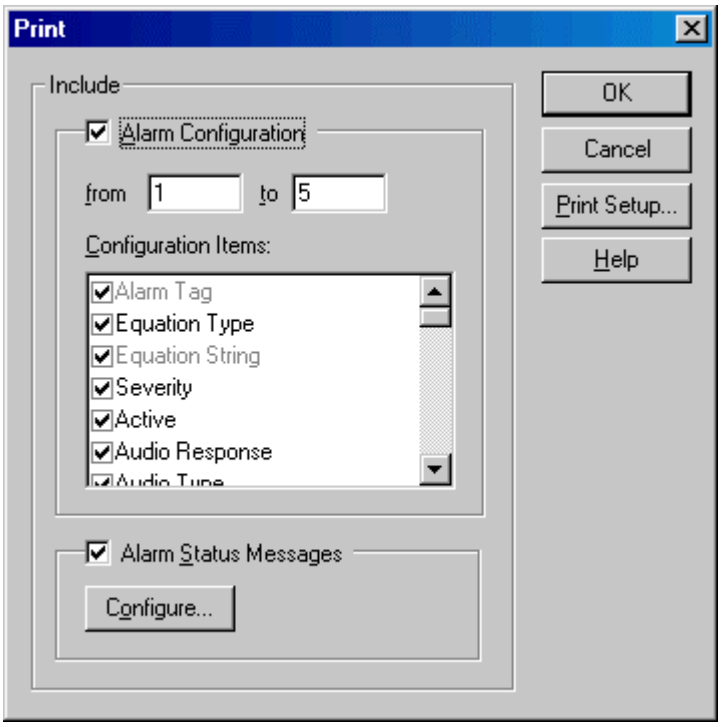
PAGER/PHONE RESP DELAY	From 1 sec to 23 hours **(30 min default)**	NO
ACK TYPE:	Manual, Auto, **None**	NO
ACK USERS:	"[User 1]""[User 2]""[User 3]"...	NO
AUTO ACK TIME:	1-59 Sec, 1-59 Min, 1-23 Hour, 1-365 Day	NO

Printing Alarms

Printing Alarms

To print the alarm configuration, and/or the alarm status messages:

1. Select the **File/Print** menu option. A standard Windows **Print** dialog appears.



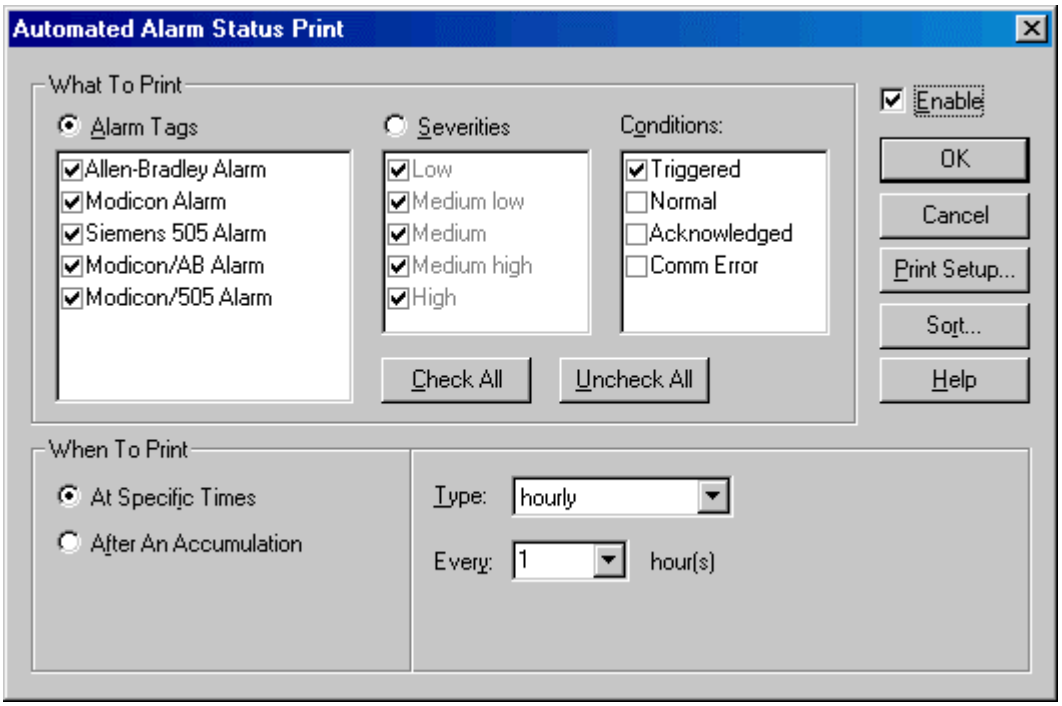
2. Select the printer and configure any other print options. Click **OK**.
   - **Alarm Configuration**: to print the alarm configuration, check the box.
     - **from / to:** Select a range of alarms to print. By default, the range includes all configured alarms.
     - **Configuration Items:** Select which details of the alarm configuration to print. The **Alarm Tag** and **Equation String** are mandatory; all the other information is optional.
   - **Alarm Status Messages:** To print the alarm status history in the alarm database, check the box. To configure the information in the alarm status area, and thus the report, click the **Configure** button. This brings up the **Alarm Status** setup tab.

Configuring Auto Print

FTAlarm can be configured to print alarm status information on a schedule or when a specified number of messages have accumulated.

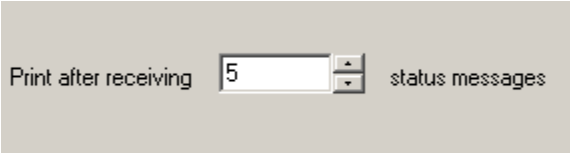
To configure FTAlarm to automatically print alarm status information:

1. Select the **File / Auto Print** menu option. The **Automated Alarm Status Print** dialog appears.



2. Configure the following options and click **OK**.
   - **Enable:** Select the **Enable** check box to enable the auto print feature.
   - **What to Print:** Select the information to be printed. Alarms to be printed can be selected by **Alarm Tag** or by **Severity**.
     - **Alarm Tags:** The list shows all the configured alarms in the project. To print alarm events for specific alarms, select the **Alarm Tags** option button and the check boxes for the specific alarms.
     - **Severities:** To print alarm events of particular severities (for example, to print only **High** alarms) select the **Severities** option button and the check boxes for the desired severities.
     - **Conditions:** Select the check boxes for the alarm conditions to be printed. By default, **Triggered** alarms are printed. This results in a report that shows when alarms were triggered.
   - **Sort:** Click the **Sort** button to access the **Sort Alarm Print** dialog and set the order in which the alarms will appear on the report

- **When To Print:**
  - **At Specific Times:** Select the **At Specific Times** option button to print the alarm report on a schedule. Select the **Type** of schedule, and then the details for that type.
  - **After An Accumulation:** Select the **After An Accumulation** option button to print an alarm report every time a certain number of alarm events are ready to be printed. The field to the right of this option button will change as follows. Set the number of status messages that will trigger printing.



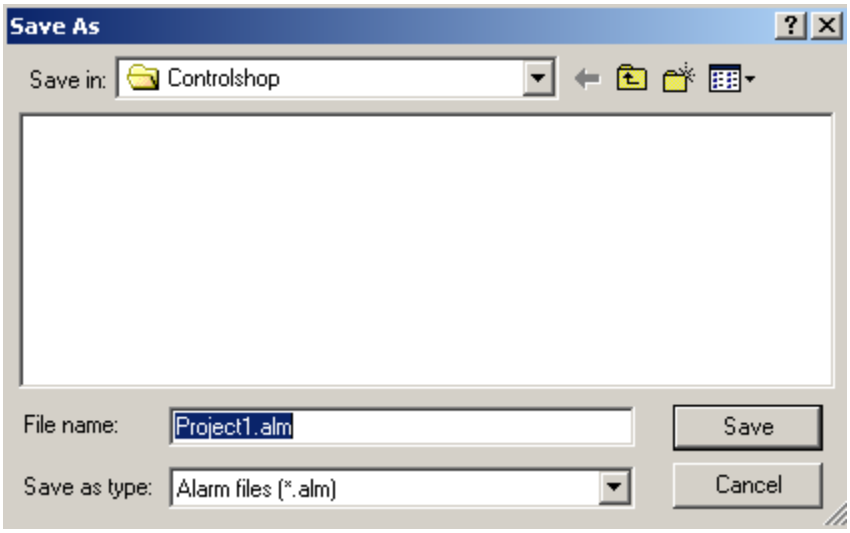
Saving and Opening

Saving Alarm Configuration and Settings

FTAlarm saves the alarm configuration and settings to a file with the extension .ALM. Device configuration information is stored in a separate .CFG file, and the name and location of that file is stored in the .ALM file. Documentation and logged alarm data are stored in separate databases.

To save the current configuration and settings:

1. Select the **File / Save** menu option, press [**Ctrl-S**], or click the toolbar button. If the project is new and has not been saved, the standard **Save** browse dialog appears.



2. Select the new file location and name and click the **Save** button. Otherwise, the project is saved with the same location and file name that it was saved to earlier or loaded from.

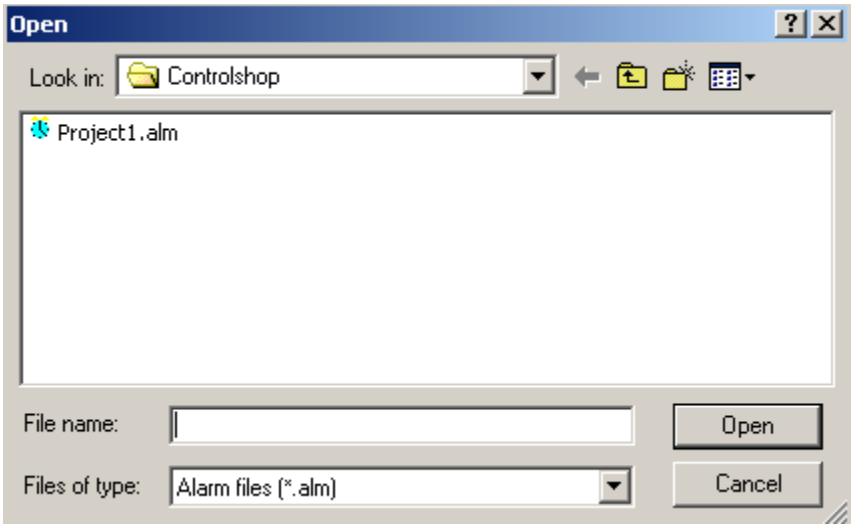
To save the current configuration and settings under a new name:

1. Select the **File / Save As** menu option. The same standard **Save** browse dialog appears.
2. Select the new file location and name and click the **Save** button.

Opening an Alarm File

To load a previously saved FTAlarm file (.alm):

1. Select the **File / Open** menu option, press [**Ctrl-O**], or click the toolbar button. The standard **Open** browse dialog appears.



2. Select the desired file and click the **Open** button or double-click the desired file.

When the ALM file is opened, FTAlarm also opens the .CFG file that contains the device configuration data and the documentation and alarm data log databases.

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