
ControlShopTM

Version 10/14/08

FTLogger
FTTrender
FTAlarm
FTBatch
FT_OPCConfig

By FasTrak SoftWorks, Inc.

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ControlShop™

FTLogger

Version 3.05

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FTLogger Overview

FTLogger collects data from multiple PLC devices and records it in to selected database files.

FTLogger accesses the devices through FasTrak or OPC Data Access Version 2.0 communication servers. Addresses are entered in a spreadsheet format with up to 30,000 addresses per log window. Data is logged based on a specific time frame, deadband or event.

Row and Column Based Databases

FTLogger can be configured to log data to a row based database, a column based database, or both.

A row based database record contains data about a single address. A column based database record contains data about all the addresses in the log sheet.

A Table in a Row Based Database

ADDRESS	TAG	VALUE	DATETIME	EVENTID
V1	B1TEMP	99	12:00:00:000	Log1
V2	B1PRESS	402	12:00:00:000	Log1
V1	B1TEMP	105	12:00:10:000	Log2
V2	B1PRESS	83	12:00:10:000	Log2

- **ADDRESS:** The address of the logged point
- **TAG:** The tag (if any) for the address, as found in the documentation database.
- **VALUE:** The value read from the PLC.
- **DATETIME:** The date and time that the value was read from the PLC.
- **EVENTID:** The name of the event that triggered the logging of this point. The name is configured in the **Advanced** dialog.

A Table in a Column Based Database

EVENTID	DATETIME	V1	V2	...	Tag or Address
Log1	12:00:00:000	99	402		
Log2	12:00:10:000	105	83		


- **EVENTID:** The name of the event that triggered the logging of this point. The name is configured in the **Advanced** dialog.
- **DATETIME:** The date and time that the value was read from the PLC.
- **Tag or Address:** The table includes a column for each address in the log sheet. The tag (if any) for the address, as found in the documentation database, is used as the column name. If there is no tag, the address is used as the column name. The value read from the PLC is stored in this column.

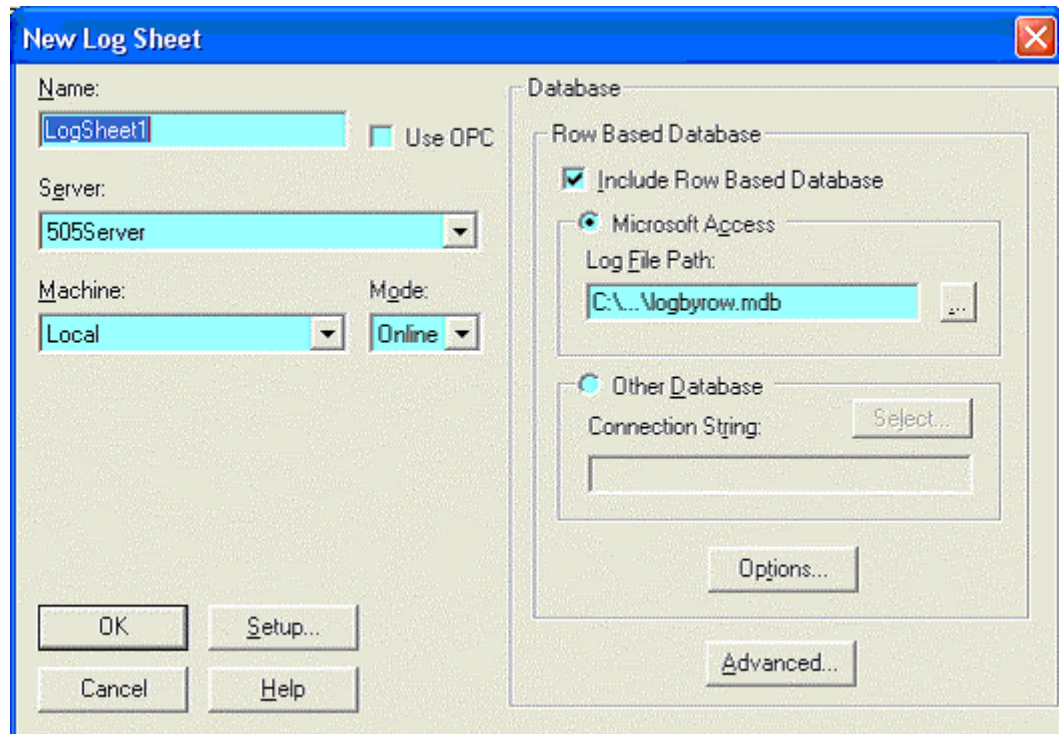
In either type of database, a table is build for each device. The name of the device is the name of the table.

Creating a Log Sheet

Creating a Log Sheet

To create a new Log Sheet:

1. Select the **File/New** menu option or click the toolbar button.  The **New Log Sheet** dialog appears.



2. Configure the following options:
 - **Name:** Enter a unique name for the new Log Sheet.
 - **Use OPC:** Select to choose an OPC server listed in the local registry from the Server drop-down menu.
 - **Server:** Select the communication server. The list shows servers that are registered on the PC. When **Use OPC** is checked, this will display all the OPC servers that are listed in the local registry. When **Use OPC** is not checked, this will display all the FasTrak servers that are listed in the local registry.
 - **Mode:** Select Online to start communicating with the PLC as soon as addresses are entered. Select Offline to develop the log sheet without immediately opening communications.
 - **Machine:** Select a PC where the communication server is located. In order to use a server, that server must be registered on the local machine, even if the server is located on another machine. If you are using Windows XP and wish to use a remote machine for your server, additional steps must be performed first. (See **Using Windows XP and a Remote Machine for Your Server** for details.)
 - **Setup:** Click the **Setup** button to access the **Log Window Setup** dialog.
 - **Database:** Use these fields to configure the database where the logged data will be stored.
 - **Include Row Based Database:** A row based database organizes the data as it appears in the log sheet. Check the **Include Row Based Database** box to activate the row based database functionality.

- **Microsoft Access:** To build the row based database in **Microsoft Access** format, select the **Microsoft Access** option button and set the **Log 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 row based 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.
- **Options:** Click the **Options** button to configure the **Row Based Database** options. These options are available only with the full FTLogger package.
- **Advanced:** Click the **Advanced** button to configure the column based database and the event ID name. The column based database functionality is available only with the full FTLogger product. (See **Event ID and Column Based Database Options** for details.)

Using Windows XP and a Remote Machine for Your Server

If you are using Windows XP and wish to use a remote machine for your server, there are additional steps that must be performed first.

Change the **Force Guest** setting to be **No** in XP as follows:

1. Launch the **Group Policy Editor** (gpedit.msc).
2. Navigate to **Local Computer Policy | Computer Configuration | Windows Settings | Security Settings | Local Policies | Security Options**.
3. Select **Network Access: Sharing and Security model for local accounts**.
4. Set that to be **Classic** and restart the machine, so that same-local accounts (a.k.a. fall-back authentication) will work.

Additionally, if you are using **XP Service Pack 2** complete the following steps.

1. In the **Control Panel**, double click on **Windows Firewall**.
2. In the **General** tab, disable **Windows Firewall** or follow steps 3 through 4.
3. If unable to perform step 2, add an exception for TCP port 135 under the **Exceptions** tab.
4. Add an exception for FTLogger.exe.

Refer to the white paper **Using OPC via DCOM with Microsoft Windows XP Service Pack 2** available from the Download section of <http://www.opcfoundation.org/> for additional information.


Row Based Database Options

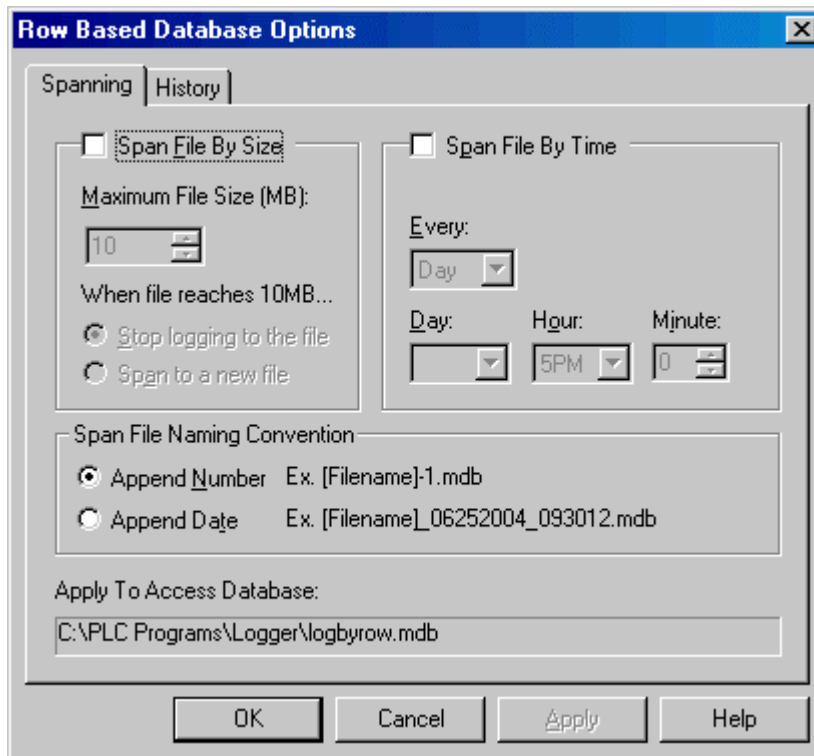
Row Based Database Options: Spanning

Spanning refers to logging data to a series of files, rather than one large file. When the spanning event occurs (either when the file size limit is reached, or at a scheduled time) the current file is closed, a new file is created, and subsequent data points are recorded in the new file.

NOTE: During the spanning process, data is not logged for a fraction of a second. Data may be lost.

To configure the spanning options for a **Row Based Database**:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the New Log Sheet dialog, either select the **File/New** menu option or click the toolbar button (). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Options** button.




3. Configure the following options:
 - **Span by File Size:** Limit the size of the database file.
 - **Maximum File Sizes:** Specify the file size limit in megabytes. The allowable range is 1 to 200 megabytes.
 - **When file reaches:** When the file reaches the limit, either **Stop logging to the file and go offline**, or close the file and **Span to a new file**.
 - **Span by Time:** Create a new database file for each specified time period.
 - **Every:** Select the time period: **Month**, **Week**, **Day**, or **Hour**.
 - **Day, Hour, Minute:** Select the cut-off day and time. The options vary depending on the time period. For **Month**, the options for **Day** are **1-28** and **Last**. For **Week**, the options for **Day** are **Sun - Sat**. For **Day**, only the **Hour** and **Minute** can be set. For **Hour**, only the **Minute** can be set.

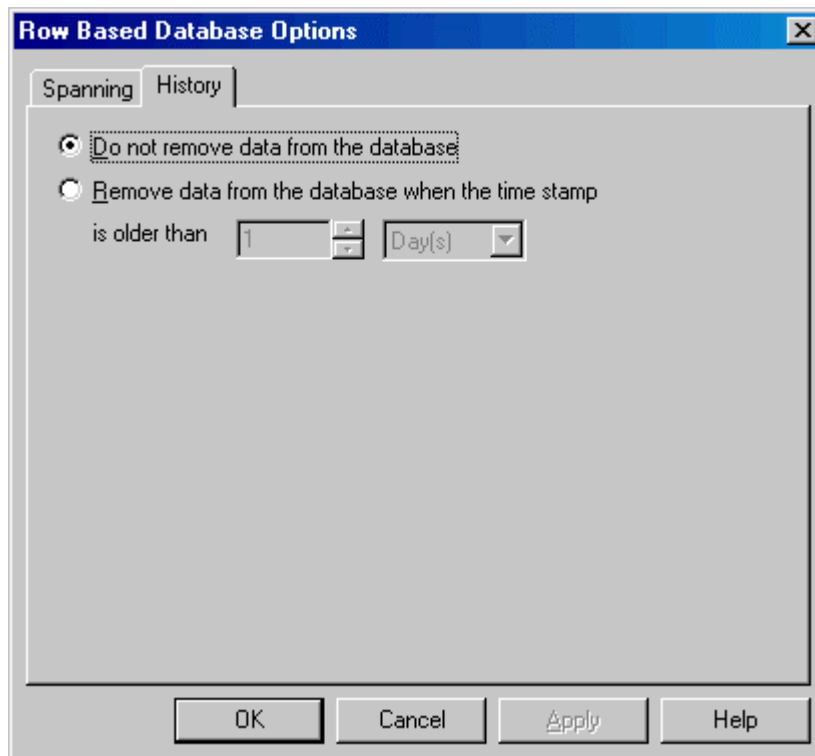
- **Span File Naming Convention:** Specify whether the files are identified by number or by time.

Row Based Database Options: History

The **History** options control deletion of old data. Old data can be deleted automatically.

To configure the deletion of old data:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the New Log Sheet dialog, either select the **File/New** menu option or click the toolbar button (). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Options** button.
3. Click the **History** tab.



4. Configure the following options:
 - **Do not remove data from the database:** Disable the automatic deletion functionality.
 - **Remove data from the database when the time stamp is older than:** Delete old data. Specify the age of the data to be deleted in the number and time unit fields.

NOTE: Even though data is removed from the database, the file size is not reduced until FTLogger disconnects and then reconnects.

Advanced (Event ID and Column Based Database Options)

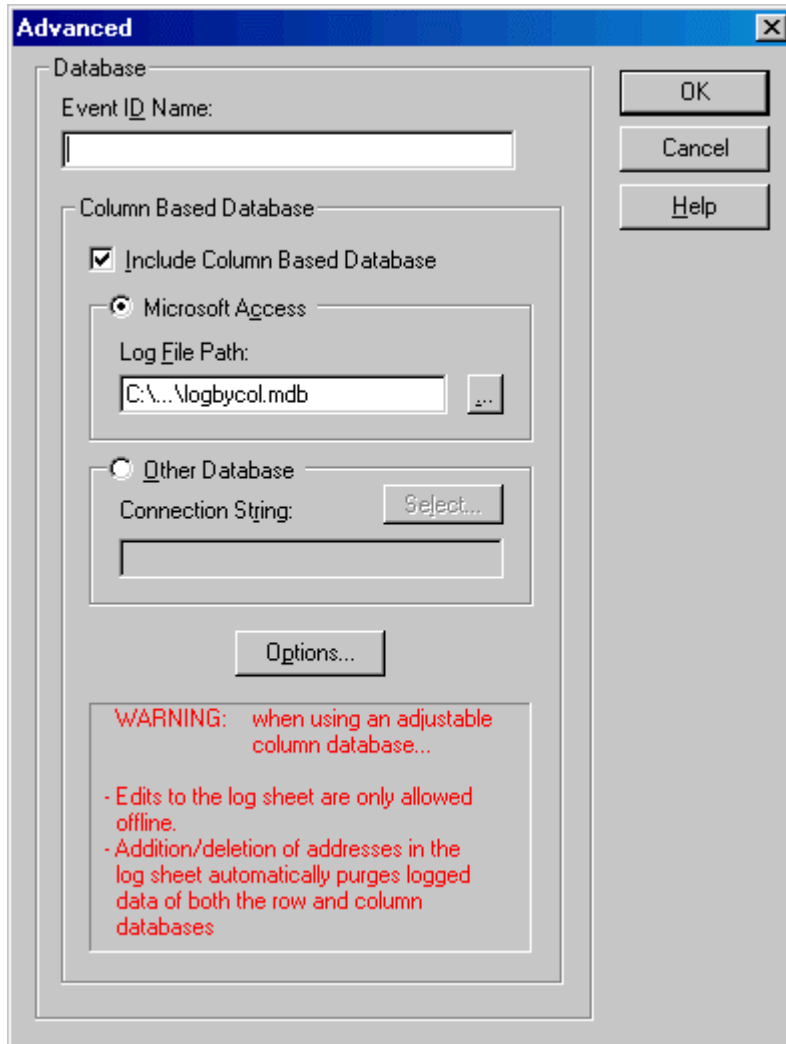
The **Advanced** options specify the event ID name and the logging of data to a **column based database**.

NOTE: There are several differences in the operation of FTLogger when logging to a **Column Based Database**:

1. Edits can only occur offline.
2. Inserting, appending, pasting, or filling addresses causes both the column database and the row database to be flushed of its data. This is done in order to keep the databases consistent, as these inserted addresses have no history in the current database. The row database is forced to be flushed so that the **Event ID** numbers of both databases remains consistent. The **Event ID** numbers are reset to 1.
3. Deletion of an address in a log sheet causes the column of the database to be deleted. This also causes the deletion of rows that refer to an address in the row database when using a column database.

To specify the event ID name and/or configure the column based database:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the **New Log Sheet** dialog, either select the **File/New** menu option or click the toolbar button (□). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Advanced** button. The **Advanced** dialog appears.



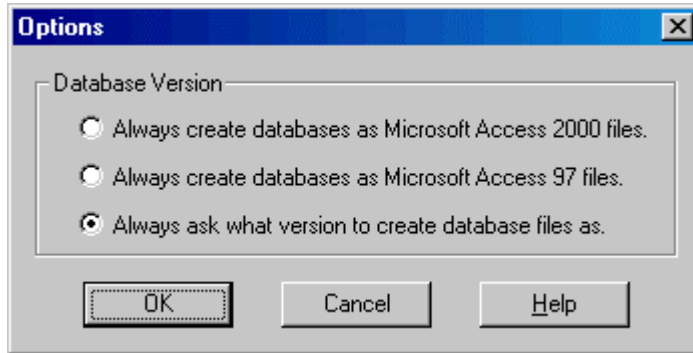
3. Configure the following options:
 - **Event ID Name:** The **Event ID Name** is a tag up to 32 characters that identifies a batch of data that is logged to the database. A batch name makes it easier to identify and separate data in the database. A number is appended to the name, starting with 1, and incrementing with each log.
 - **Include Column Based Database:** Check this box to include logging of data to a column based database. For FasTrak servers, each device in the log sheet will have its own table in the column database. For OPC servers, one table will exist per log sheet. The table name will match the logsheet name. Data can be logged to a column based database, a row based database, or both.
 - **Microsoft Access:** To build the row based database in **Microsoft Access** format, select the **Microsoft Access** option button and set the **Log 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 row based database in a format other than Microsoft Access (currently, **SQL** is the only option) select the **Other Database** option button and click the **Select** button to configure the **Data Link Properties**. The **SQL** database must exist prior to the selection.
 - **Options:** Click the **Options** button to configure the **Column Based Database** options.

Database Options

The **Options** dialog is used to control which database version (**Microsoft Access 97** or **Access 2000**) format will be used when creating new log database files.

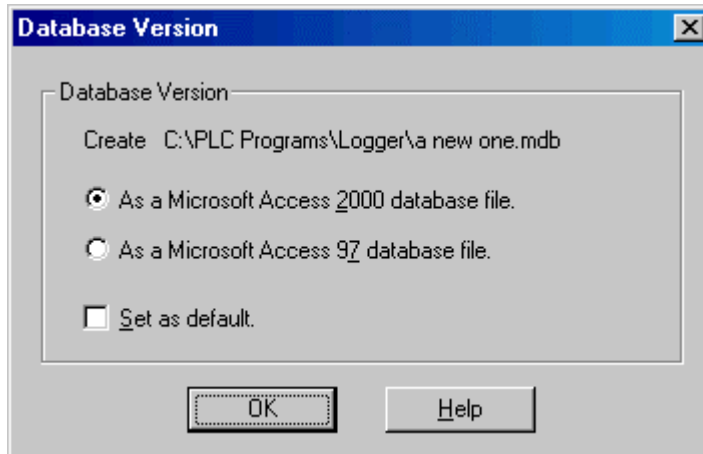
Span files are created in the same format as the base file.

To access the dialog, select the **Setup/Options** menu button. The **Options** dialog appears.



Select the option button for the desired version.

When FTLogger creates a log database file with the **Always Ask** option selected, the following dialog appears:



The **Set as default** check box modifies the setting of the **Options** dialog so that this dialog will not appear on future creations of a database.


Column Based Database Options

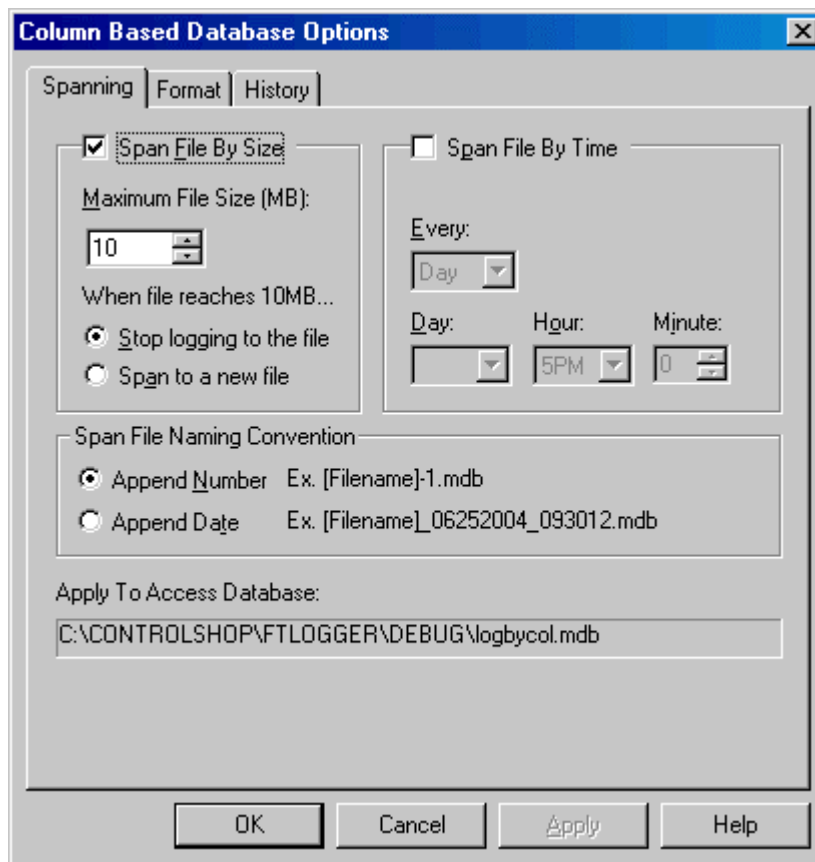
Column Based Database Options: Spanning

Spanning refers to logging data to a series of files, rather than one large file. When the spanning event occurs (either when the file size limit is reached, or at a scheduled time) the current file is closed, a new file is created, and subsequent data points are recorded in the new file.

NOTE: During the spanning process, data is not logged for a fraction of a second. Data may be lost.

To configure the spanning options for a **column based database**:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the **New Log Sheet** dialog, either select the **File/New** menu option or click the toolbar button (). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Advanced** button to access the Advanced dialog.
3. Check the **Include Column Based Database** box.
4. Click the **Options** button. The **Spanning** tab is on top when the dialog opens.



5. Configure the following options:
 - **Span File By Size:** Limit the size of the database file.
 - **Maximum File Sizes:** Specify the file size limit in megabytes. The allowable range is 1 to 200 megabytes.
 - **When file reaches:** When the file reaches the limit, either **Stop logging to the file and go offline**, or close the file and **Span to a new file**.

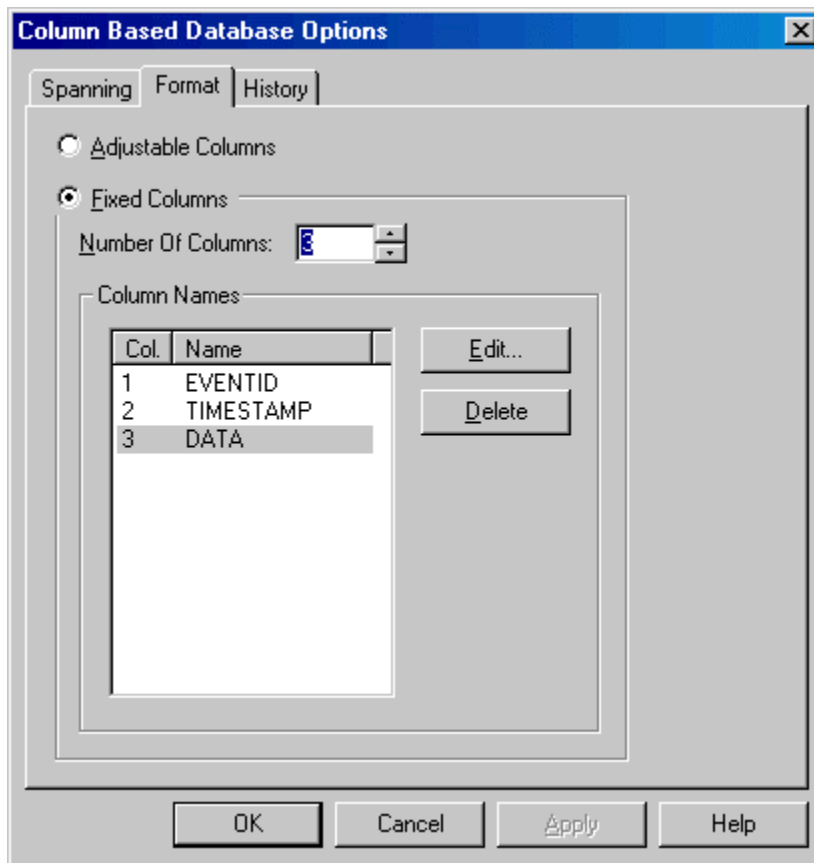
- **Span File By Time:** Create a new database file for each specified time period.
 - **Every:** Select the time period: **Month, Week, Day, or Hour.**
 - **Day, Hour, Minute:** Select the cut-off day and time. The options vary depending on the time period. For **Month**, the options for **Day** are **1-28** and **Last**. For **Week**, the options for **Day** are **Sun - Sat**. For **Day**, only the **Hour** and **Minute** can be set. For **Hour**, only the **Minute** can be set.
- **Span File Naming Convention:** Specify whether the files are identified by number or by time.

Column Based Database Options: Format

The **Format** options control the columns in the column-based database.

To configure the database format:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the **New Log Sheet** dialog, either select the **File/New** menu option or click the toolbar button (📄). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Advanced** button to access the Advanced dialog.
3. Check the **Include Column Based Database** box.
4. Click the **Options** button.
5. Click the **Format** tab.



6. Configure the following options:
 - **Adjustable Columns:** The database columns will be based on the log sheet.
 - **Fixed Columns:** Configure the columns using the following fields.
 - **Number of Columns:** Set the number of columns in the database table. The number cannot be less than 3 - one for the event ID, one for the timestamp, and a minimum of one data value.
 - **Column Names:** To set the names of one or more columns, highlight the columns in the list and click the **Edit** button to access the **Edit Column Name** dialog. To delete columns, highlight the columns to be deleted and click the **Delete** button. The **EVENTID** and **TIMESTAMP** columns cannot be deleted or edited.

Adjustable Columns

With **Adjustable Columns**, the database table has the following columns:

1. **EVENTID**
2. **TIMESTAMP**
3. **(and up)** The tag of the address from which the data was read, if there is a tag. Otherwise, the address. The addresses appear in the log sheet order.

The **Adjustable Columns** option is convenient, but there are several limitations:

- Edits can only occur offline.
- Inserting, appending, pasting, or filling addresses (in short, any action that causes an increase in the number of addresses in the log sheet) causes both the column based database and row database (if any) to be flushed of data. The **Event ID** numbers are reset to 1.
- Deleting an address in the log sheet causes the column of the column based database to be dropped (deleted). This also causes the deletion of rows that refer to the deleted address in the row based database (if any).
- Only one log sheet can log data to a column based database with adjustable columns.

Fixed Columns

With the **Fixed Columns** option, the database table has the following columns:

1. **EVENTID**
2. **TIMESTAMP**
3. **(and up)** The data read from the PLCs, with user-assigned column names.

Data is placed in the columns in log sheet order: the first address in the log sheet is placed in column 3, the second in column 4, and so on. The number of columns may not match the number of addresses in the log sheet. If there are more columns than addresses, the extra data fields will be left blank. If there are more addresses than fields, data from the excess addresses wraps to the next record, which will have the same event ID and timestamp.

For example, if the table has 5 fixed columns, but the log sheet has only 3 addresses, the table will look like this:

EVENTID	TIMESTAMP	Data1	Data2	Data3	Data4	Data5
Batch1	12:00:01	1	2	3		
Batch2	12:00:02	1	2	3		

But if the log sheet has 7 addresses, the table will look like this:

EVENTID	TIMESTAMP	Data1	Data2	Data3	Data4	Data5
Batch1	12:00:01	1	2	3	4	5
Batch1	12:00:01	6	7			
Batch2	12:00:02	1	2	3	4	5
Batch2	12:00:02	6	7			


Data from more than one log sheet can be collected in a **Fixed Column** database.

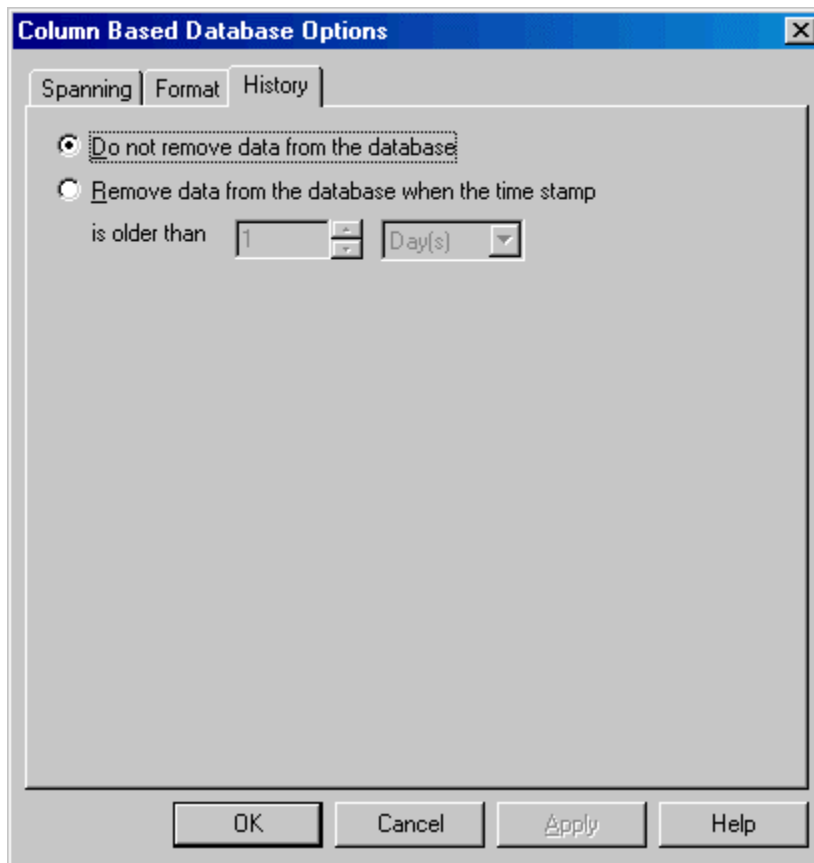
Addresses can be added to, or deleted from, the log sheet without loss of existing data.

Column Based Database Options: History

The **History** options control deletion of old data. Old data can be deleted automatically.

To configure the deletion of old data:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the **New Log Sheet** dialog, either select the **File/New** menu option or click the toolbar button (). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Advanced** button to access the Advanced dialog.
3. Check the **Include Column Based Database** box.
4. Click the **Options** button.
5. Click the **History** tab.




6. Configure the following options:
 - **Do not remove data from the database:** Disable the automatic deletion functionality.
 - **Remove data from the database when the time stamp is older than:** Delete old data. Specify the age of the data to be deleted in the number and time unit fields.

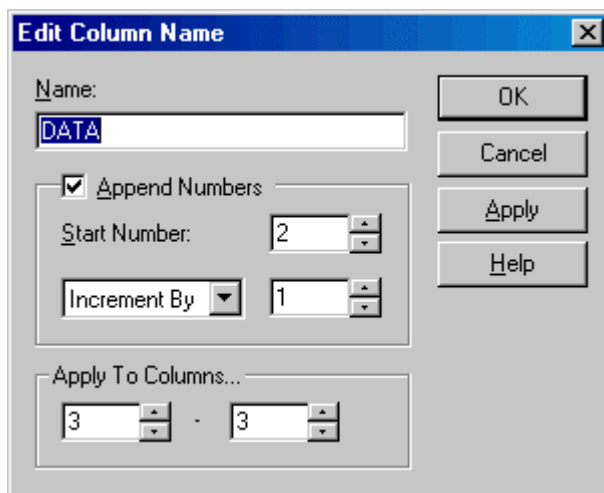
NOTE: Even though data is removed from the database, the file size is not reduced until FTLogger disconnects and then reconnects.

Edit Column Name

Use this dialog to edit the names of columns in a column based database.

To access this dialog:

1. Open either the **New Log Sheet** dialog or the **Log Data** tab of the **Log Window Setup** dialog. To open the **New Log Sheet** dialog, either select the **File/New** menu option or click the toolbar button (). To open the **Log Data** tab, select the **Setup/Log Window** menu option and then click the **Log Data** tab.
2. Click the **Advanced** button to access the Advanced dialog.
3. Check the **Include Column Based Database** box.
4. Click the **Options** button.
5. Click the **Format** tab.
6. Highlight the columns to be edited.
7. Click the **Edit** button. The **Edit Column Name** dialog appears.



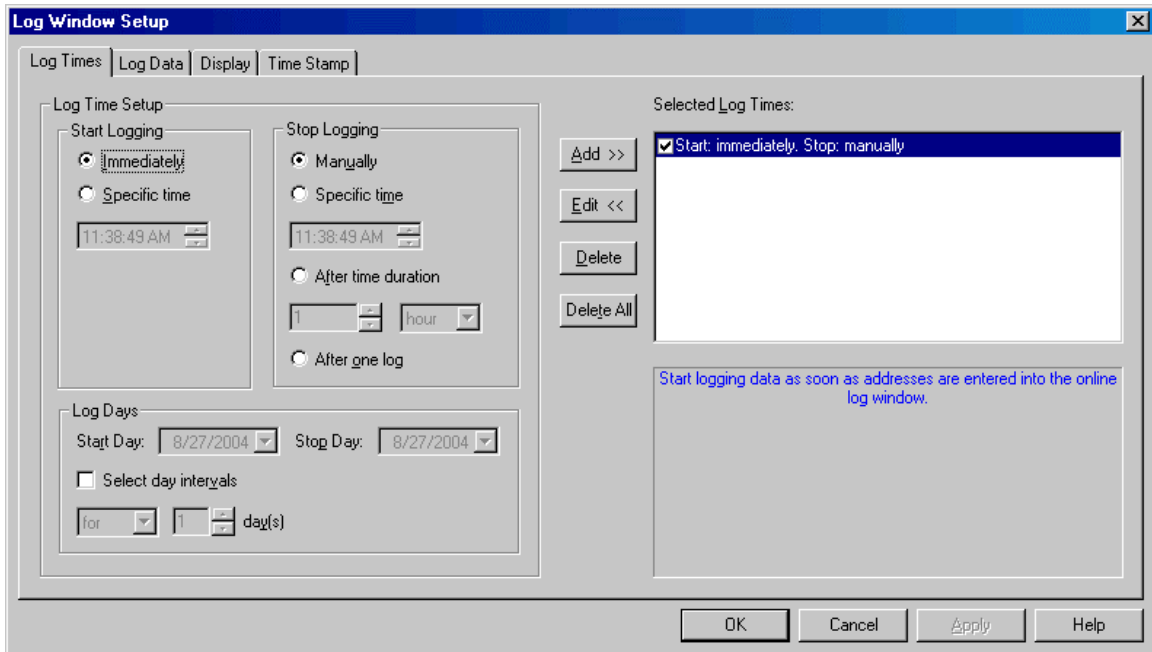
- **Name:** Edit the column name.
- **Append Numbers:** To rename several columns, with a base name followed by a number, enter the base name in the **Name** field, check this box, and specify the details of the number sequence using the following fields.
- **Start Number:** The first number of the sequence.
- **Increment By:** Select either **Increment By** or **Decrement By** to control the direction of the sequence. Set the number to the step from one column to the next.
- **Apply To Columns:** Select the columns where the sequence will be located. The number in the second field must be greater than or equal to the number in the first.

Log Window Setup

Log Window Setup

Use the **Log Window Setup** dialog to configure options for the log window as a whole.

To access the **Log Window Setup** dialog, select the **Setup/Log Window** menu option. The **Log Window Setup** dialog appears.



The **Log Window Setup** dialog consists of the following tabs:

- **Log Times:** Configure the times when data will be logged.
- **Log Data:** Configure how, within the log times, data will be read and stored. Configure the databases (row, column, or both) where it will be stored.
- **Display:** Configure the display of the log sheet.
- **Time Stamp:** Select the formats for the date and time.

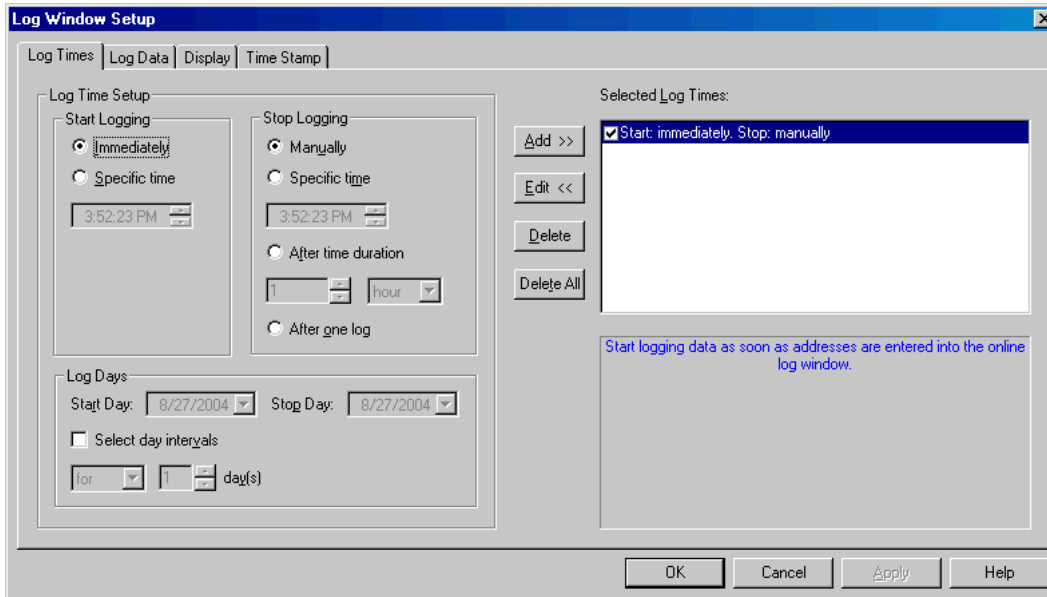
Log Times

Use the **Log Times** tab to configure the times at which FTLogger will log data.

You can specify a list of up to 256 non-overlapping start and stop times.

To access the **Log Times** tab:

1. Select the **Setup/Log Window** menu option.
2. The **Log Times** tab is the default tab.



- **Log Time Setup:** Specify when logging is to start and stop.
 - **Start Logging:** Select the **Immediately** option button to start logging as soon as FTLogger is opened and data points are configured, or select the **Specific Time** and set the time field to start logging at that time.
 - **Stop Logging:** Select the **Manually** option button to continue logging until a user intervenes. Select the **Specific Time** option button, and set the time field, to stop logging at a particular time. Select the **After time duration** option button and use the number and time unit fields to log for a specified length of time. Select the **After one log** option button to log a single reading of each data point.
- **Log Days:** Specify days on which logging is to occur. The **Start Logging** option must be set to a **Specific time** in order to specify log days. In order to set a **Stop Day**, the **Stop Logging** option must be set to a **Specific time**.
 - **Start Day, Stop Day:** Select the first and last day to log from the start time to the stop time.
 - **Select day intervals:** Check this box to specify that logging is to occur for a specific number of days, or log one interval every so many days. Select **For** or **Every** from the drop-down list, and set the number of days.
- **Selected Log Times:** This is a list of log times. Specify a log time by setting the options listed above, and clicking the **Add** button. Edit an existing time by clicking the time in the list and clicking the **Edit** button. Delete a time by clicking the time in the list and clicking the **Delete** button. Clear the list by clicking the **Delete All** button. The log times must not overlap.

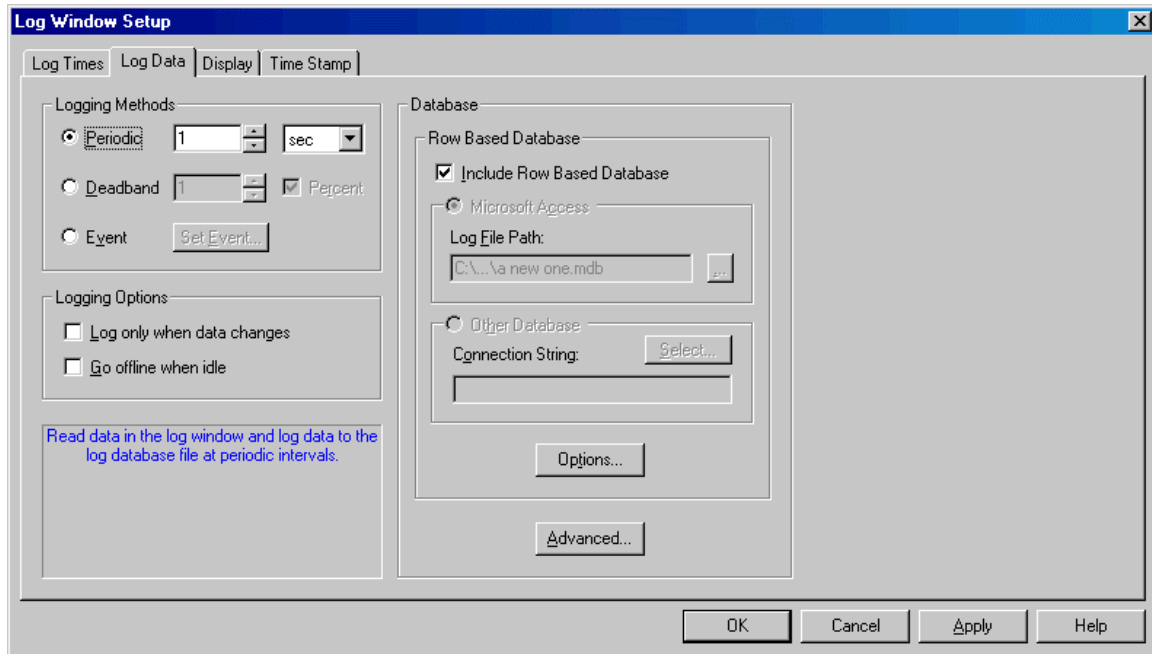
Log Data

Log Window Setup: Log Data

Use the **Log Data** tab to configure how, within the log times, data will read and be stored, and the databases (row, column, or both) where it will be stored.

To access the Log Data tab:

1. Select the **Setup/Log Window** menu option.
2. Click the **Log Data** tab.



- **Logging Methods:** Specify how, within the log times specified on the **Log Times** tab, each point is to be read and logged.
 - **Periodic:** Updates the cache in time intervals specified in the edit box. The format is **msec**, **sec**, **min**, and **hour**. Set the value to 0 to update as quickly as possible. The speed at which the data will be read and updated depends on the communication type and the number of addresses in the log sheet. The maximum value is 24 hours.
 - **Deadband:** Data variation value or a percentage of a data variation. Compares each data value from the addresses in the log window with the current value. Only if a particular value fluctuates by the deadband amount (+ or -) will FTLogger log the data.
 - **Event:** When a specified event is true, it will force a database update. Click the **Set Event** button to specify the event. See **Set Event** for details.
- **Logging Options:**
 - **Log only when data changes:** If this box is checked, data will not be logged to the database unless there has been a change in value or status at one of the addresses in the log window.
 - **Go offline when idle:** When this box is checked, FTLogger will go offline with all the devices in the log window if no log times are currently active. If no other log windows or clients are using the communication port, the port will be closed.
- **Database:** Use these fields to configure the database where the logged data will be stored.

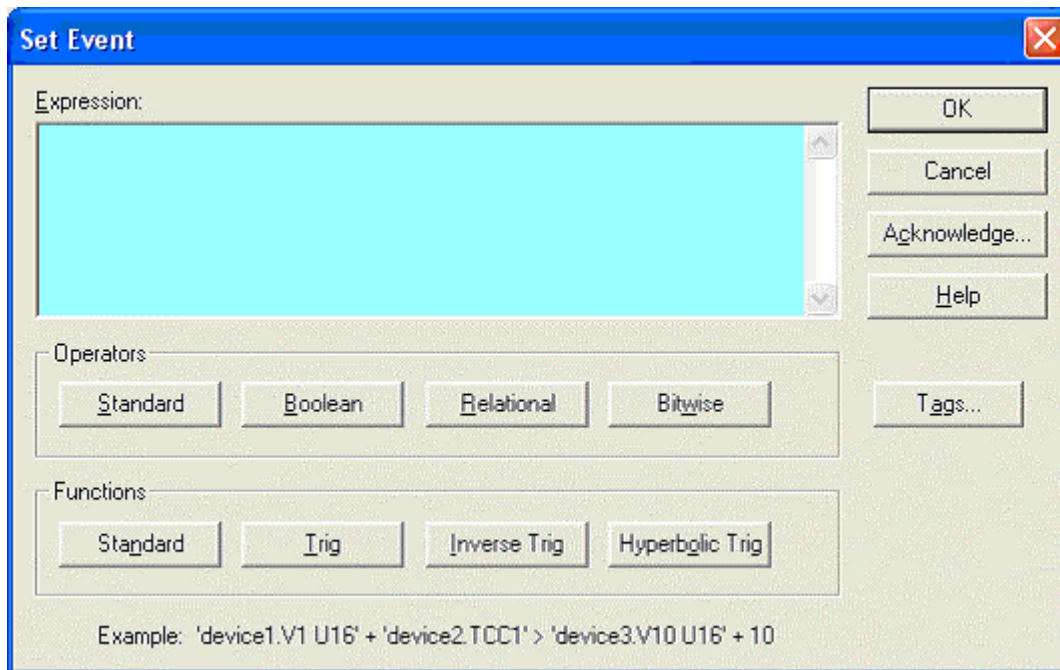
- **Include Row Based Database:** A row based database organizes the data as it appears in the log sheet. Check the **Include Row Based** database box to activate the row based database functionality.
- **Microsoft Access:** To build the row based database in **Microsoft Access** format, select the **Microsoft Access** option button and set the **Log 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 row based database in a format other than Microsoft Access, select the **Other Database** option button and click the **Select** button to configure the **Data Link Properties**. The SQL database must exist prior to the selection.
- **Options:** Click the **Options** button to configure the **Row Based Database** options.
- **Advanced:** Click the **Advanced** button to configure the column based database and the event ID name. The column based database functionality is available only with the full FTLogger product. See **Event ID and Column Based Database Options** for details.

Set Event

This dialog configures an event that can trigger logging data.

To access the **Set Event** dialog:

1. Select the **Setup/Log Window** menu option.
2. Click the **Log Data** tab.
3. Set the **Logging Method** to **Event** by clicking the option button.
4. Click the **Set Event** button. The **Set Event** dialog appears.



An event is set up by creating a custom expression based on tags, operators, and functions.

- **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 drop 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 log sheet being used: (See **FasTrak Tag** or **OPC Tag** for details.)
- **Acknowledge:** Click on the **Acknowledgement** button to configure an acknowledgement for the triggered event. The **Acknowledge Event** dialog that appears will depend on the type of log sheet being used: (See **FasTrak Acknowledge** or **OPC Acknowledge** for details.)

Operators and Functions

The **Expression** box on the **Set Event** dialog allows you to trigger an event 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. The available operations are as follows:

Standard Operators	Boolean Operators	Relational 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)		?: (if else)		Floor()			
(Rand()			
)							

Standard Operators

Standard Operators	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
^	Power
-	Unary sign
(
)	

Boolean Operators

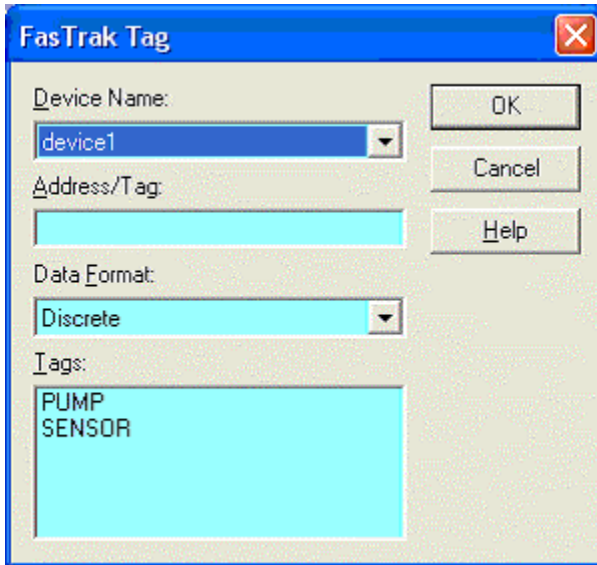
!	Not
&&	And
	Or

Relational Operators	Description
==	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	Description
&	Bitwise And
	Bitwise Or
!&	Bitwise Exclusive Or

FasTrak Tag

Use the **FasTrak Tag Browser** to select a tag.

From the **Set Event** dialog box, click the **Tags** button. The **FasTrak Tag** dialog appears.

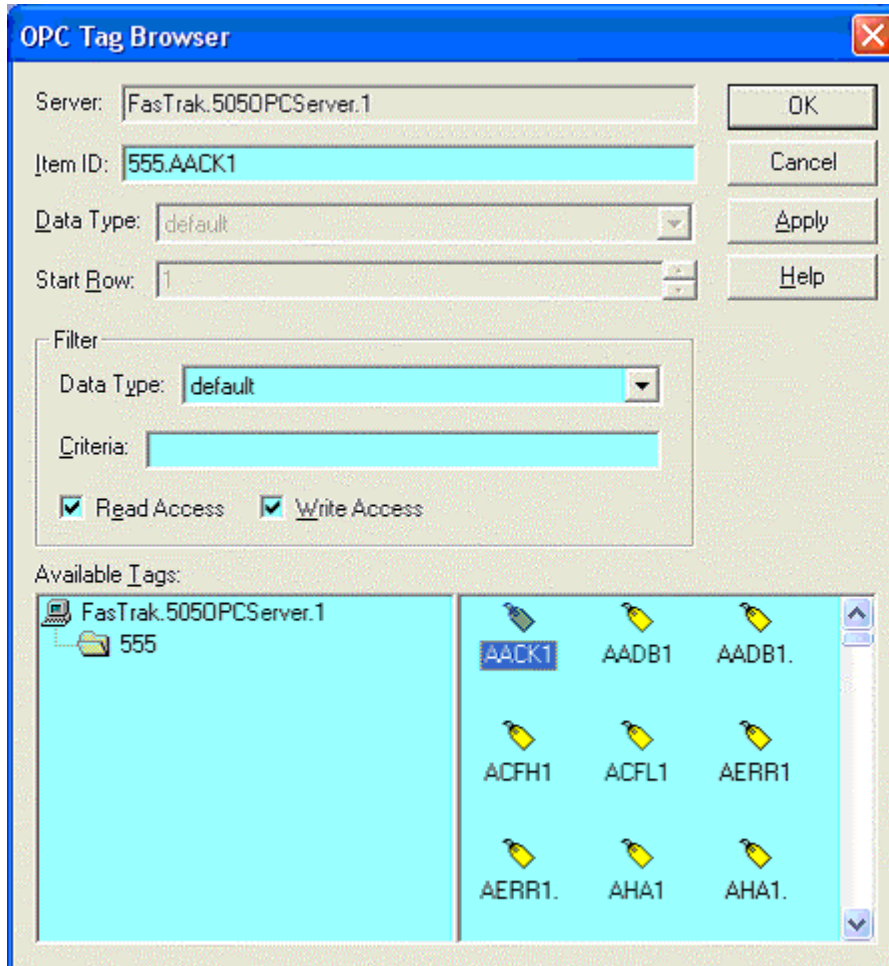


- **Device Name:** Choose from the list of devices that the current log sheet is attached to.
- **Address/Tag:** Manually enter an address or tag from a selected device or click on an item in the **Tags** pane to display the corresponding address.
- **Data Format:** Affects how the value is displayed in the log sheet.

OPC Tag

Use the **OPC Tag Browser** to select a tag.

From the **Set Event** dialog box, click the **Tags** button. The **OPC Tag Browser** dialog appears.



- **Server:** Lists the server that the current log sheet is attached to.
- **Item ID:** Identifies the tag. Select from the **Available Tags** pane or manually enter or modify.
- **Data Type:** Disabled unless the **OPC Tag Browser** dialog is being used to select an address in the log sheet. There are 13 different data types to choose from, which will affect how the value is displayed in the log sheet. The default will display the canonical (native) data type.
- **Start Row:** Disabled unless the **OPC Tag Browser** dialog is being used to select an address in the log sheet. Used to specify where the address will be inserted into the log sheet.
- **Filter:** Controls which tags display in the **Available Tags** pane.

FasTrak Acknowledge

When an event occurs, FTLogger has the ability to acknowledge the capture of the data to the communicating device. To send data back to the device:

1. From the **Set Event** dialog box click the **Acknowledge** button. The **Acknowledge Event** dialog appears.

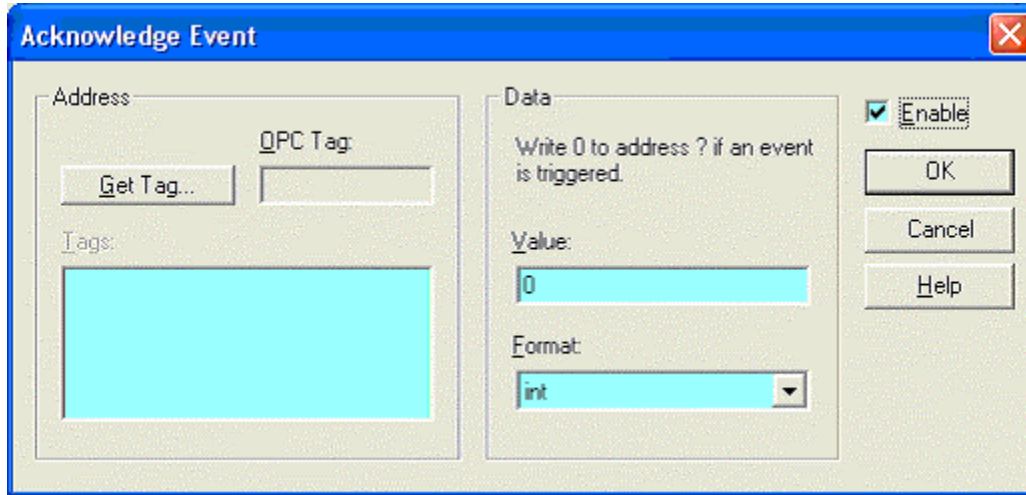
The screenshot shows the 'Acknowledge Event' dialog box. It has a title bar with the text 'Acknowledge Event' and a close button. The dialog is divided into three main sections: 'Address', 'Data', and 'Enable'.
- The 'Address' section contains two input fields: 'Device Name' with the value 'device1' and 'Address/Tag' with the value 'c1'. Below these is a 'Tags' list box containing the items 'PUMP1', 'SENSOR', and 'tagrr'.
- The 'Data' section contains a text area with the text 'Write 1 to address c1 if an event is triggered.', a 'Value' input field with the value '1', and a 'Format' dropdown menu set to 'Discrete'.
- The 'Enable' section has a checked 'Enable' checkbox and three buttons: 'OK', 'Cancel', and 'Help'.

2. Click on the **Enable** check box to enter data.
3. Specify the **Address** to be written to.
 - **Device Name:** Select the device from which the PLC value is to be written. The device can be any configured device, whether data from that device is being logged or not.
 - **Address/Tag:** Enter the PLC address, or the tag for that address, here. Or select a tag from the **Tags:** list.
4. Specify the **Data** to be sent. Set the **Value** field and select the data's **Format** from the drop down box.

OPC Acknowledge

When an event occurs, FTLogger has the ability to acknowledge the capture of the data to the communicating device. To send data back to the device:

1. From the **Set Event** dialog box click the **Acknowledge** button. The **Acknowledge Event** dialog appears.



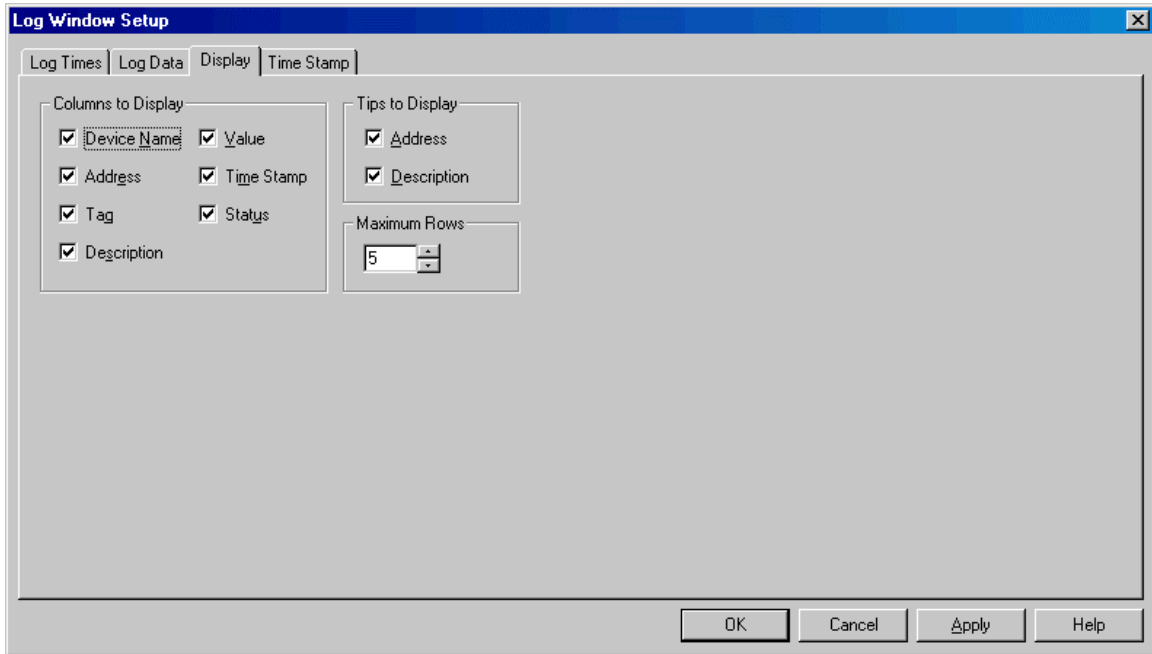
2. Click on the **Enable** check box to enter data.
3. Specify the **OPC Tag** to be written to. Select a tag using the **Get Tag** button.
4. Specify the **Data** to be sent. Set the **Value** field and select the data's **Format** from the drop down box.

Display

Use the **Display** tab to configure the display of the data being logged.

To access the **Display** tab:

1. Select the **Setup/Log Window** menu option.
2. Click the **Display** tab.



- **Columns to Display:** Check the boxes for the desired columns in the display. All boxes are checked by default. **Device Name**, **Tag**, and **Description** are disabled for OPC as they are not valid options in the log sheet. For OPC, **OPC Tag** replaces Address.

Row	Device Name	Address	Tag	Description	Value	Time Stamp	Status
1	device1	B3:0	STAMP	1 second on/off tog	ON D1	11:14:20.342 AM 08/31/04	Success
2	device1	F8:1	TEMPERATURE2	0.01 second sine wa	0.40009 F32	11:14:20.342 AM 08/31/04	Success
3	device1	N7:4	TANK	0.1 second timer 1-5	38 U16	11:14:20.342 AM 08/31/04	Success
4	device1	V6	TANK_FILL	1 second timer 1-10	953 U16	11:14:20.342 AM 08/31/04	Success
5	device1	400009	SINE1	0.1 second sine wa	-0.836924 F32	11:14:20.342 AM 08/31/04	Success

- **Tips to Display:** In the FasTrak log sheet, the **Tag** combo box in a log window can display the corresponding address (to the left) and description (to the right) of the highlighted tag. For example, in the illustration, the tag **TANK_FILL** corresponds to the address **V6** and is described as "1 second timer 1-1000". The address and description are referred to as **Tips** and can be turned on and off with these boxes. Both boxes are checked by default.

V6	TANK_FILL	1 second timer 1-1000
F8:1	STAMP	0.01 second sine wa
N7:4	STEAM	0.1 second timer 1-5
V6	TANK	1 second timer 1-10
400009	TANK_FILL	0.1 second sine wa
	TANK_PROGRESS	
	TEMPERATURE1	
	TEMPERATURE2	

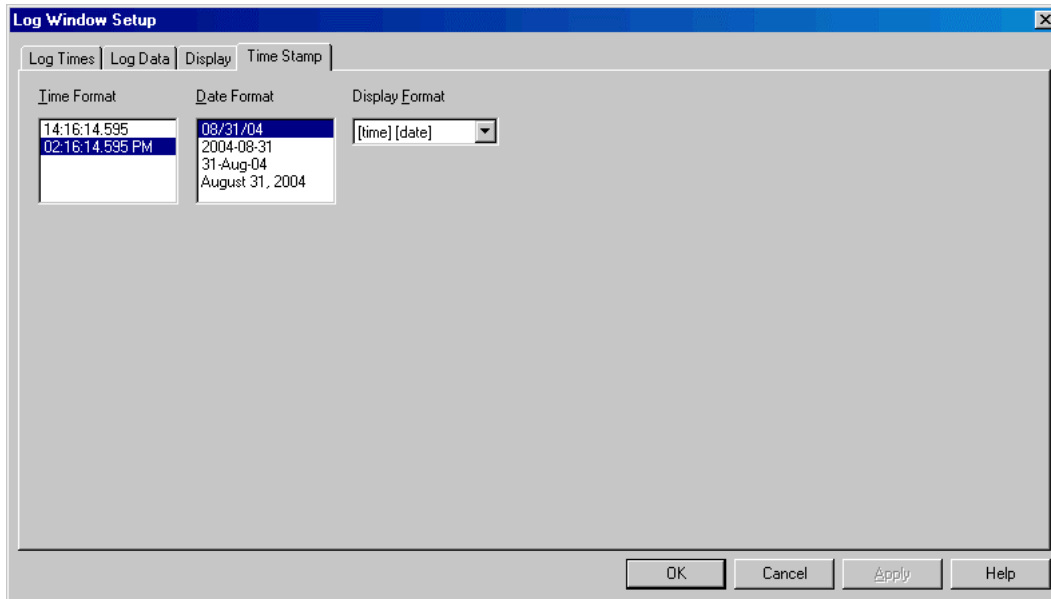
- **Maximum Rows:** Set the number of rows in the log sheet. The **Maximum Rows** may be limited by the package purchased.

Time Stamp

Use the **Time Stamp** dialog to select the formats for the date and time.

To access the **Time Stamp** tab:

1. Select the **Setup/Log Window** menu option.
2. Click the **Time Stamp** tab.



- **Time Format:** Selects **24 hour** or **12 hour AM/PM** format. The default is standard format.
- **Date Format:** Selects which of the following date formats will be used:
 - **[month]/[day]/[year]:** each represented by 2 digits. This is the default.
 - **[year]-[month]-[day]:** The year is displayed in 4 digits while the month and day are displayed in 2 digits.
 - **[day]-[month]-[year]:** The day and year are displayed in 2 digits while the month is displayed as a 3-character abbreviation.
 - **[month] [day], [year]:** The month is completely spelled out, the day is displayed in minimal digits and the year is displayed as 4 digits.
- **Display Format:** Determines whether the date or time or both will be displayed, and in what order. The options are:
 - **[time] [date]:** the default
 - **[date] [time]**
 - **[time]**
 - **[date]**

Device Source Configuration


Device Source Configuration

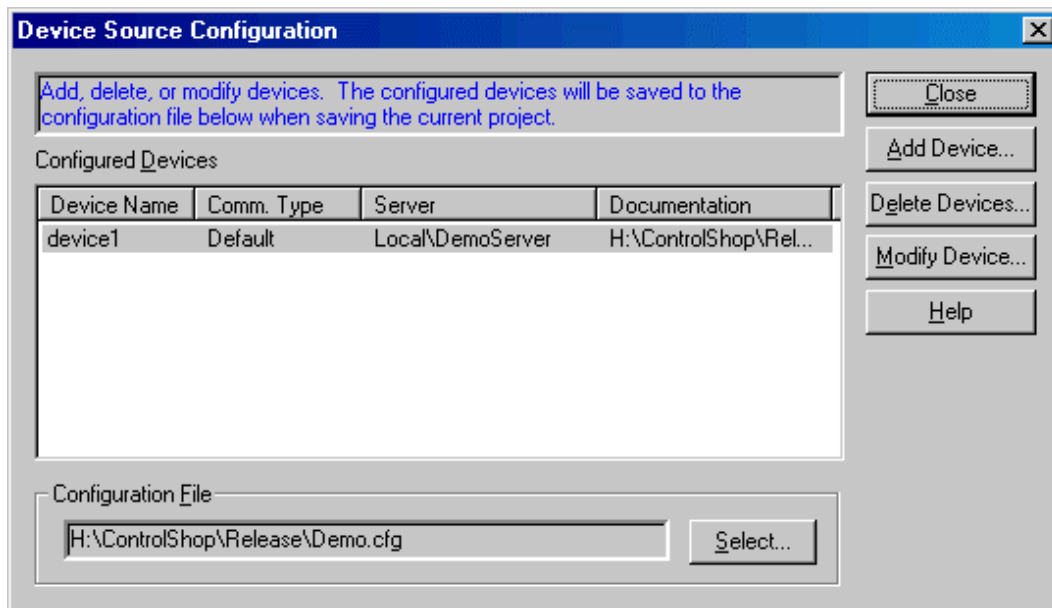
The **Device Source Configuration** dialog allows you to configure the devices from which data points are read. Before any data points can be inserted into a FasTrak log window, devices must be configured so that the servers know where to read the addresses from.

For each device, FTLogger requires the following information:

- **Device Name:** A unique name to identify the device that is connected to a FasTrak 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 FasTrak Server name that the device is connected to. Communication servers are shared between FasTrak applications, 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 you set the **File Path** 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 table. See **Communication Setup** for details.

To configure devices for OPC Servers, use the OPC Server or separate configuration utility. To configure devices for FasTrak Servers:

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



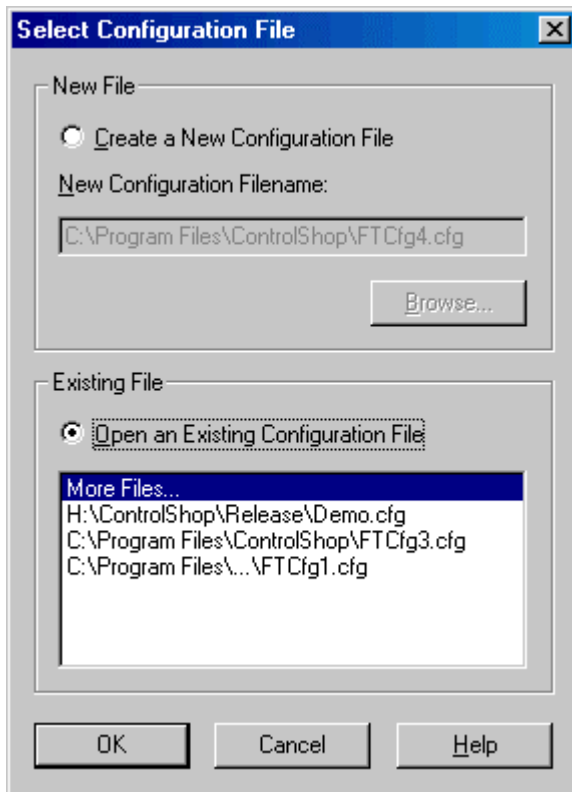
2. Use the buttons to access the configuration actions:
 - **Add Device:** Add a new device to the list.
 - **Delete Device:** Delete the configuration for the highlighted device configuration.
 - **Modify Device:** Edit the highlighted device configuration.
 - **Configuration File:** The configuration for FasTrak Server devices is saved in a .CFG file, not the .TRN Trend file. Click the **Select** button to save the current configuration to a file or to load a saved configuration.

Configuration File

Device configuration information for FasTrak Server devices is stored in a .CFG file. The project file contains the name of the .CFG file. Several projects can use the same configuration file.

To select the configuration file:

1. Open the **Device Source Configuration** dialog by selecting the **Setup/Device Source** menu option.
2. Click the **Select** button next to the **Configuration File** field. The **Select Configuration File** dialog appears.



- **New File:** To create a new configuration file, select the **Create a New Configuration File** option button, and then **Browse** for the new file location and name.
- **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. If not, select the **More Files** option, and browse for the configuration file.

Adding Devices

To add a device to the current configuration:

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




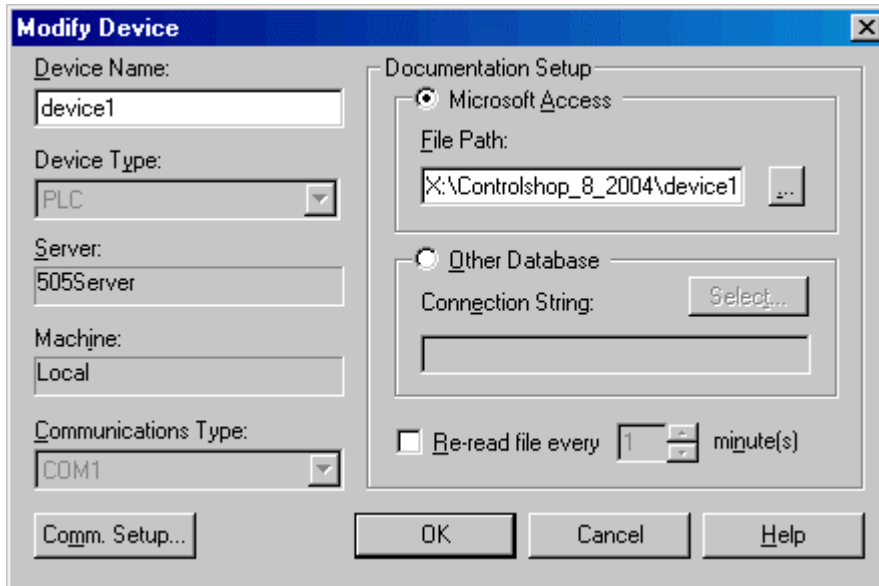
2. Click the **Add Device** button. The **Add Device** dialog appears.

3. Configure the new device, and click the **OK** button.
 - **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 above.
 - **Comm Setup:** Configure communications between the PC and the device. See *Communication Setup* for details.
 - **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 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 if the database is under development. To keep the documentation up to date, check the box and set the number of minutes to control how often the documentation database should be checked for changes.

Modifying Devices

To modify a device that is already configured:

1. Bring up the **Device Source Configuration dialog** by selecting the **Setup/Device Source** menu item or the corresponding 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 the **OK** button.
 - **Device Name:** Enter a name to identify the device. The device name must be unique. Unlike the **Add Device** dialog, when we modify the device name here, the documentation filename does not change.
 - **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 database that does not exist, a new database will be created.
 - **Comm Setup:** Configure communications between the PC and the device. See *Communication Setup* for details. If no trend windows are online with this device then the communication settings can also be modified. If the device is online then the communication settings can be viewed but cannot be modified.
 - **Re-read file every:** This option should only be selected when sharing the database with other applications and if the database is under development. To keep the documentation up to date, check the box and set the number of minutes to control how often the documentation database should be checked for changes.

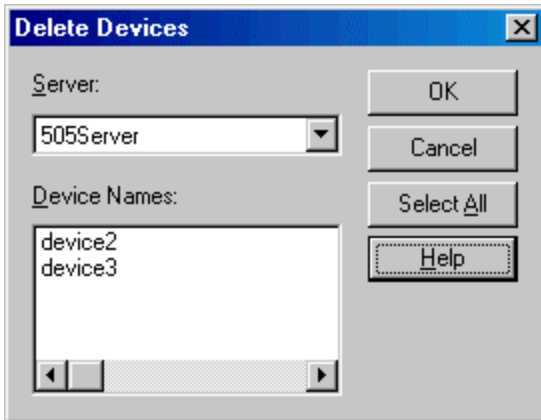
Deleting Devices

To delete a device from the current configuration:

1. Bring up the **Device Source Configuration dialog** by selecting the **Setup/Device Source** menu item or the corresponding 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 the **OK** button.

Communication Setup

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

To configure communication:

1. Open the **Device Source Configuration** dialog by selecting the **Setup/Device Source** menu option or clicking the corresponding toolbar button: 
2. Open 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 a data point on the device is used in a log sheet that is currently 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.

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

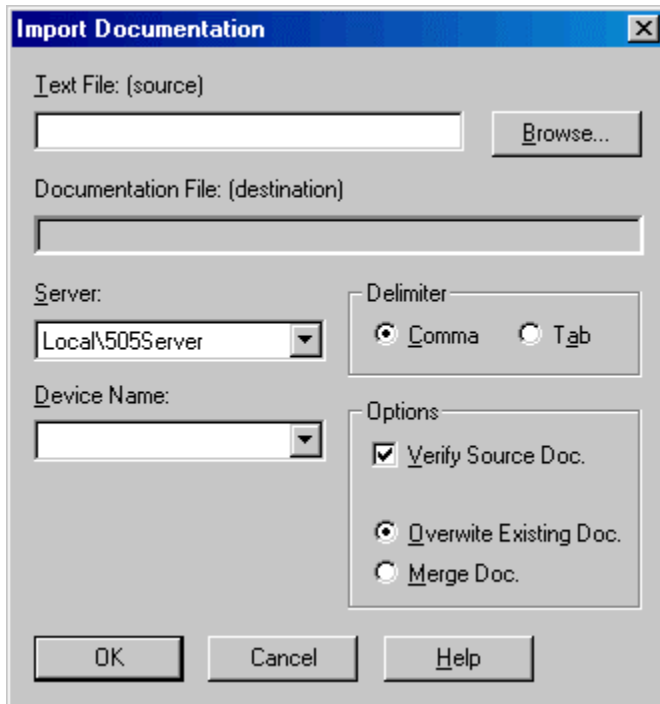
Import/Export Documentation

Import Documentation

Documentation for a device can be imported from a text file into the existing database.

To import documentation:

1. Select the **File/Import Documentation/FasTrak 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 selected above. The documentation database that corresponds to the selected device will be the recipient of the import.
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:** Check the 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 all the documentation. If an address is in the database but not in the imported file, the information in the database is lost.

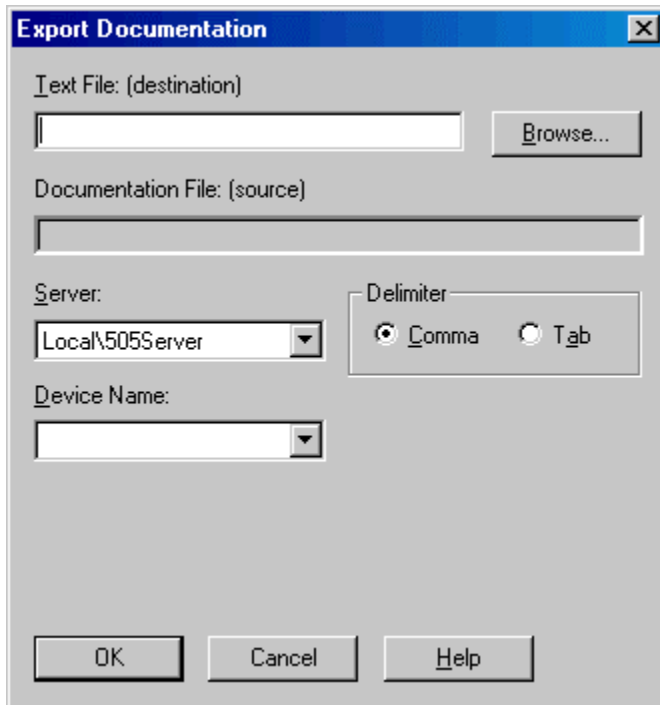
- **Merge Doc:** When this option is selected, the imported documentation is merged into the database. If an address is in the imported file but not in the database, it is added to the database. If an address is in the imported file and already in the database, you will receive a warning. The address in the database will remain. If an address is in the database but not in the imported file, the database information is left as is.

Export Documentation

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 selected above. The documentation database that corresponds to the selected device will be the source of the exported information.
5. The fields in the text file may be separated by either tabs or commas. Select the **Delimiter** by selecting the appropriate option button.

Log Sheet

Log Sheet

The **Log Sheet** is the visual interface to the data logging process. Log sheets differ based on whether they communicate to a **FasTrak Server** or **OPC Server**.

FasTrak Log Sheet

The **FasTrak Sheet** displays the device, address, tag, and description for each point being logged, along with the current value, the time stamp of the latest reading, and the communication status. Most of the columns are optional - whether they are displayed or not is controlled via the **Display** tab of the **Log Window Setup**.

Row	Device Name	Address	Tag	Description	Value	Time Stamp	Status
1	device1	B3:0	STAMP	1 second on/off tog	OFF D1	04:43:55.842 PM 09/01/04	Success
2	device1	F8:1	TEMPERATURE2	0.01 second sine wa	0.327312 F32	04:43:55.842 PM 09/01/04	Success
3	device1	N7:4	TANK	0.1 second timer 1-5	320 U16	04:43:55.842 PM 09/01/04	Success
4	device1	V6	TANK_FILL	1 second timer 1-10	732 U16	04:43:55.842 PM 09/01/04	Success
5	device1	400009	SINE1	0.1 second sine wa	0.276176 F32	04:43:55.842 PM 09/01/04	Success
6	device1	400001	ACK3	Writeable address	0 U16	04:43:55.842 PM 09/01/04	Success

Each row represents a single address from a single device that is configured in the server from which the log window is connected.

The columns show:

- **Row:** The row number. This column cannot be edited.
- **Device Name:** The name of the device from which the data is to be read. Select a device from the drop-down list. See **Device Source Configuration** for details.
- **Address:** The PLC address from which data is to be read. Type the address here, or select it by tag, using the **Tag** column. Enter a range of addresses (each address will be on a separate line starting with the current line) by typing an address string in one of these formats:
 - **Address\ +-[count][\increment][\format]:** Create log sheet rows for a range of addresses.
 - **Address:** The starting address.
 - **+, -:** For addresses that count up from the starting address, use **+**. For addresses that count down from the starting address, use **-**.
 - **Count:** The number of addresses to create log sheet rows for.
 - **Increment:** The address increment. For example, if the increment is 2, a row will be created for every other address.
 - **Format:** The data format and size.
 - For example, the string `v1\+5\2\u16` results in the rows shown below:

Device Name	Address	Device Name	Address
device1	v1\+5\2\u16	device1	V1
		device1	V3
		device1	V5
		device1	V7
		device1	V9

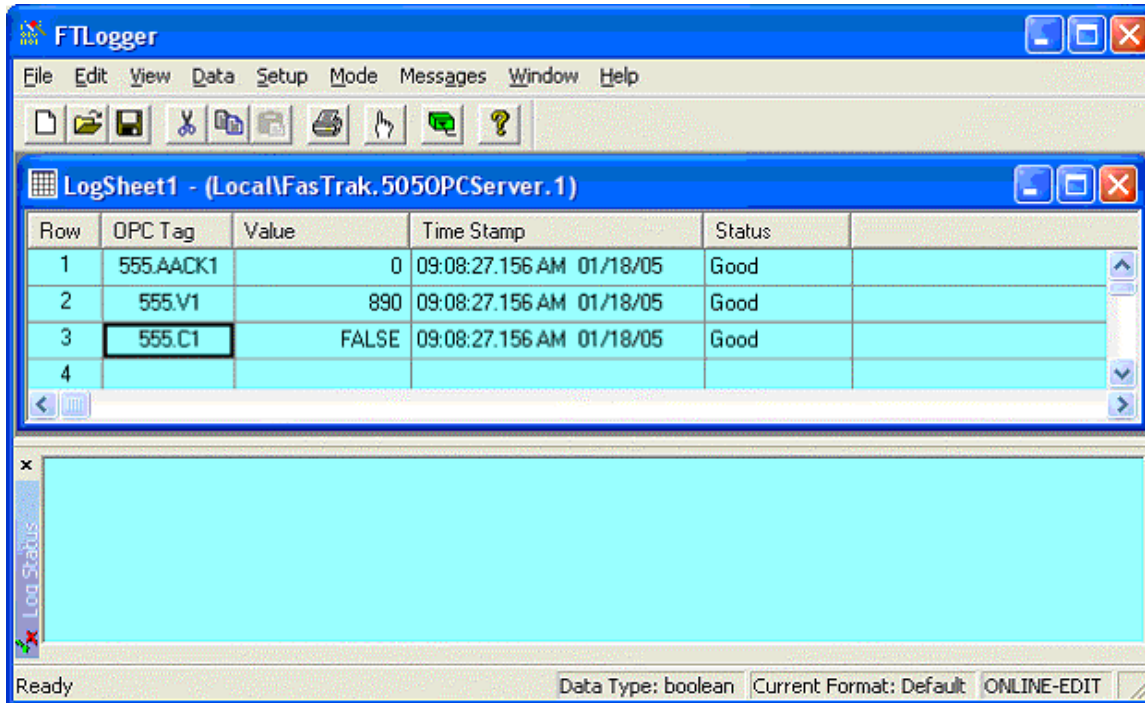
- **Address1-Address2[\increment][\format]:** Create log sheet rows for a range of addresses from Address 1 to Address 2
- **Address1:** The starting address.
- **Address2:** The ending address.
- **Increment:** The address increment. For example, if the increment is 2, a row will be created for every other address.
- **Format:** The data format and size.
- For example, the string v1-v7\2\u16 results in the rows shown below:

Device Name	Address	Device Name	Address
device1	v1-v7\2\u16	device1	V1
		device1	V3
		device1	V5
		device1	V7

- **Tag:** The tag for the address. The address can be set by selecting the tag from the list. Tags and descriptions are located in the documentation database for the Device. by See **Device Source Configuration** for details.
- **Description:** The description for the address. Tags and descriptions are located in the documentation database for the Device. See **Device Source Configuration** for details.
- **Value:** The last value read from the address.
- **Time Stamp:** Displays the time at which the last data value was read.
- **Status:** Displays the status of the data read from the device. Any errors reading addresses will be displayed here. Since many addresses are read in one packet, a status error from one invalid address may appear in multiple rows.

OPC Log Sheet

The OPC Sheet displays the OPC tag, value, time stamp and status for each point being logged. Most of the columns are optional - whether they are displayed or not is controlled via the **Display** tab of the Log Window Setup.



Each row represents a single address from a single device that is configured in the server from which the log window is connected.

The columns show:

- **Row:** The row number.
- **OPC Tag:** The OPC tag that represents an address.
- **Value:** The last value read from the address.
- **Time Stamp:** Displays the time at which the last data value was read.
- **Status:** Displays the status of the data read from the device and reports the quality of the data. Any errors reading addresses will be displayed here. Since many addresses are read in one packet, a status error may appear in multiple rows.

The status bar displays the data type being used based on the field in which the cursor is placed as well as online/offline status. Data types include: byte, short, unsigned short, int, unsigned int, long, unsigned long, float, double, boolean, date, and character.

Data Menu

Data Menu

Use the **Data** menu options to manage the information that is read from the PLC.

- **Format:** Select the display format for the data. This menu option is not available for bit addresses. The options are:
 - Unsigned Dec.
 - Signed Dec.
 - Float
 - Hex
 - Octal
 - ASCII
- **Size:** When the format selected above allows for 16 or 32 bit data, use this option to select the size.
- **Scaling:** Use this option to display and log information in a scaled form. See **Log Row Scaling** for details.
- **Next, Previous:** Move to the next row in the log sheet and insert the next or previous address, with the same device. For example, if the cursor is on row 1, where the address is V1

Row	Device Name	Address
1	device1	V1
2		

and you select the **Data/Next** menu option, row 2 is filled with V2

Row	Device Name	Address
1	device1	V1
2	device1	V2

If the cursor is on row 1, where the address is V5

Row	Device Name	Address
1	device1	V5
2		

and you select the **Data/Previous** menu option, row 2 is filled with V4.

Row	Device Name	Address
1	device1	V5
2	device1	V4

- **Fill:** Use the **Fill** menu option to create several rows at once. See **Fill** for details.

Fill

Use the **Fill** dialog to fill several log sheet rows, representing a series of addresses, at once.

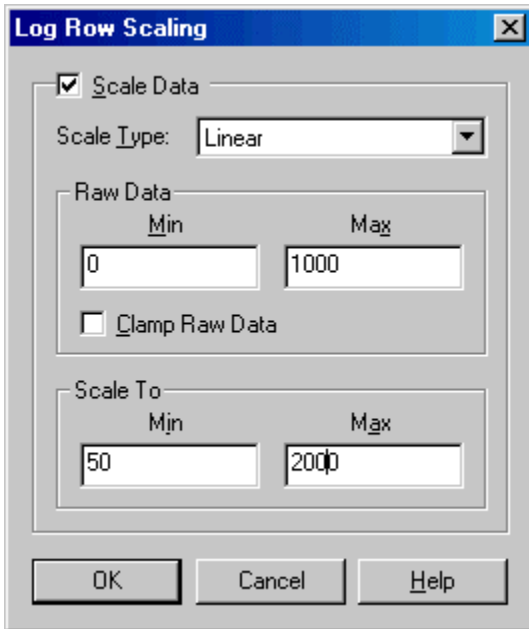
To access the **Fill** dialog, select the **Data/Fill** menu option. The **Fill** dialog appears.

- **Start Address:** Enter the first address in the series.
- **Start Row:** Enter the row number of the line that will hold the start address.
- **End Address:** To specify the range by address, select the **End Address** option button and enter the last address in the series.
- **Count:** To specify the range by number of lines/addresses, select the **Count** option button and enter the number of lines to be filled.
- **Increment:** Set the increment between addresses. For example, with an increment of 1, each address in the range is added to the log sheet. With an increment of 2, starting with an even numbered address, the even numbered addresses will be added to the log sheet.
- **Format:** Select the display format for the data. The options in this list include the size.
- **Device Name:** Select the device from which the data is to be read. See **Device Source Configuration** for details.
- **Apply:** Click the **Apply** button to fill the range without closing the dialog. The **Start Address** and **Start Row** fields will be updated to just past the end of the range specified previously. For example, if the start address was V1, the start row 10, and the Count 10, after the **Apply** button is clicked, the new start address is V11 and the new start row 20.
- **OK:** Fill the range and close the dialog.
- **Cancel:** Close the dialog without filling the range.

Log Row Scaling

Use the **Log Row Scaling** to display data scaled to a specified range. For example, a thermocouple input might present raw data values in the range 0-1000 for a temperature range from 50 degrees to 200 degrees. Scaling allows you to display the data as a value from 50 to 200.

To access the **Log Row Scaling** dialog, select the **Data/Scaling** menu option. The **Log Row Scaling** dialog appears.



- **Scale Data:** Check the **Scale Data** box to enable scaling for the current row.
- **Scale Type:** Select the type of scaling.
 - **Discrete:** Used with discrete address types to invert the data.
 - **Linear:** Available to all address types except discrete. The raw data from the PLC will be scaled according to the following formula.

$$\text{ScaledVal} = (\text{RawVal} - \text{MinRaw}) / (\text{MaxRaw} - \text{MinRaw}) * (\text{MaxScaled} - \text{MinScaled}) + \text{MinScaled}$$
 - **Square Root:** Available to all address types except discrete. The raw data from the PLC will be scaled according to the following formula.

$$\text{ScaledVal} = \text{SQRT}((\text{RawVal} - \text{MinRaw}) / (\text{MaxRaw} - \text{MinRaw})) * (\text{MaxScaled} - \text{MinScaled}) + \text{MinScaled}$$
- **Raw Data: Min, Max:** Enter the range for valid raw data.
- **Scale To: Min, Max:** Enter the desired display range.

Editing Features

Cut, Copy, and Paste

Cut, **Copy**, and **Paste** can be performed on rows (either the current row or the highlighted rows) in a log sheet.

Log window rows can be cut from one log window and pasted into another provided that the log window's servers match.

The menu items can be found under the main **Edit** menu along with hot keys. Alternative hotkeys **Shift-Delete**, **Ctrl-Insert**, and **Shift-Insert** are supported for **Cut**, **Copy**, and **Paste** respectively.

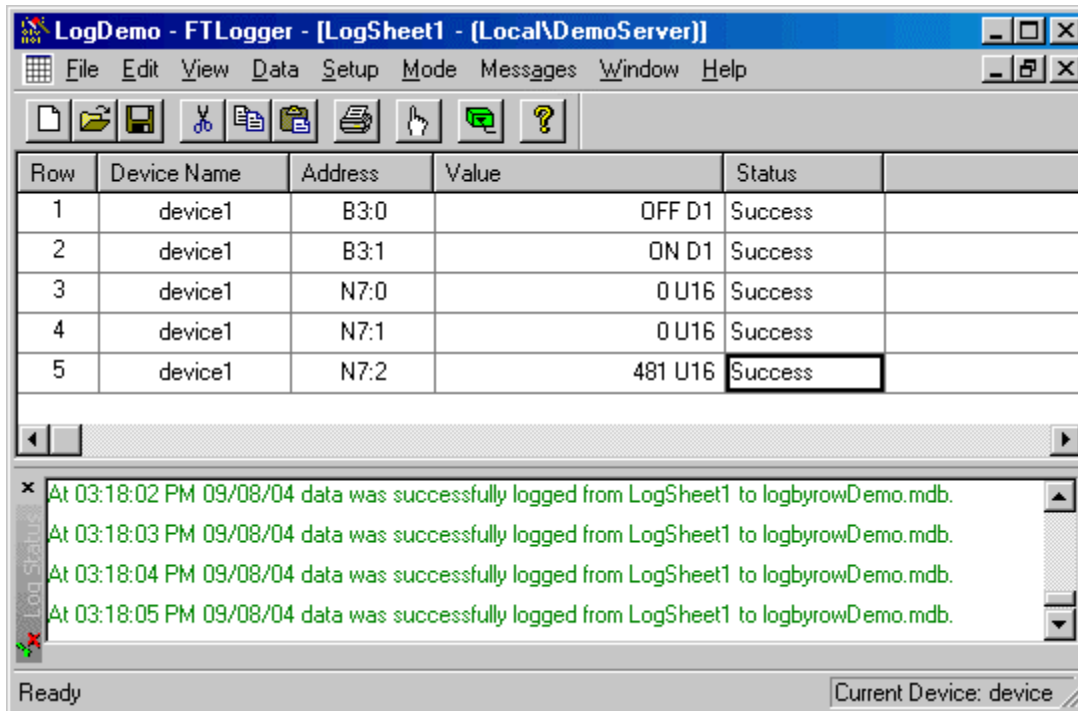
Select All

To select all the rows in the current log sheet, select the **Edit/Select All** menu option or press **Ctrl-A**.

Log Status Window

Log Status Window

The **Log Status Window** can be configured to list successful and failed logs as well as any miscellaneous errors that may occur while attempting to log data.



The **Log Status Window** can be docked to any side of the FTLogger display window, or detached.

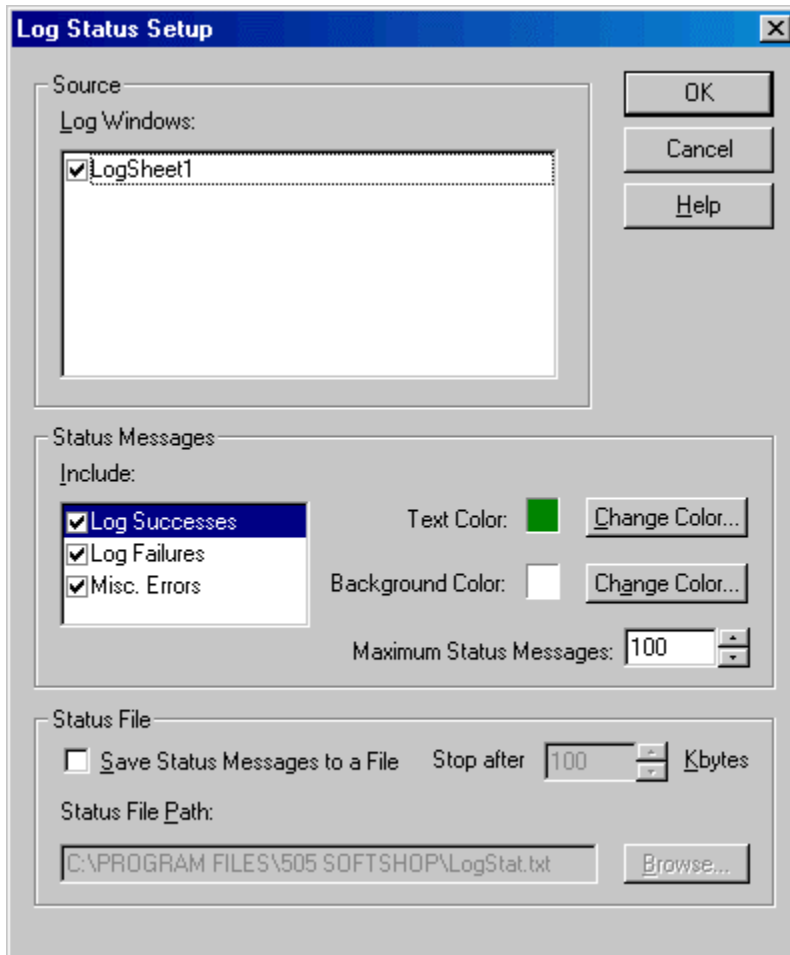
- To clear the **Log Status Window**, select the **Messages/Clear** menu option.
- To configure the **Log Status Window**, select the **Setup/Log Status** menu option to access the **Log Status Setup** dialog.

The **Log Status Window** is displayed docked to the bottom of the window by default, but can be hidden or re-displayed by selecting the **View/Log Status** menu option.

Log Status Setup

Use the **Log Status Setup** dialog to configure the **Log Status Window**.

To access the **Log Status Setup** dialog, select the **Setup/Log Status** menu option. The **Log Status Setup** dialog appears.



- **Source: Log Windows:** the list shows all the currently open log sheets. Check the box for each log sheet to display messages for. All the boxes are checked by default.
- **Status Messages:**
 - **Include:** Select which messages should be included (Log Successes, Log Failures, Misc. Errors) by checking the box for each type of message. Highlight the message type in the list to select it for color configuration.
 - **Text Color, Background Color:** Select the type of message in the **Include** list, and the text and background colors for that type of message appear in the color boxes. To change the colors for a type of message, click the **Change Color** buttons.
 - **Maximum Status Messages:** The messages are shown in a scrollable box. Set the maximum size of the box by selecting or typing the maximum number of messages. When the box is full, the oldest messages fall off the top of the box.

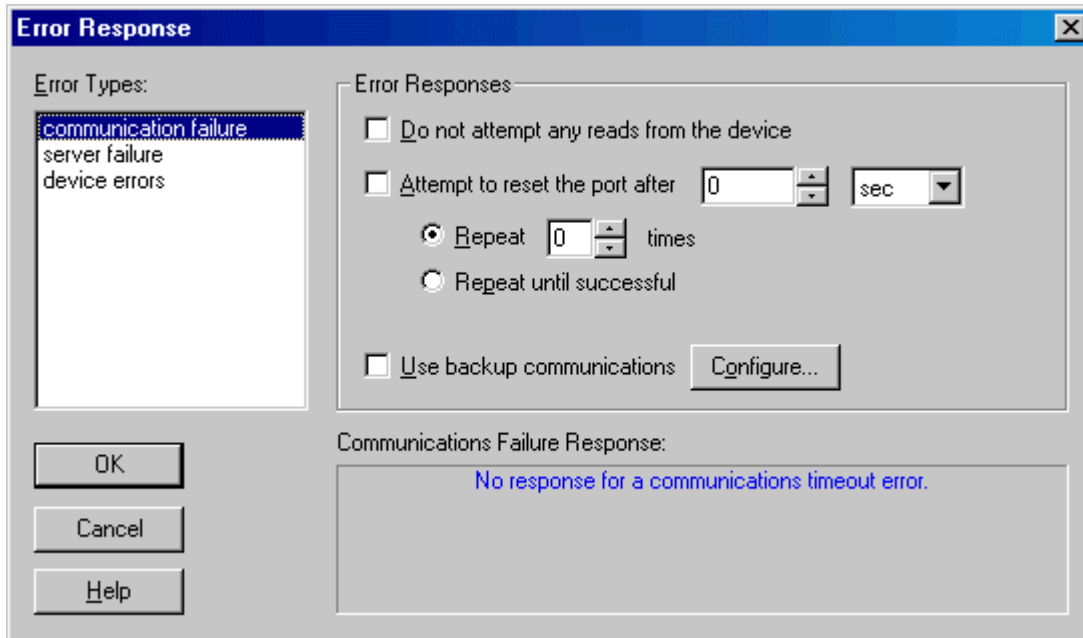
- **Status File:** Status messages can be saved to a file. To save status messages to a file, check the **Save Status Messages to a File** box, set the size limit (in Kbytes) for the file in the **Stop after** box, and select the file name and location by clicking the **Browse** button. Once the size limit has been reached, no more messages will be stored.

Error Response

Error Response Dialog

Configure how FTLogger is to respond to errors by using the **Error Response** dialog.

To access the **Error Response** dialog, select the **Setup/Error Response** menu option. The **Error Response** dialog appears.



The **Error Types** box lists the types of errors for which a response can be programmed. The **Error Responses** box holds the configuration options for the selected error type. Backup servers and communications are available with the full FTLogger package.

The error types are:

- **Communications Failure:** what to do on communications timeout error
- **Server Failure:** what to do when a server cannot be started or fails to respond
- **Device Errors:** what to do with erroneous packets

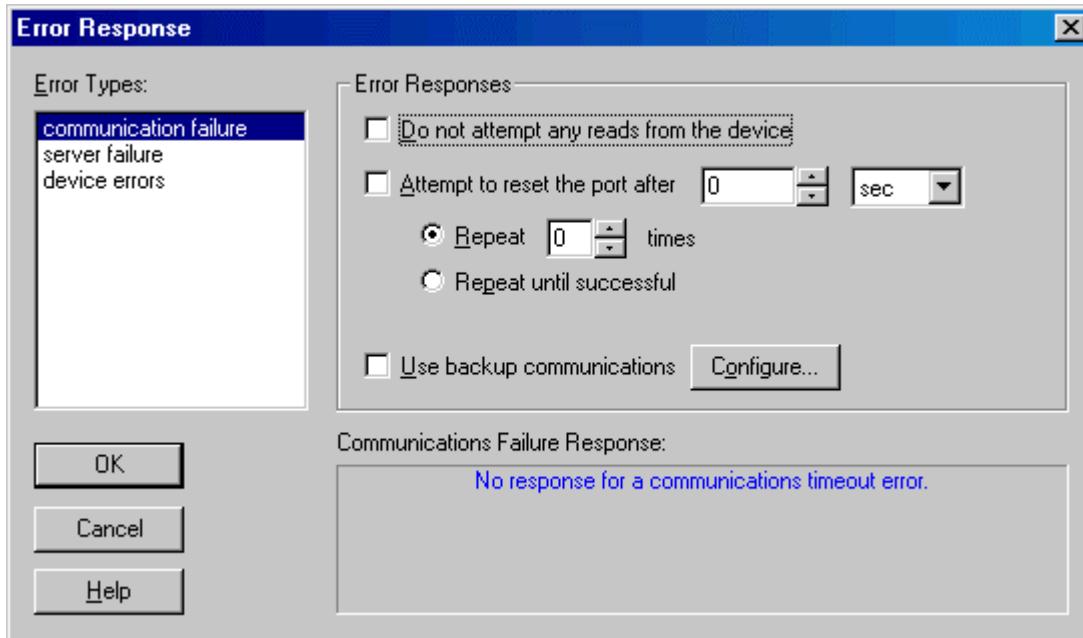
Error Response: Communications Failure

Use this set of controls to configure how FTLogger is to react to communication failures.

Communications failures are specific to the communications type used (e.g. COM, TCP/IP). This can be any error that prevents reading any data out of a PLC. An error that prevents reading one or more particular addresses is referred to as a device error.

To access this set of controls:

1. Select the **Setup/Error Response** menu option.
2. The **communication failure** Error Type is selected by default.



- **Do not attempt any reads from the device:** When this box is checked and a communication failure occurs, FTLogger will stop attempting to read addresses from that device.
- **Attempt to reset the port after:** When this box is checked and a communication failure occurs, FTLogger will wait the configured length of time and then attempt to reset the port.
 - To repeat the attempt a specific number of times, select the **Repeat _ times** option button and enter the number of times. After the selected number of attempts, if the **Use backup communications** box is checked, FTLogger will attempt to use the backup communications system.
 - To repeat indefinitely until the communication is restored, select the **Repeat until successful** option button.
- **Use backup communications:** When this box is checked and a communication failure occurs, FTLogger will attempt to use a backup communications system. Click the **Configure** button to configure Communication Type Backups.

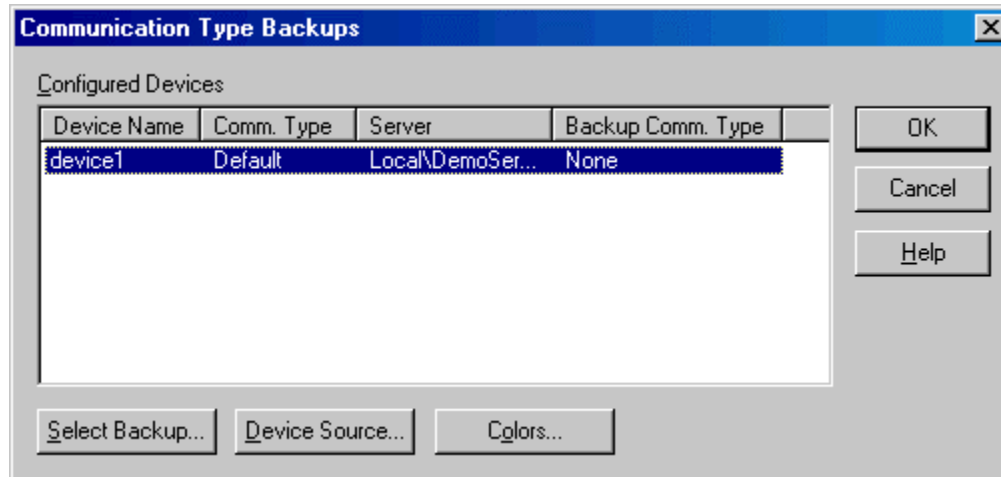
Note: Do not use a communications type that is already being used. A client can only have one reference to a device. An attempt to activate a backup communications type that is currently being used will result in the server error **Reference to device already exists**.

Communication Type Backups

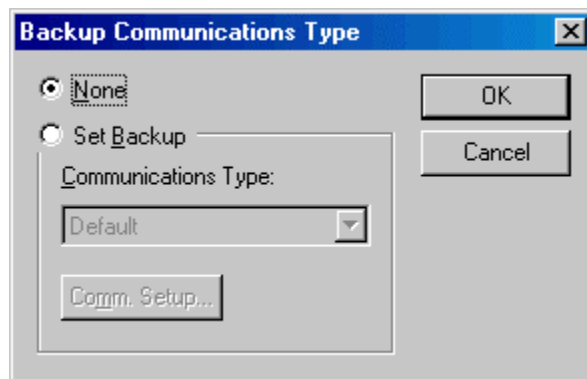
Communication type backups are available with the full FTLogger software package.

To configure backup communications:

1. Select the **Setup/Error Response** menu option.
2. Click **communication failure** in the **Error Types** list.
3. Check the **Use backup communications** box.
4. Click the **Configure** button near the Use backup communications checkbox. The **Communication Type Backups** dialog appears.



5. Select the device to be backed up from the list.
 - **Select Backup:** Click the **Select Backup** button to select the backup communications type. The **Backup Communications** dialog appears.

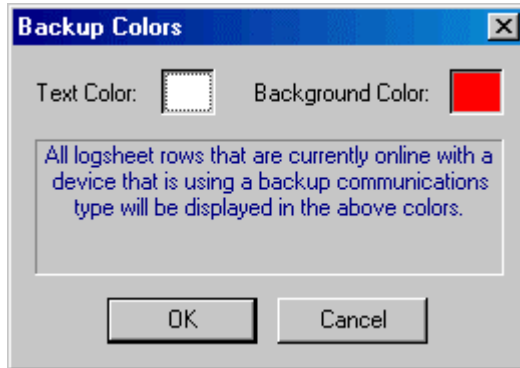


The list of communications types depends on the server.

Note: Do not use a communications type that is already being used. A client can only have one reference to a device. An attempt to activate a backup communications type that is currently being used will result in the server error **Reference to device already exists**.

- **Device Source:** Click the **Device Source** button to access the **Device Source Configuration** dialog.

- **Colors:** Click the **Colors** button to configure the colors that will indicate that backup communications are in use. The **Backup Colors** dialog appears.



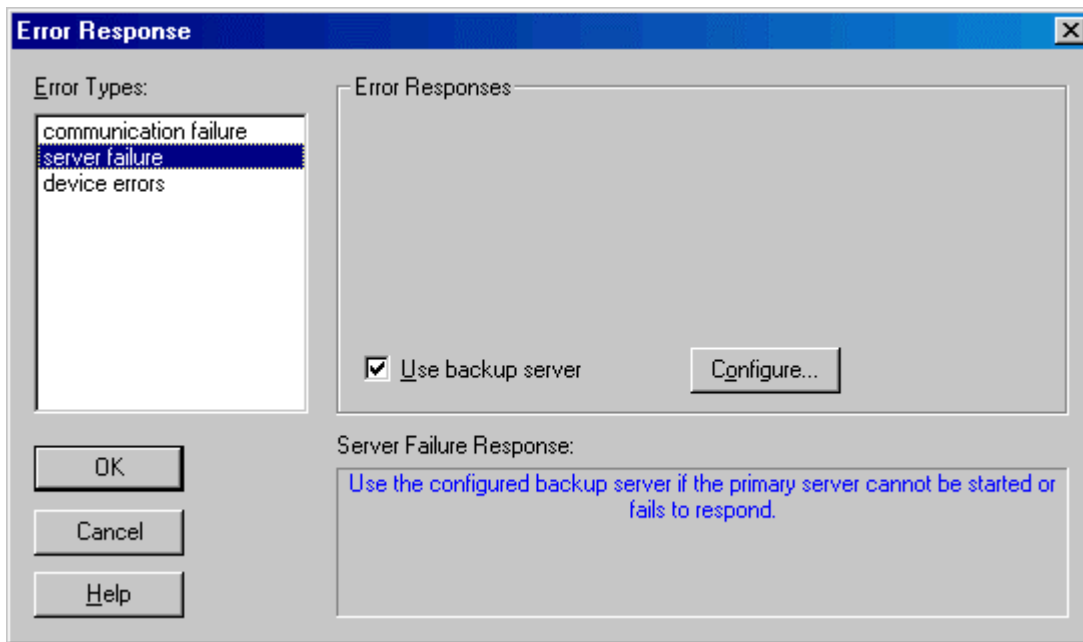
Error Response: Server Failure

Use this set of controls to configure how FTLogger is to react to server failures.

Two types of server failures exist, a failure to start the server and a failure to communicate with the server. A failure to start the server can occur if the server .EXE does not exist at the registered location or the client does not have rights to start the server. Communications to the server can fail if the machine running the server fails or is forcefully terminated or the server application experienced a lockup.

To access this set of controls:

1. Select the **Setup/Error Response** menu option.
2. Select **server failure** from the **Error Types** list.



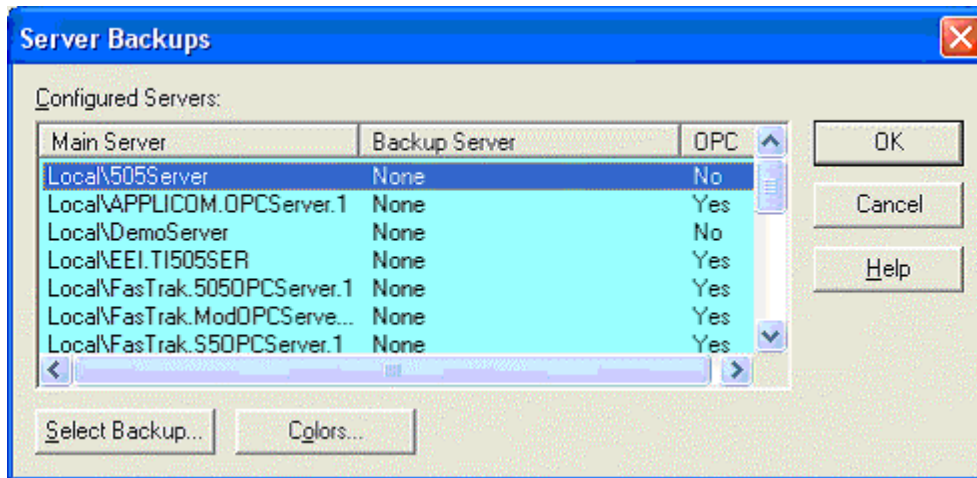
- **Use backup server:** When this box is checked and a server failure occurs, FTLogger will switch to the backup for the affected server. Click the **Configure** button to configure **Server Backups**.

Server Backups

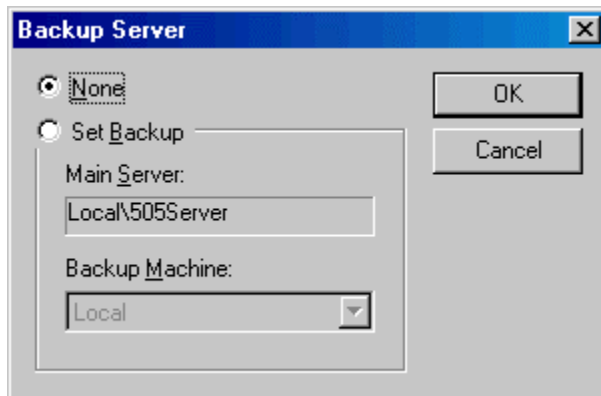
Server backups are available with the full FTLogger software package.

To configure backup servers:

1. Select the **Setup/Error Response** menu option.
2. Click **server failure** in the **Error Types** list.
3. Check the **Use backup server** box.
4. Click the **Configure** button. The **Server Backups** dialog appears.



5. Select the server to be backed up from the list.
6. Click the **Select Backup** button. The **Backup Server** dialog appears.



7. Select the **Set Backup** option.
8. Select the **Backup Machine** from the drop-down list.
Make sure that you have rights to launch the server (if remote) and that the remote machine's logged on user has rights to access FTLogger. If you are using Windows XP and wish to use a remote machine for your server, additional steps must be performed first. (See **Using Windows XP and a Remote Machine for your Server**.)
9. The grid color of a log sheet that is using a backup server is displayed in an alternate color, red by default. To change the color that indicates use of a backup server, click the **Colors** button.

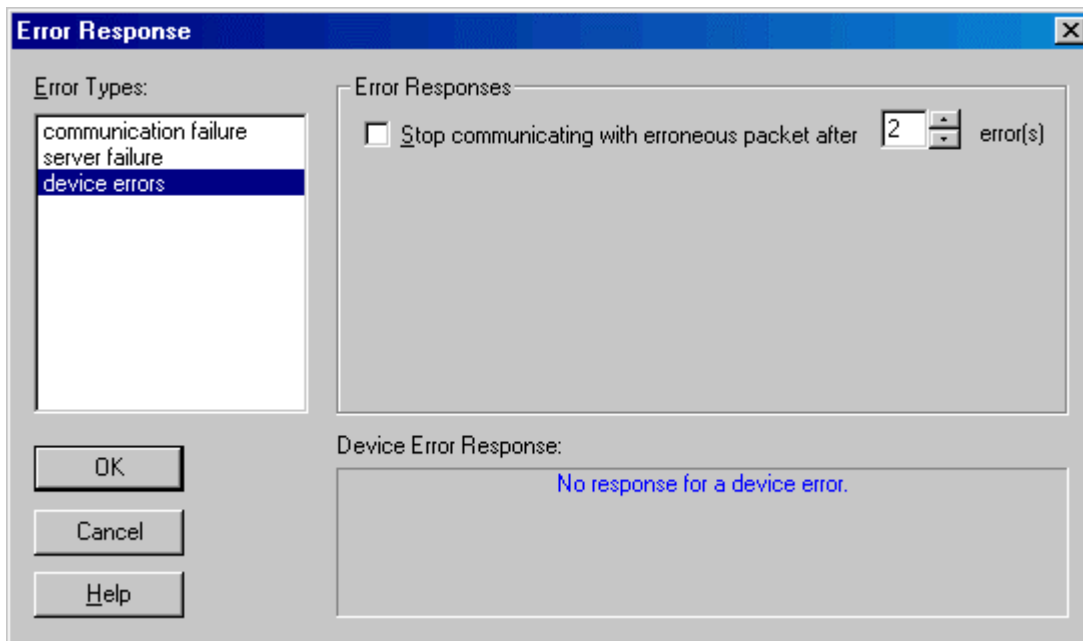
Error Response: Device Errors

Use this set of controls to configure how FTLogger will react to device errors.

Device errors are errors returned from specific devices referring to specific addresses that FTLogger is attempting to read from the device using the FasTrak Server. Unlike a communications failure, there is no problem communicating to the device but rather a problem with the contents of the read operation. Such problems may occur when an address being requested is out of the configured range or not valid for the PLC. When requesting address values from a PLC, the “read” request typically involves several addresses that are bundled together into one request called a packet. This is much more efficient than requesting one value at a time. Unfortunately, one invalid address in the packet will render the entire packet invalid. When the **device errors response** is checked and this error situation occurs, all the addresses that make up the invalid packet are removed from the log sheet or sheets allowing other reads to continue without hesitation. Without the device error response, device errors can slow down communications to other devices and/or other addresses.

To access this set of controls:

1. Select the **Setup/Error Response** menu option.
2. Select **device errors** from the **Error Types** list.



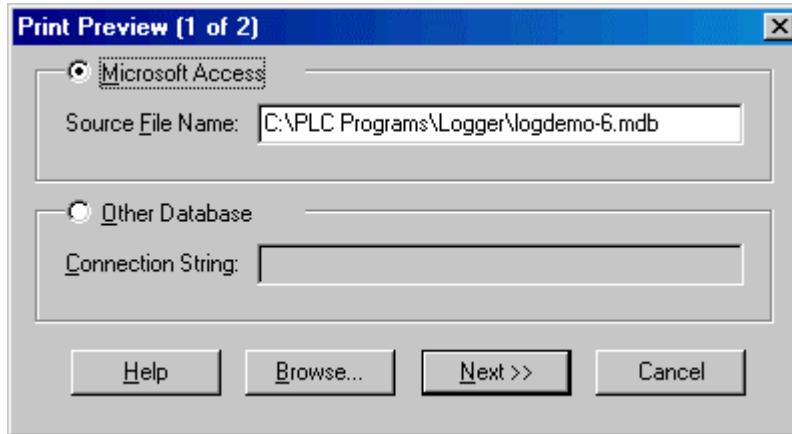
- **Use backup server:** When this box is checked and a server failure occurs, FTLogger will switch to the backup for the affected server. Click the **Configure** button to configure **Server Backups**.

Print

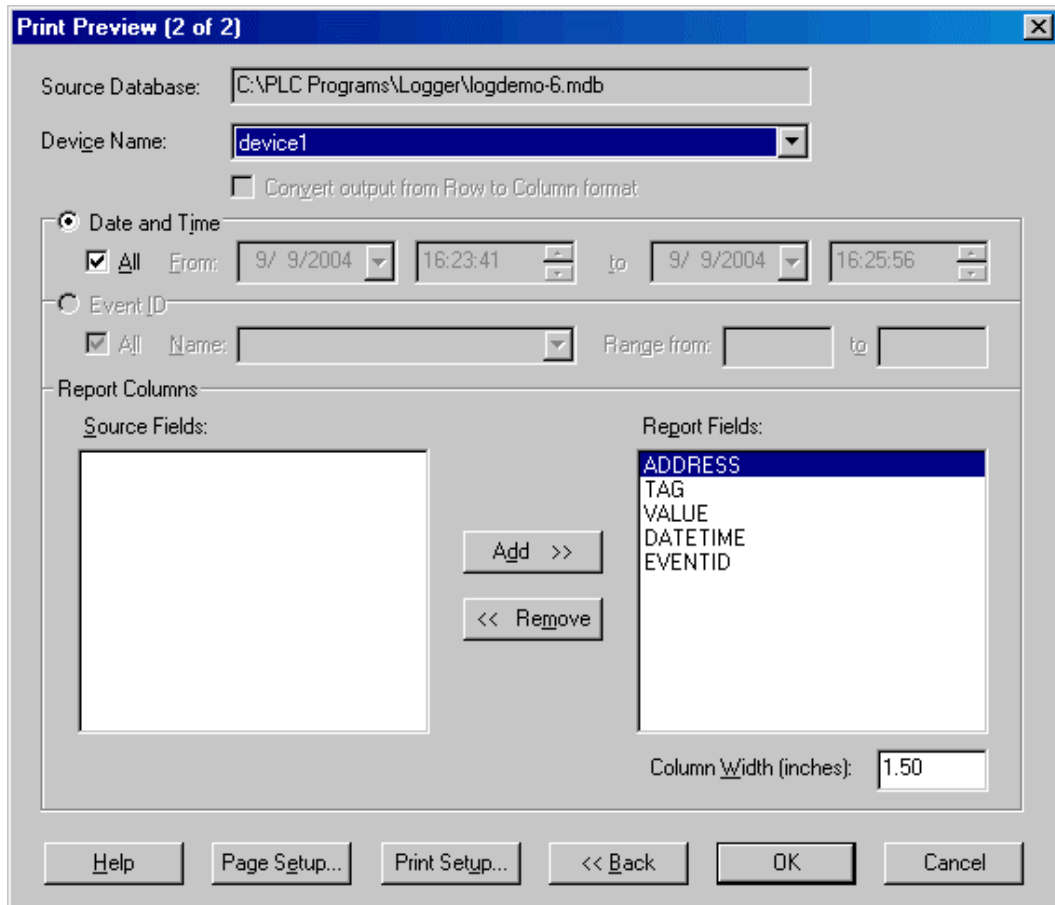
Print

To print data collected by FTLogger:

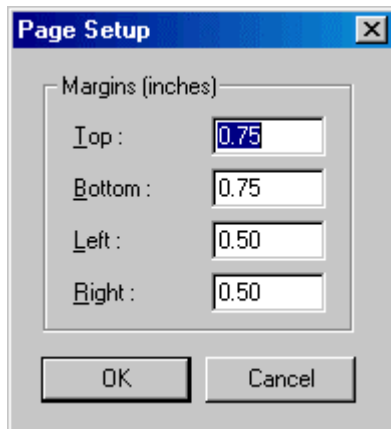
1. Select the **File/Print** menu option.



2. Select the database type (**Microsoft Access** or **Other Database**).
3. Enter the **Source File Name** or the **Connection String**, depending on database type.
4. Click the **Next** button.



5. Select the data to be printed:
 - **Device Name:** of the device for which data is to be printed. The list shows devices in the database.
 - **Date and time:** To print data for a particular time period, select the **Date and Time** option button. Select the time period from the associated fields.
 - **Event ID:** To print data from a particular event, select the **Event ID** option button, and select the event from the associated drop-down list. The list contains event ID names associated with the device name selected above. Select the range of events with that ID name using the associated **Range from** and **to** fields.
 - **Report Columns:** The fields listed in the **Report Fields** list will appear in the report. The fields in the **Source Fields** list are available, but not currently selected. Move fields between the lists using the **Add** and **Remove** buttons.
6. Use the **Page Setup** button to configure margins. The **Page Setup** dialog appears.



7. Set the **Column Width** for each field by highlighting the field in the **Report Fields** list and entering the desired width in inches in the **Column Width** box.
8. Click the **Print Setup** to access your system's print setup dialog.

Print Preview

Use the **Print Preview** feature to check the print setup without wasting paper.

To use the Print Preview feature:

1. Select the **File/Print Preview** menu option.
2. Proceed as if you were printing. The **Print Preview** feature works exactly the same way as the **Print** feature, except for the actual output. See **Print** for details.

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ControlShop™

FTTrend

Version 2.05

By FasTrak SoftWorks, Inc.

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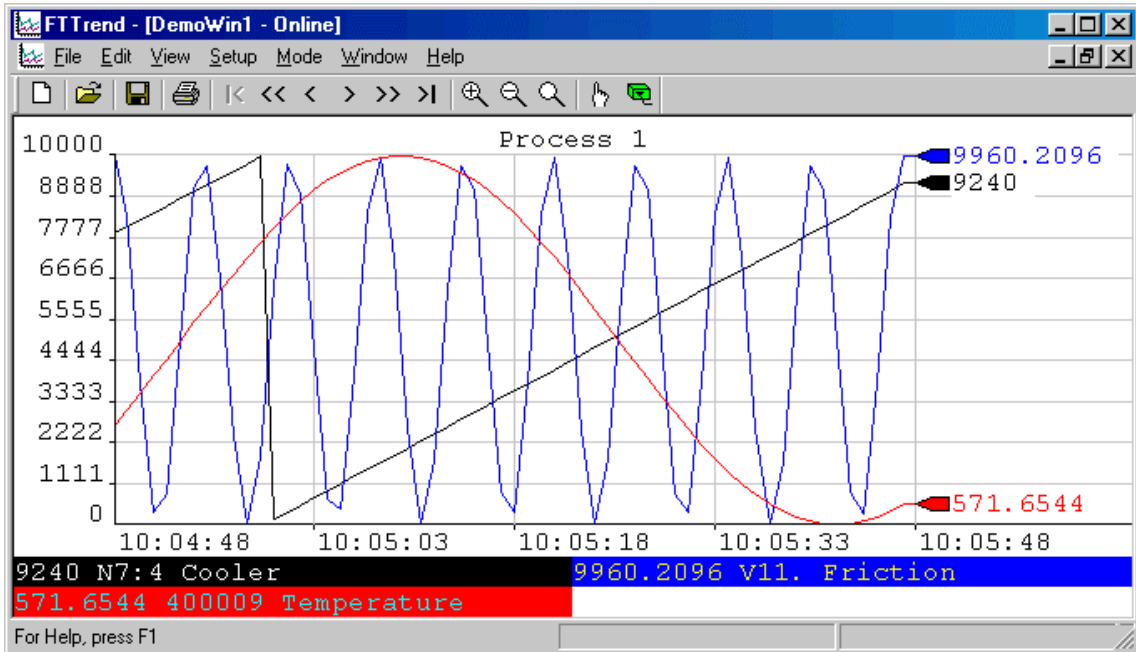
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FTTrend Overview

FTTrend is an application that enables graphical trending of real-time and logged data from multiple devices. A data trend is illustrated by graphing a series of data values collected for a data point over a period of time. A line connects the values to each other. The real-time access to devices is handled through FasTrak or OPC Data Access Version 2.0 communication servers and the logged data comes from a Microsoft Access or SQL database file created by FTLogger or FTTrend.





FTTrend is an MDI (multiple document interface) application - several trend graphs can be open at the same time. All the trend graphs and their settings will be saved into one .trn file (this includes all the data points). All configured devices will be saved into one .cfg file whose name is saved in the .trn file. A second file format (.trh) is available through 'Export'. This file format will represent historical data points in a "read only" environment that have been collected from a prior trend.

Documentation for each configured device is saved to a separate Microsoft Access or SQL database. The database can be shared with other FasTrak applications, such as WorkShop.

Online/Offline

When a trend window is **Online**, real-time data is read from the devices and plotted. When a trend window is **Offline**, real-time data is not read or shown, but the chart still shows logged data. When there are multiple trend windows, each window has a separate online/offline status. I.e. one can be online while another is offline.

To start real time trending, select the **Mode/Online** menu option, or click the toolbar button: 

To stop real time trending, select the **Mode/Offline** menu option, or click the toolbar button: 

NOTE: When plotting logged data, the graph will automatically start after the **Graph Data** dialog box has been configured.

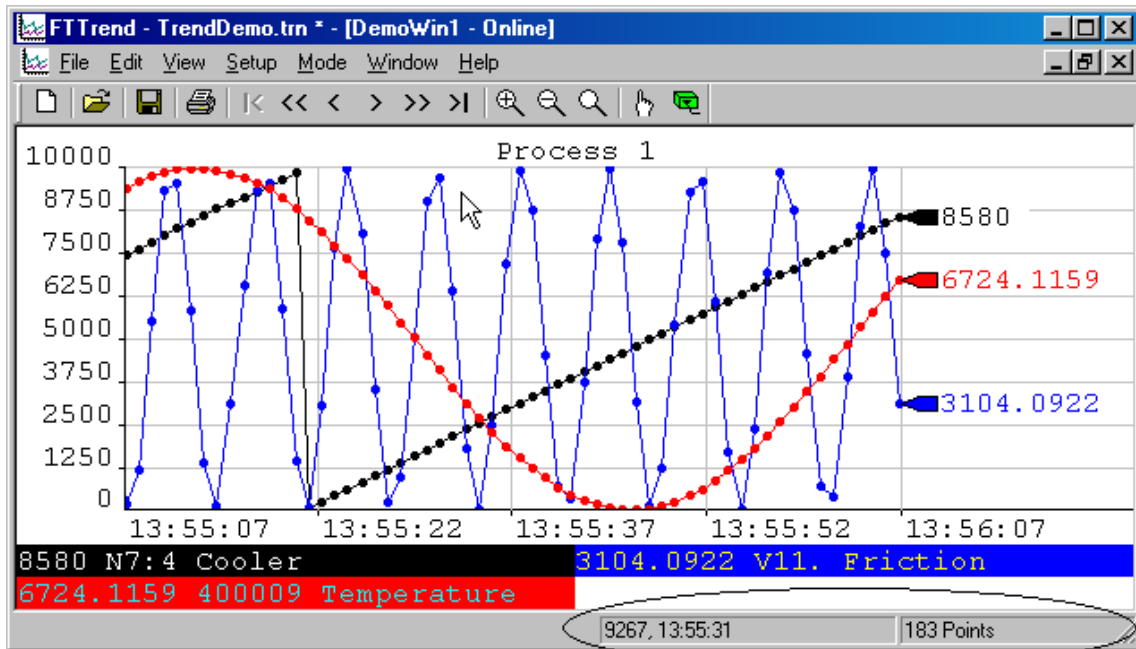
Viewing Time Periods

To view different time periods on a graph, select from the following options under the **View** menu:

- **Graph Begin** (| <): Displays the graph start time/date. This is disabled if neither **Use Start Time** nor **Use Start Date** boxes are checked in the X-Axis tab of the **Graph Settings** property sheet.
- **Prev Page** (< <): Goes one page into the past. The time range on a page is defined in the X-Axis tab of the **Graph Settings** property sheet.
- **Prev Time** (<): Goes one time interval into the past. Vertical grid lines on the graph mark each time interval.
- **Next Time** (>): Goes one time interval into the future.
- **Next Page** (> >): Goes one page into the future. The time range on a page is defined in the X-Axis tab of the **Graph Settings** property sheet.
- **Graph End** (> |): Goes to current time for real-time data trending or end of time period for logged data.
- **Zoom In**: Each time **Zoom In** is selected it cuts displayed time in half starting from the middle time period, effectively showing more detail but not as much time.
- **Zoom Out**: Each time **Zoom Out** is selected it doubles the displayed time starting from the middle time period, effectively showing less detail but more time.
- **Reset Zoom**: Returns the zoom to the data range configured for the X-Axis.

Status Bar

The **status bar** appears at the bottom right corner of the FTTrend window when the mouse cursor is within the x and y axis boundary of a graph.



Status bar

The first section shows the mouse cursor location in graph terms. The first number shows the Y axis value, the second the time. In the image above, the mouse cursor is near the top (10,000) - at 9267, to be precise. The mouse cursor is at the part of the graph representing a time between 13:55:22 and 13:55:37 - 13:55:31, to be precise.

The second shows the number of data points currently displayed. In the image, the data point markers are set to circles. There are 183 of them in this example.

Trend History File

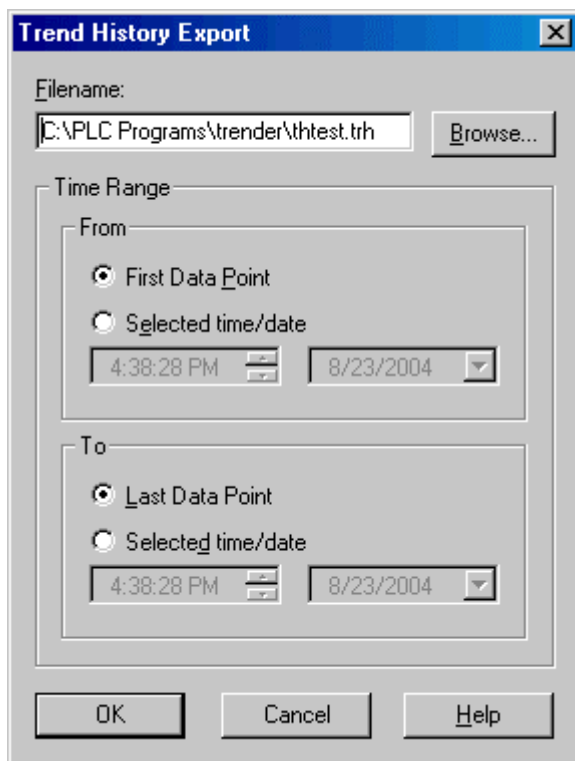
A **trend history file** is an offline, read-only snapshot of a trend graph.

Trend history files are a convenient way to present trend data:

- All information for a trend history file is saved to one .trh file.
- No security key is needed to view trend history files.
- No knowledge of FTTrend is needed to view trend history files. Simply load the file and view the trend.

To create a trend history file:

1. Open a trend project (.TRN file) or create a graph and add one or more data points.
2. When the desired data (real-time or logged) is in the graph, select the **File/Export/Trend History** menu option. Be sure the desired real-time data has not been deleted as a result of the deletion setting on the **database tab**.



3. Select a file name and time range:
 - **Filename:** Select the file name for the trend history file. The extension will be .TRH
 - **Time Range:** Select the data to be stored in the trend history file. Data points in this range will be copied to the trend history file.
 - **First Data Point / Last Data Point:** Automatically select a time range that includes the first/last data point on the graph. Logged data points for addresses that are not on the graph are ignored.

To view a trend history file:

1. Install FTTrend on the computer where the history file will be viewed, if it is not already installed. No security key is needed if the **/readonly** command line option is used.


2. Copy the trend history (.TRH) file to the computer. The .TRH file is self-contained - no other files are needed.
3. Either launch the .TRH file from the Windows Explorer or start FTTrend and use the **File/Open** menu option to open the .TRH file.

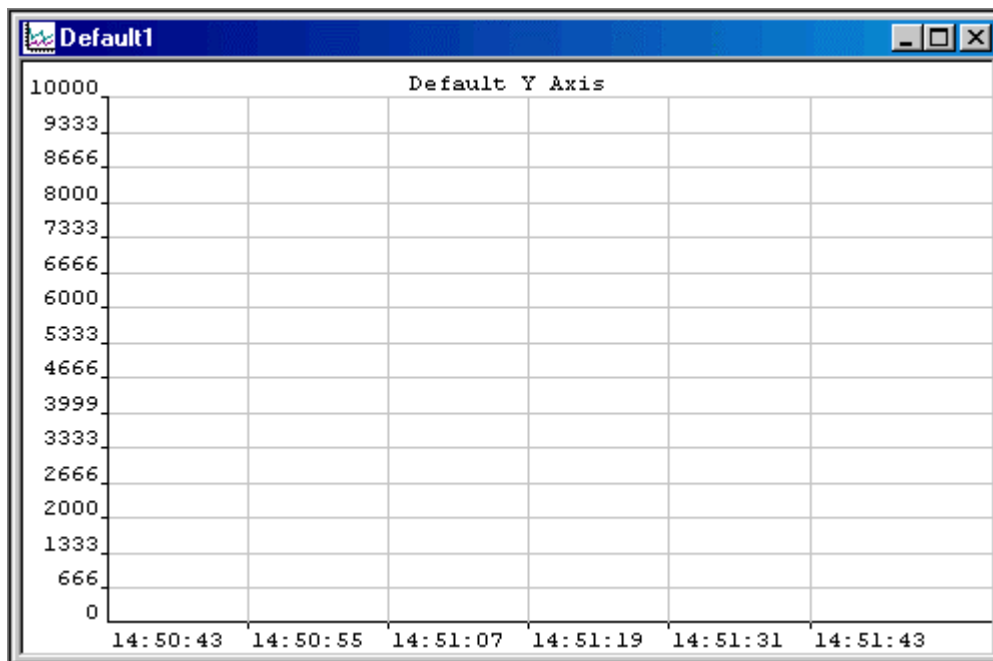
There are several restrictions when using trend history files:

- Trend history files are read only. It is possible to change some of the options while viewing a trend history file, but the changes cannot be saved.
- Trend history files are always offline. You cannot switch to online mode while viewing a trend history file.
- You cannot create a new file while viewing a trend history file.
- Data points cannot be added or deleted.
- The start time and date for a trend history file are fixed.

Creating a Trend Window

To create a new **Trend Window**:

1. Launch FTTrend.
2. Select the **File/New** menu option or click the corresponding toolbar button: 



The next step is to **configure devices**.

Device Source Configuration


Device Source Configuration

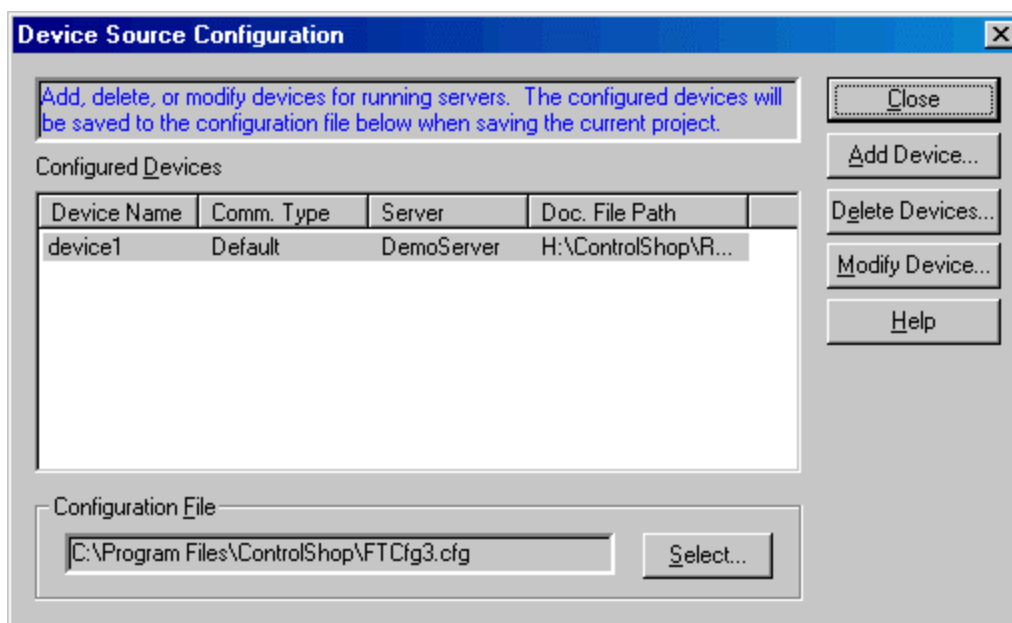
The **Device Source Configuration** dialog allows you to configure the devices from which data points are read.

For each device, FTTrend requires the following information:

- **Device Name:** A name to identify the device.
- **Comm Type:** The communication system - COM port, TCP/IP, etc. The options depend on the device.
- **Server:** Communication servers are shared between FasTrak applications, 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 you set the **File Path** 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 table. See **Communication Setup** for details.

To configure devices:

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



2. Use the buttons to access the configuration actions:
 - **Add Device:** Add a new device to the list.
 - **Delete Devices:** Delete the configuration for one or more devices.
 - **Modify Device:** Edit the highlighted device configuration.

- **Configuration File:** The configuration is saved in a .CFG file, not the .TRN Trend file. Click the **Select** button to select the configuration file where the information will be stored when the trend (.TRN file) is saved.

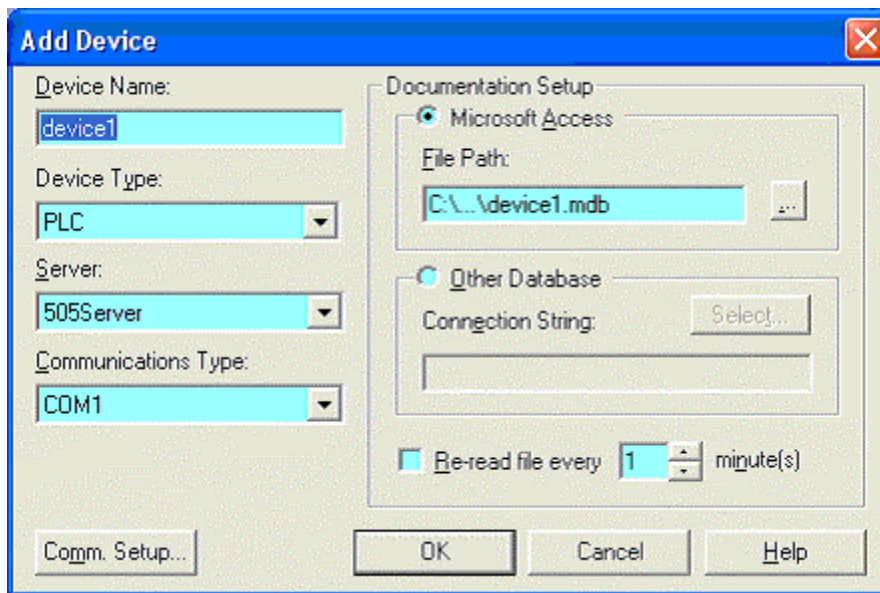
Adding Devices

To add a device to the current configuration:

1. Bring up the **Device Source Configuration dialog** by selecting the **Setup/Device Source** menu item or the corresponding toolbar button:



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



3. Configure the new device, and click the **OK** button.
 - **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 above.
 - **Comm Setup:** Configure communications between the PC and the device. See **Communication Setup** for details.
 - **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 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 if the database is under development. To keep documentation up-to-date, check the box and set the number of minutes to control how often the documentation database should be checked for changes.

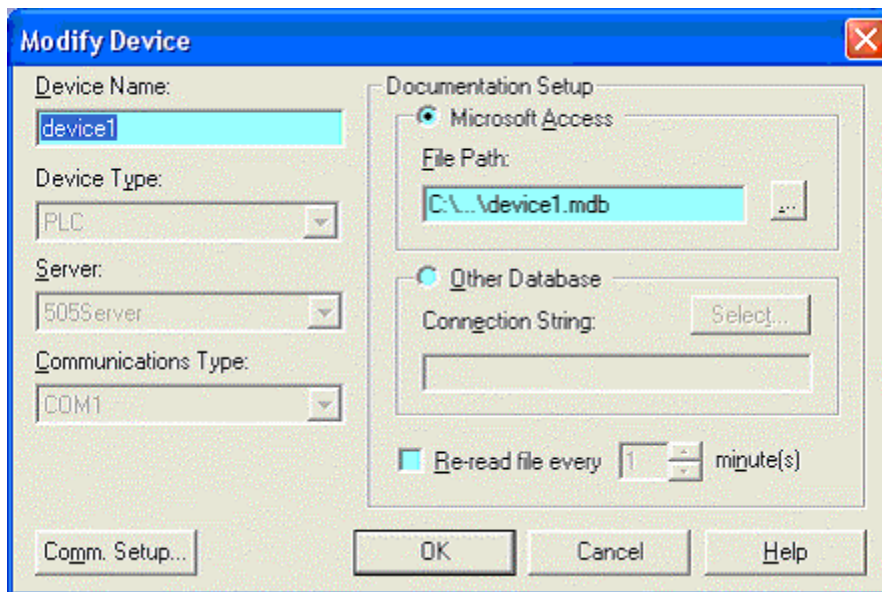
Modifying Devices

To modify a device that is already configured:

1. Bring up the **Device Source Configuration dialog** by selecting the **Setup/Device Source** menu item or the corresponding 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 the **OK** button.
 - **Device Name:** Enter a name to identify the device. The device name must be unique. Unlike the **Add Device** dialog, when we modify the device name here, the documentation filename does not change.
 - **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 database that does not exist, a new database will be created.
 - **Comm Setup:** Configure communications between the PC and the device. See **Communication Setup** for details. If no trend windows are online with this device then the communication settings can also be modified. If the device is online then the communication settings can be viewed but cannot be modified.
 - **Re-read file every:** This option should only be selected when sharing the database with other applications and if the database is under development. To keep documentation up-to-date, check the box and set the number of minutes to control how often the documentation database should be checked for changes.

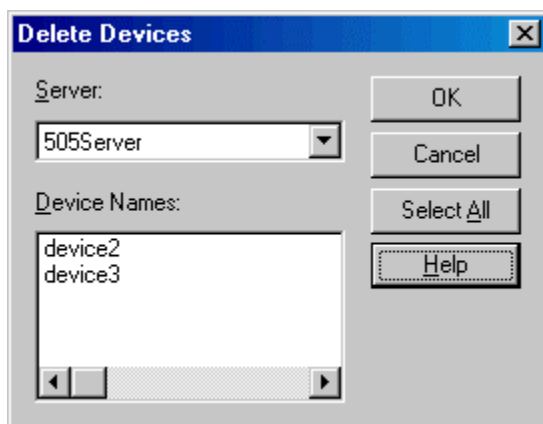
Deleting Devices

To delete a device from the current configuration:

1. Bring up the **Device Source Configuration dialog** by selecting the **Setup/Device Source** menu item or the corresponding toolbar button:



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




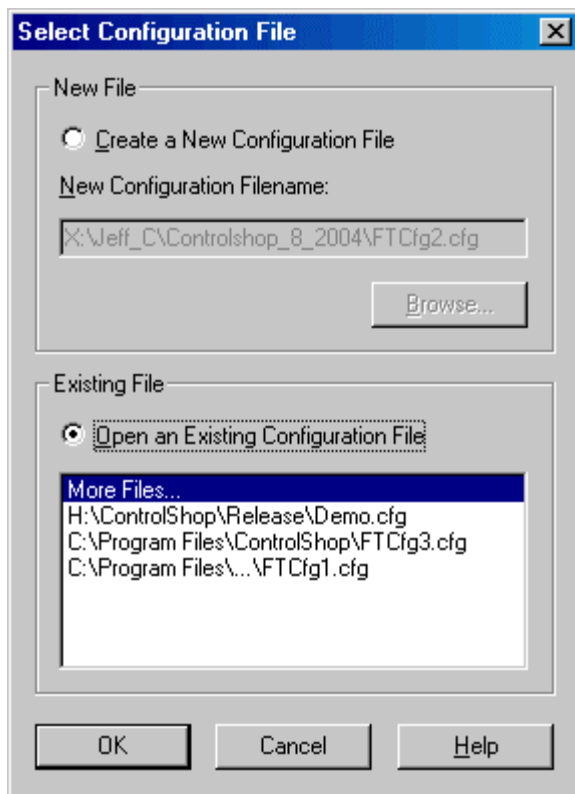
3. Select the **Server** that controls the devices to be deleted. The Device Names list shows the devices configured for that server.
4. Select the device(s) to be deleted. To delete all the devices for a server, click the **Select All** button.
5. Click the **OK** button.

Select Configuration File

The configuration, which holds the device source configuration information, is saved in a .CFG file, not the .TRN Trend file.

To select the configuration file:

1. Select the **Setup/Device Source** menu option or the corresponding toolbar button: 
2. Click the **Select** button in the **Configuration File** area. The **Select Configuration File** dialog appears.




- **New File:** To create a new configuration file, select the **Create New Configuration File** option button and **Browse** for the file name and location.
- **Existing File:** To select an existing file, select the **Open an Existing Configuration File** option button. If the desired file is in the list, click it. Otherwise, click the **More Files** line in the list and browse for the file.

Communication Setup

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

To configure communication:

1. Open the **Device Source Configuration** dialog by selecting the Setup/Device Source menu option or clicking the corresponding toolbar button: 
2. Open 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 a data point on the device is used in a graph that is currently 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.

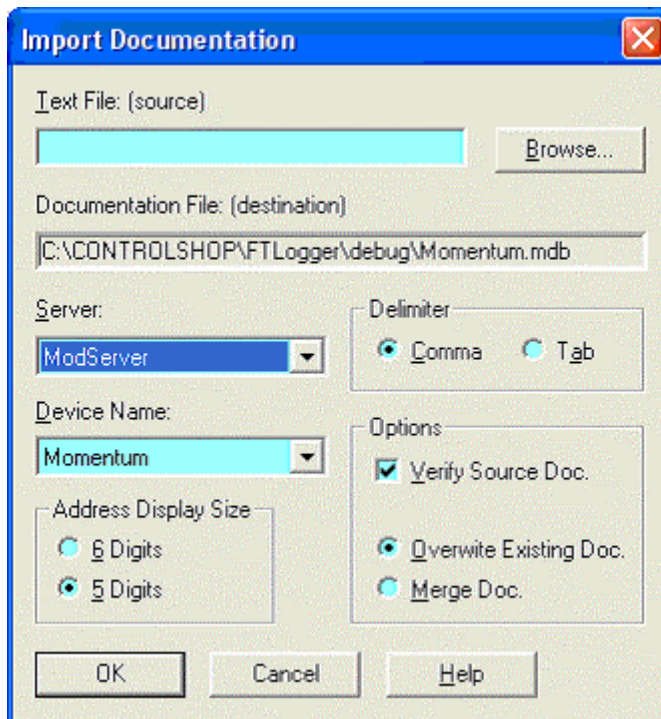
Import/Export Documentation

Import Documentation

Documentation for a device can be imported from a text file into the existing 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 selected above. The documentation database that corresponds to the selected device will be the recipient of the import.
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:** Check the 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 all the documentation. If an address is in the database but not in the imported file, the information in the database is lost.

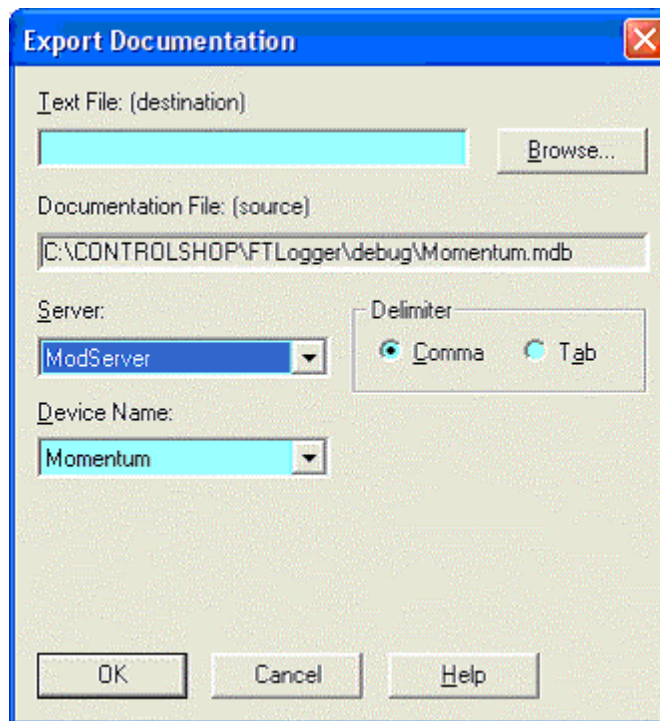
- **Merge Doc:** When this option is selected, the imported documentation is merged into the database. If an address is in the imported file but not in the database, it is added to the database. If an address is in the imported file and already in the database, you will receive a warning. The address in the database will remain. If an address is in the database but not in the imported file, the database information is left as is.

Export Documentation

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.



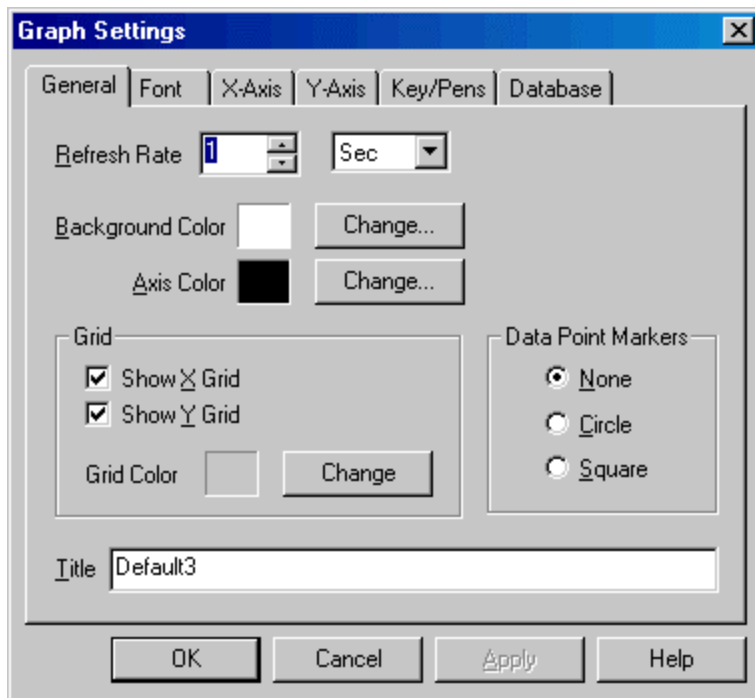
2. Select the destination file by typing in the **Text File (destination)** field or by clicking the **Browse** button.
3. Select the communication **Server** for the device. The list shows servers that are registered on the computer.
4. Select the **Device Name**. The list shows device configuration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

Graph Settings

Graph Settings

To configure the graph settings:

1. Select the **Setup/Graph** menu option. The **Graph Settings** property sheet is displayed.



The tabs on this property sheet are:

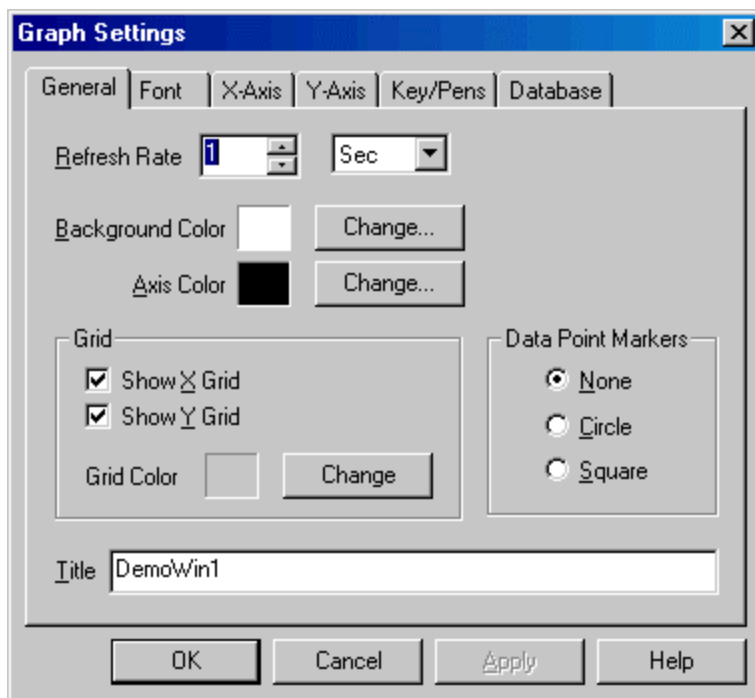
- **General:** This tab configures the general appearance of the graph.
- **Font:** This tab configures the font used for characters in the graph.
- **X-Axis:** This tab configures time scale, and related details, of the graph.
- **Y-Axis:** This tab configures data range, and related details, of the graph.
- **Keys/Pens:** This tab configures how the data is labeled on the graph.
- **Database:** This tab configures the database where data for real-time points is stored.

General Tab

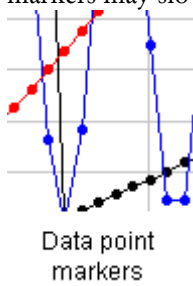
This tab configures the general appearance of the graph.

To configure the graph:

1. Select the **Setup/Graph** menu option.
2. Click the **General** tab.



- **Refresh Rate:** The time between screen updates. This value should not be confused with a data point sample rate, which is configured for each data point.
- **Background Color:** Sets the color of the graph background.
- **Axis Color:** Sets the X and Y-axis color.
- **Grid:** Turns on and off the X and Y reference lines.
- **Grid Color:** Sets the color of the X and Y reference lines.
- **Data Point Markers:** Mark data that has been read from the device. Displaying data point markers may slow the screen update.



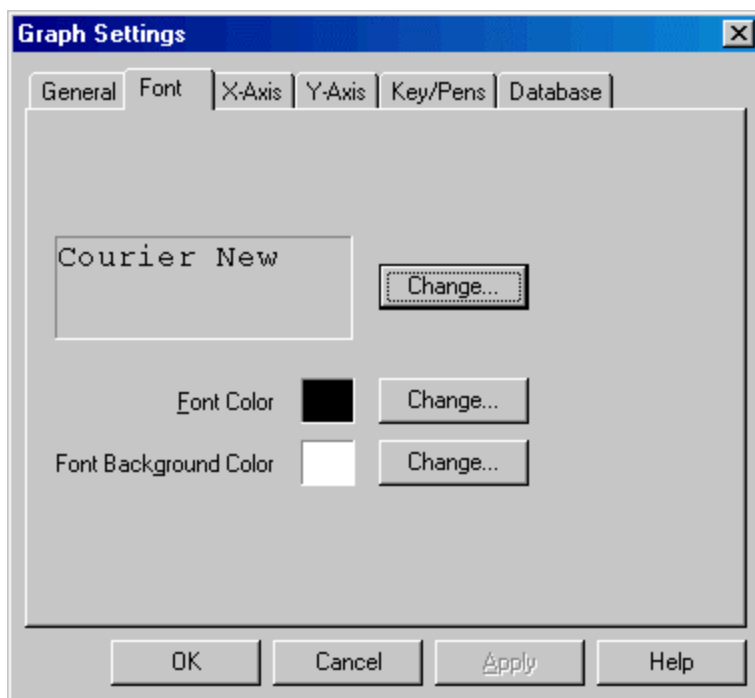
- **Title:** The name of the graph. Any name up to 64 characters can be used.

Font Tab

This tab controls the font used for characters in the graph.

To set the font:

1. Select the **Setup/Graph** menu option.
2. Click the **Font** tab.



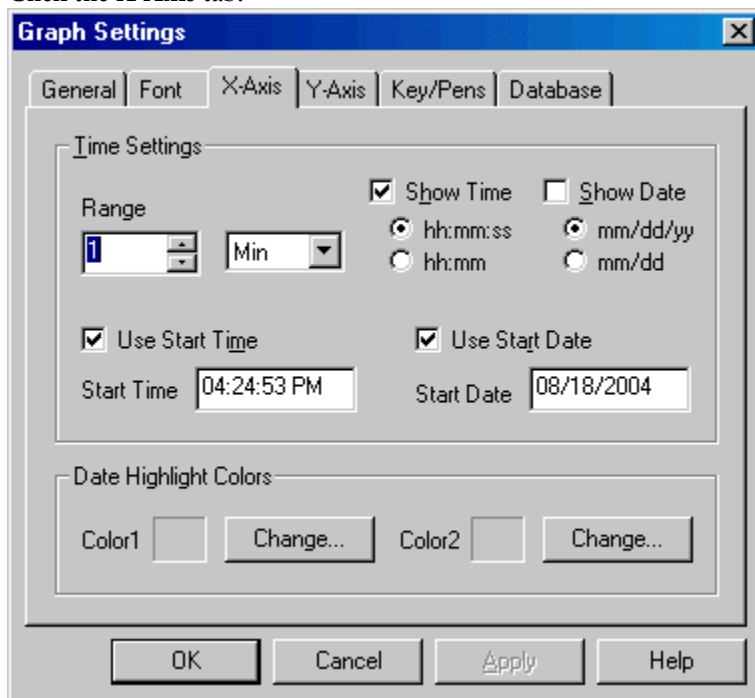
- **Font name (Courier New, by default):** Set the typeface.
- **Font Color:** Set the default color for lettering. In some parts of the graph, the color is controlled by the **Data Point** configuration.
- **Font Background color:** Set the default color to appear behind lettering. In some parts of the graph, the color is controlled by the **Data Point** configuration.

X-Axis Tab

This tab configures the time scale and related details.

To configure the X-Axis:

1. Select the **Setup/Graph** menu option.
2. Click the **X-Axis** tab.



Time Settings

- **Range:** Sets the length of time that is visible at once.
- **Show Time:** If this box is checked, the time is displayed at the bottom of the graph, in the selected format.
- **Show Date:** If this box is checked, the date is displayed at the bottom of the graph, in the selected format.
- **Use Start Time, Use Start Date:** If either of these boxes is checked, the graph will start with the specified date and/or time. The graph will not animate (move so that the current time is at the right edge of the graph).

Date Highlight Colors

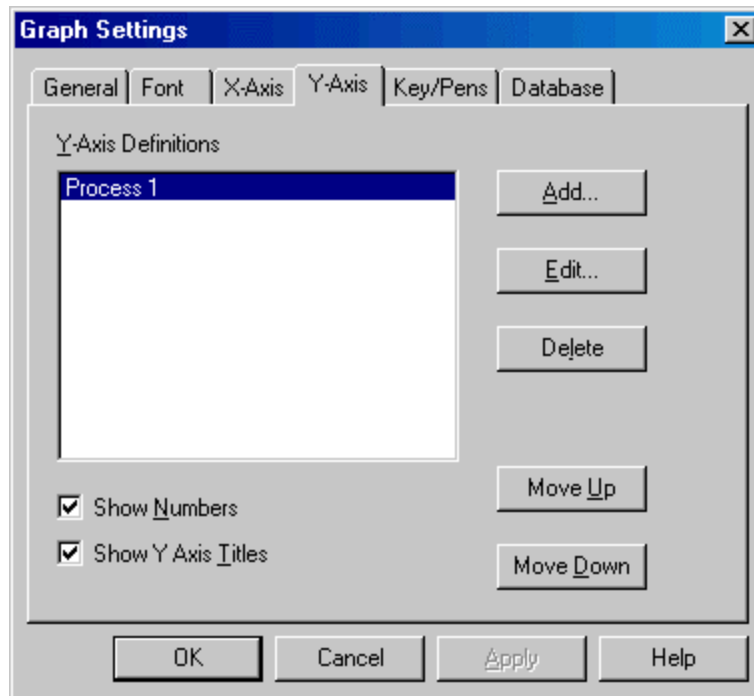
- **Color 1, Color 2:** If the date is shown (the **Show Date** box described above is checked) the dates are shown on alternating color backgrounds. These settings control those background colors.

Y-Axis Tab

This tab configures data range, and related details, of the graph.

To configure the Y-Axis:

1. Select the **Setup/Graph** menu option.
2. Click the **Y-Axis** tab.



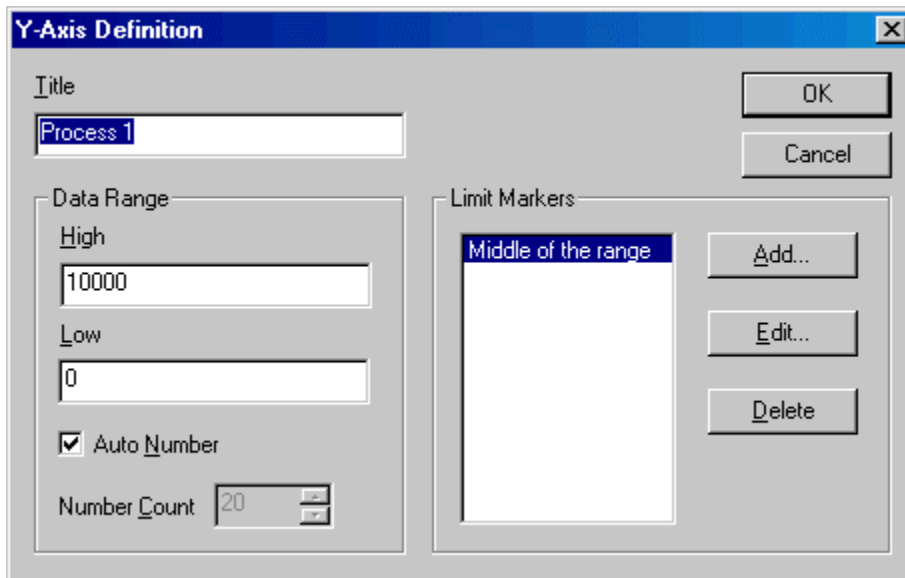
The check boxes apply to the display as a whole:

- **Show Numbers:** Show numbers at the left of the graph, indicating what value each horizontal line represents.
- **Show Y Axis Titles:** Show the title for each Y-Axis at the top of the graph.

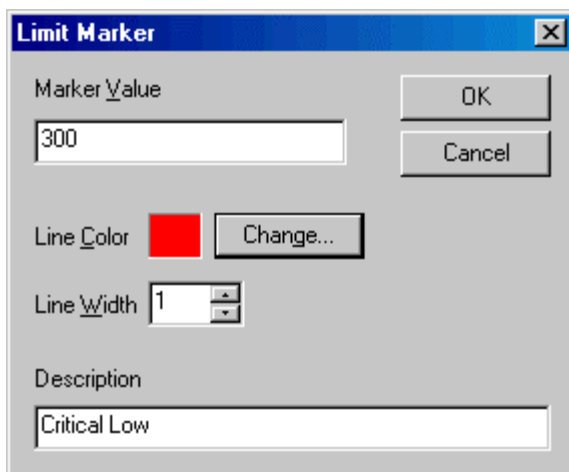
There can be up to 16 different Y-axis definitions per trend graph. The following buttons manage Y-axis definitions:

- **Add:** Add a new Y-axis definition.
- **Edit:** Edit the highlighted Y-axis.
- **Delete:** Delete the highlighted Y-axis.
- **Move Up, Move Down:** Move the highlighted Y-axis in the list. This controls the order in which they appear on the graph.

When you click the **Add** or **Edit** button, the **Y-Axis Definition** dialog appears.



- **Title:** Text to identify this Y-Axis. If the **Show Y Axis Titles** box is checked, the title will appear on the graph.
- **Data Range High, Low:** Specify the values represented by the top and bottom of the Y-Axis. The **High** must be more than the **Low**.
- **Auto Number:** Let FTTrend decide how many lines to divide the range into.
- **Number Count:** Specify the number of lines to divide the range into.
- **Limit Markers:** Static horizontal lines to provide a visual reference for specific values. Click the **Add** button to add a marker, the **Edit** button to edit the highlighted marker, the **Delete** button to remove the highlighted marker. When you click the **Add** button or the **Edit** button, the **Limit Marker** dialog appears.



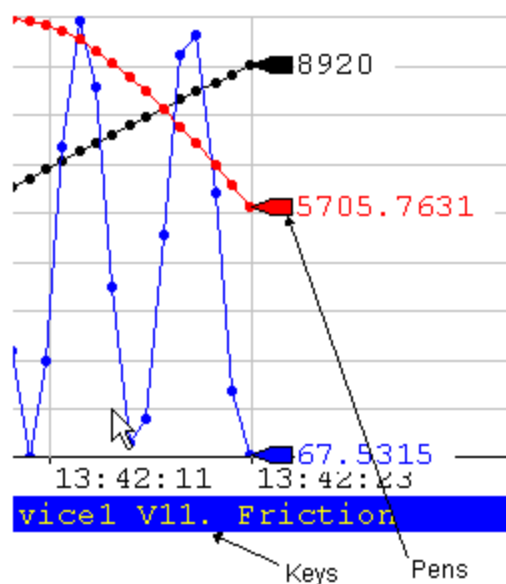
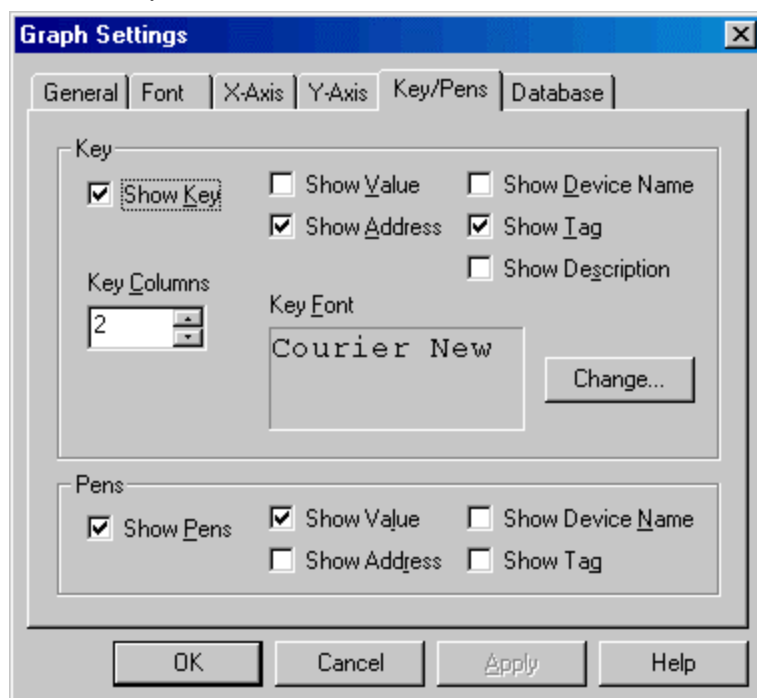
- **Marker Value:** The value that the marker indicated. This number must be within the Y-Axis range.
- **Line Color:** The color of the marker.
- **Line Width:** The width of the marker in pixels.
- **Description:** A text description of the marker. The description appears on the graph. This field is required.

Key/Pens Display

This tab configures how the data is labeled on the graph.

To configure the graph:

1. Select the **Setup/Graph** menu option.
2. Click the **Keys/Pens** tab.



- **Key:** The key is a color-coded label of a specific data point on the graph. The keys appear below the graph.
 - **Show Key:** Determines whether the key will be displayed.

- **Show Value:** The value of the data point being read.
- **Show Address:** The current address being read.
- **Show Device Name:** The name of the device to which communication is established.
- **Show Tag, Show Description:** Address documentation.
- **Key Columns:** Divide the key area into this number of columns.
- **Key Font:** Click the **Change** button to configure the font used in the keys
- **Pens:** Markers showing the current value of each data point at the end of the graph.
 - **Show Pen:** Determines whether the key will be displayed.
 - **Show Value:** The value of the data point being read.
 - **Show Address:** The current address being read.
 - **Show Device Name:** The name of the device which communication is established.
 - **Show Tag:** Address documentation.

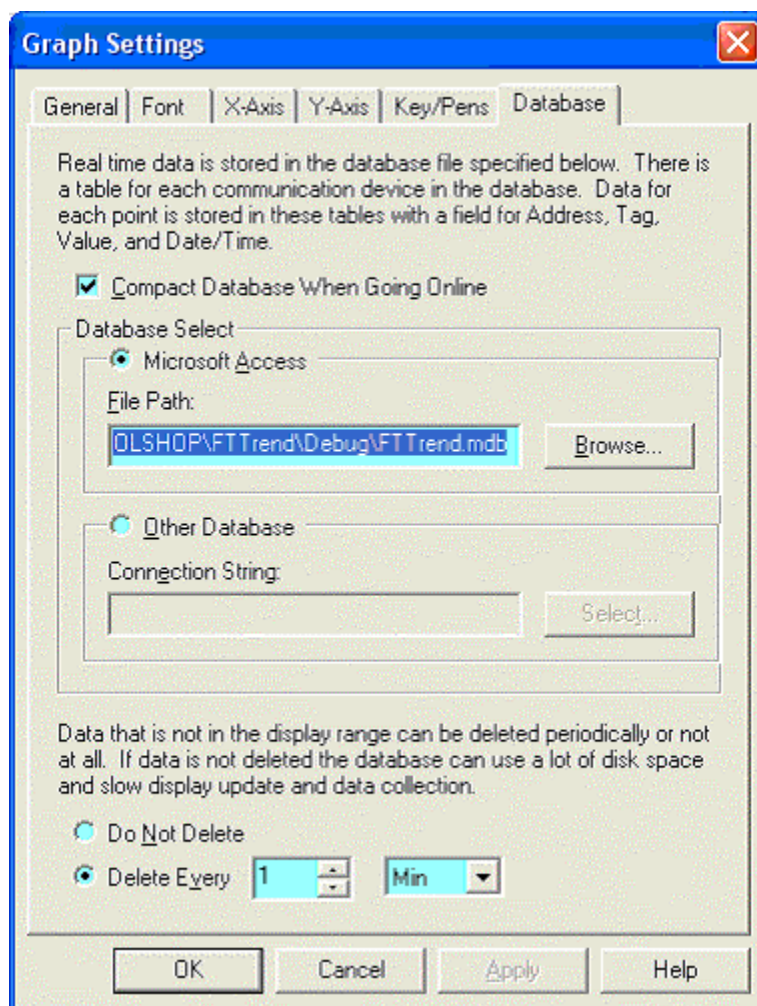
Database Tab

This tab configures the database where data for **real-time points** is stored. For details on the database, see **Real-Time Database**.

NOTE: While this database may be used as a source for **logged points**, FTLogger provides far more functionality and flexibility in logging data.

To access the Database tab:

1. Select the **Setup/Graph** menu option.
2. Click the **Database** tab.



- **Compact Database When Going Online:** Check this box to compact the database as part of the process of going online.

NOTE: Disk space that was occupied by deleted database records is not available until the compact is performed.

- **Database Select:** Specify the database.

- **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 database does not exist, FTTrend will create it.
- **Other Database:** To build the database in a format other than Microsoft Access (currently, **SQL** is the only option) select the **Other Database** option button and click the **Select** button to configure the **Data Link Properties**. The SQL database must exist prior to the selection.
- **Delete:** Select the **Delete Every** option button and set a number and time unit to delete old data.

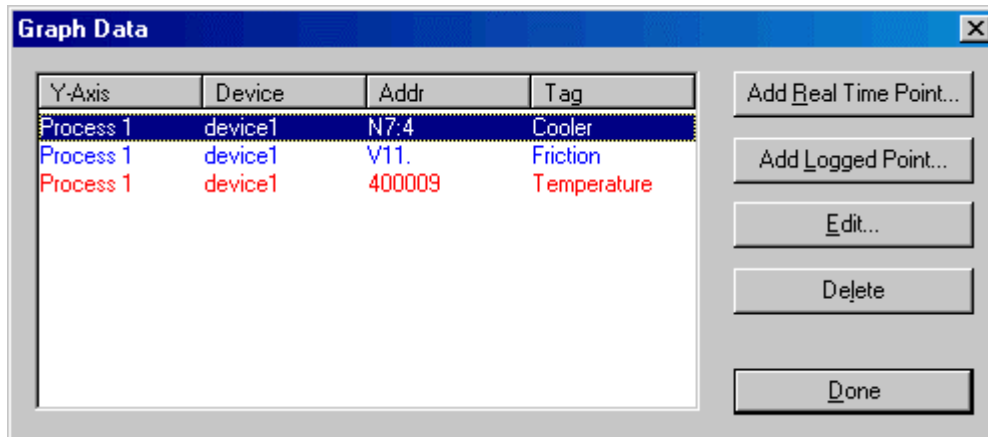
NOTE: When data is deleted from a database, the disk space is not freed until the database is compacted. The database cannot be compacted while FTTrend is online. If the **Compact Database When Going Online** box is not checked, the **Delete Every** option will not reduce the file size.

Configuring Graph Data Points

Configuring Graph Data Points

To configure graph data points to trend:

1. In order to configure a data point, the device from which the data will be read must be defined. See **Configure Devices** for details.
2. Select the **Setup/Data** menu option. The **Graph Data** dialog appears.



3. Use the buttons to access the configuration actions:
 - **Add Real Time Point:** Add a point that reflects the current state of the system, a point that will be read from a device while the trend is online.
 - **Add Logged Point:** Add a point that reflects the state of the system at some point in the past, reading data from a database created by FTLogger or FTTrend.
 - **Edit:** Change the configuration of the highlighted data point.
 - **Delete:** Delete the highlighted data point.

Configure a Real Time Data Point from a FasTrak Server

To configure a real time point from a FasTrak Server:

1. Select the **Setup/Data** menu option.
2. To create a new data point, click the **Add Real Time Point** button. To edit an existing point, select it in the list and click the **Edit** button. Either way, the **Data Point - Real Time** dialog appears.

- **PLC:** Select the device that was configured in the **device source configuration**.
- **OPC:** Select to choose a data point from an OPC server. (See **Configure a Real Time Data Point from an OPC Server** for details.)
- **Address:** Enter the address of the data point, or enter the tag below. If there is a tag for the address in the device documentation database, it appears below.
- **Tag:** Addresses can be specified by tag. To specify the address by tag, select the tag from the Tag drop-down list. The corresponding address appears in the field above.
- **Y-Axis:** Select the **Y-Axis** on which the point will be displayed.
- **Sample Rate:** Select the time unit and number to specify how often data for this point will be collected.

NOTE: Large amounts of data may not be read at the desired sample rate.

- **Data Type:** Select the data type (signed, unsigned, float, size) for the point.
- **Line Properties:** Set the line width and color for the trend line representing the data point.
- **Scaling:** To scale the data, check the **Scale Data** box and enter the appropriate **Min** and **Max** for the **Raw Data**, and the values to **Scale To**. For example, if the values at the specified address range from 0 to 32000, but the graph is on a scale of 0 to 100, set the Raw Data Min to 0, the Raw Data Max to 32000, the Scale To Min to 0, and the Scale To Max to 100.

Configure a Real Time Data Point from an OPC Server

To configure a real time point from an OPC Data Access Version 2.0 Server:

1. Select the **Setup/Data** menu option.
2. To create a new data point, click the **Add Real Time Point** button. To edit an existing point, select it in the list and click the **Edit** button. Either way, the **Data Point - Real Time** dialog appears.
3. Select the **OPC** option button. The modified **Data Point - Real Time** dialog appears.

- **Servers:** Select the OPC server from the drop-down list of locally registered servers.
- **OPC Tag:** Enter the OPC tag or click the **Get Tag** button to select a tag. (See **OPC Tag** for details.)
- **Y-Axis:** Select the **Y-Axis** on which the point will be displayed.
- **Sample Rate:** Select the time unit and number to specify how often data for this point will be collected.

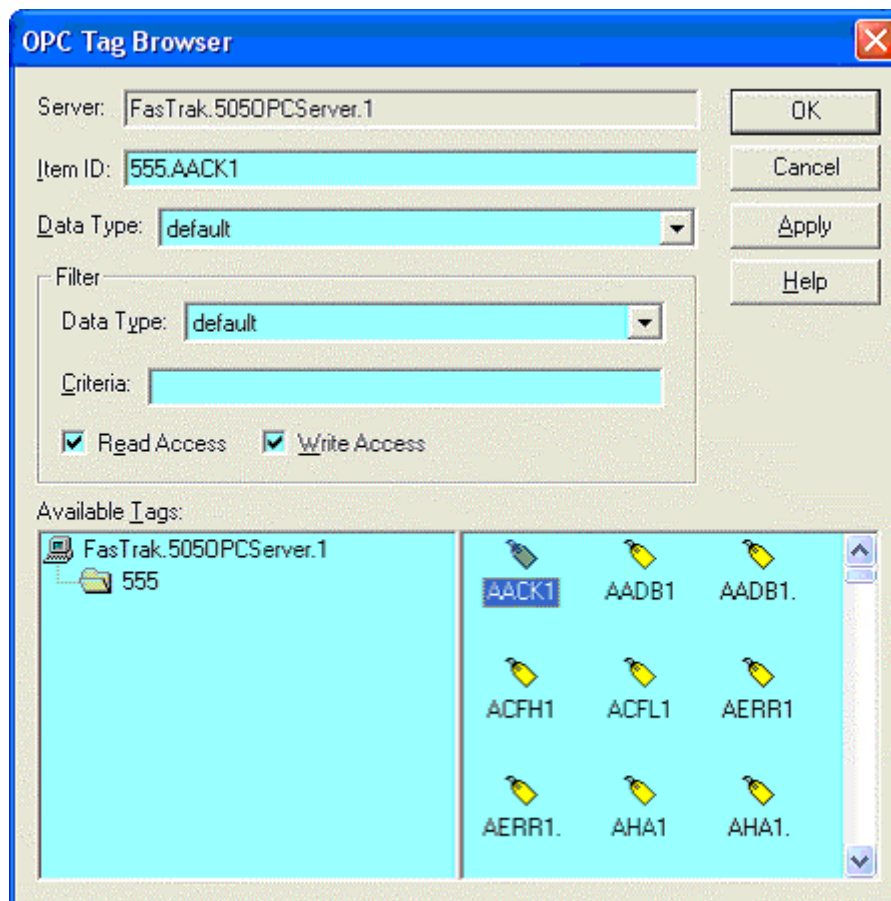
NOTE: Large amounts of data may not be read at the desired sample rate.

- **Data Type:** Select the data type for the point. There are 13 types to choose from including default, byte, short, float, etc.
- **Line Properties:** Set the line width and color for the trend line representing the data point.
- **Scaling:** To scale the data, check the **Scale Data** box and enter the appropriate **Min** and **Max** for the **Raw Data**, and the values to **Scale To**. For example, if the values at the specified address range from 0 to 32000, but the graph is on a scale of 0 to 100, set the Raw Data Min to 0, the Raw Data Max to 32000, the Scale To Min to 0, and the Scale To Max to 100.

OPC Tag

Use the **OPC Tag Browser** to select a tag.

From the modified **Data Point-Real Time** dialog, click to **Get Tag** button. The **OPC Tag Browser** dialog appears.



- **Server:** Lists the server that was selected in the **Data Point - Real Time** dialog.
- **Item ID:** Identifies the tag. Select from the **Available Tags** pane or manually enter or modify.
- **Data Type:** There are 13 different data types to choose from, which will affect how the value is displayed in the graph. The default will display the canonical (native) data type.
- **Filter:** Controls which tags display in the **Available Tags** pane.

Configure a Logged Data Point

To configure a logged point:

1. Select the **Setup/Data** menu option.
2. To create a new logged data point, click the **Add Logged Point** button. To edit an existing point, select it in the list and click the **Edit** button. Either way, the **Data Point - Logged** dialog appears.

- **Database Select:** Select the database containing the logged data. The data must be logged by FTLogger in a row-based database, or by FTTrend.
 - **Microsoft Access:** To select 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.
 - **Other Database:** To select the database in a format other than Microsoft Access (currently, **SQL** is the only option) select the **Other Database** option button and click the **Select** button to configure the **Data Link Properties**.
- **PLC:** When logging, the data for each device is stored in a separate table. The name of the table is the name of the device. For OPC, the table name matches the name of the log sheet. Select the table/device name here.

- **Address:** Select the address of the data point. If there is a corresponding tag for the address in the log file, it will automatically be selected in the **Tag Combo** box.
- **Tag:** Addresses can be specified by tag. To specify the address by tag, select the tag from the Tag drop-down list. The corresponding address in the log file will automatically be selected in the **Address Combo** box.
- **Y-Axis:** Select the **Y-Axis** on which the point will be displayed.
- **Time Offset:** Time Offset allows you to offset the time stamp in the database to line up with the current time. This is useful if the user would like to see data trend animation as if it was currently being read from a PLC. For example, If real-time data starts logging at 1 p.m., and logged data started at 11:00 a.m., enter '2' in the 'Hours' edit box to synchronize the time. A time offset is not necessary if the address is currently being logged to the log file via FTLogger.
- **Line Properties:** Set the line width and color for the trend line representing the data point.
- **Search for Spanned Log Files:** FTLogger can be configured to log data to a series of spanned files, instead of one large file. If this box is checked, FTTrend uses data from the series of spanned files. The data appears as one continuous trend.
The selected log file must be the original FTLogger database file, not one of the span files.


Cut, Copy, Paste and Undo

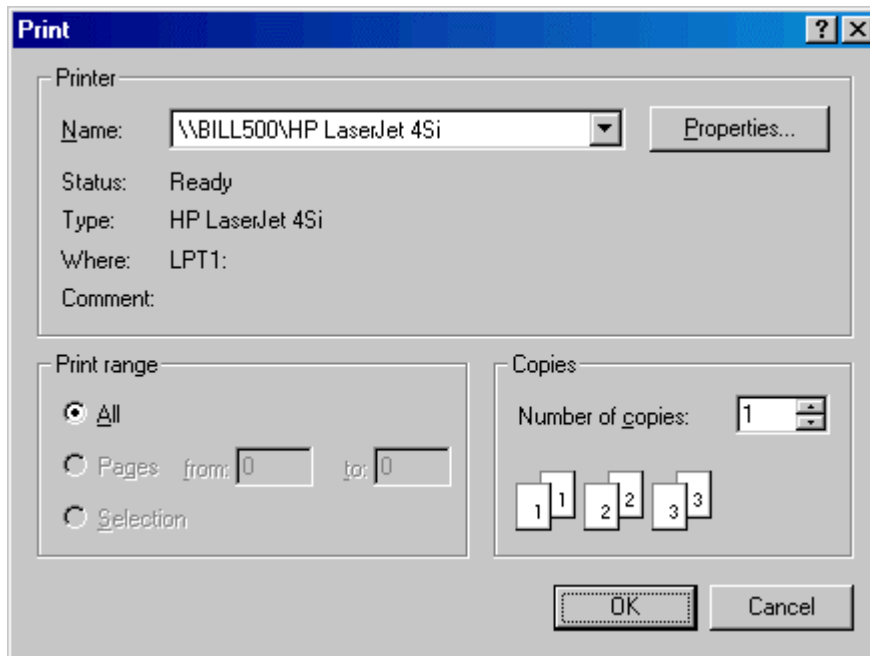
Cut, **Copy**, **Paste** and **Undo** can be performed on trend text selection boxes only. The menu items can be found under the main **Edit** menu along with hot keys. Alternative hotkeys **Shift-Delete**, **Ctrl-Insert**, and **Shift-Insert** are supported for Cut, Copy, and Paste respectively.

Cut, Copy, and Paste will observe highlighted text.

Print

To print a graph:

1. If there are multiple graphs, select the graph to be printed.
2. Select the **File/Print** menu option or click the corresponding toolbar button: 



3. A standard Windows print dialog (which varies depending on your system) appears. Select the printer and configure any other print options as appropriate, then click **OK**.

Command Line Options

/Online

The command line option **/online**, together with a filename, can be used to load a file and immediately go online.

For example, if FTTrend is started using the command line

```
FTTrend.exe demo.trn /online
```

the file "Demo.trn" will be loaded and the mode will be set to **Online**. Files that are loaded without this option will be loaded in offline mode.

For example, if FTTrend is started using the command line

```
FTTrend.exe demo.trn
```

the file "Demo.trn" will be loaded and the mode will be set to **Offline**.

/readonly

The command line option **/readonly** restricts FTTrend to viewing trend history (.TRH) files. When FTTrend is started with the **/readonly** option, security key checks are not performed. The user will not need a security key, and no demo messages will be displayed.

The **/readonly** option can be used with or without a .TRH file. For example, if the command line is

```
FTTrend.exe demo.trh /readonly
```

the file "demo.trh" will be loaded, and FTTrend will not allow the user to open any regular trend (.TRN) files. If the command line is

```
FTTrend.exe /readonly
```

no file will be loaded, but FTTrend will allow the user to open only trend history (.TRH) files.

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ControlShop™

FTAlarm

Version 4.03

By FasTrak SoftWorks, Inc.

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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

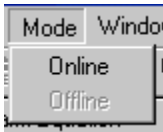
FTAlarm has two modes: online and offline.

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

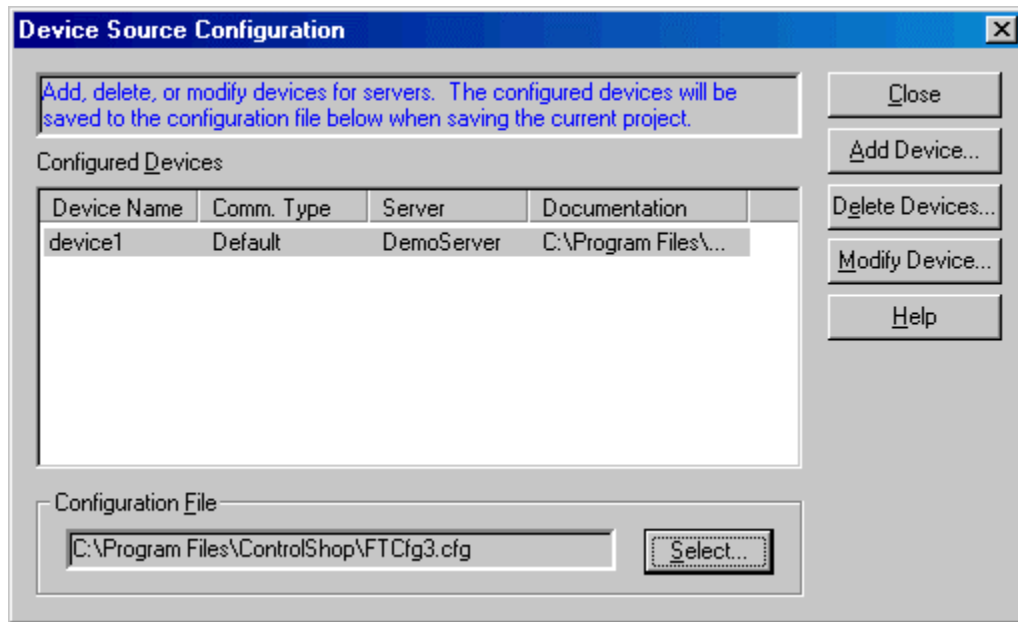
The **Device Source Configuration** dialog allows you to configure the devices from which data points are read using FasTrak servers. (Configuration of OPC servers is dependent on each OPC manufacturer.)

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.




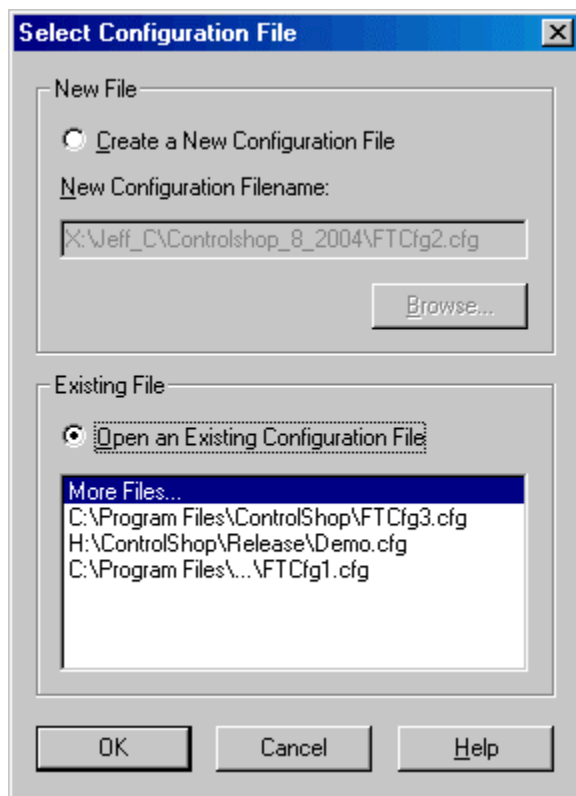
2. Click the following buttons to access configuration options:
 - **Add Device:** Add a new device to the list.
 - **Delete Devices:** Delete the configuration for a highlighted device.
 - **Modify Device:** Edit the highlighted device configuration.
3. Click the **Select** button to select the configuration 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.




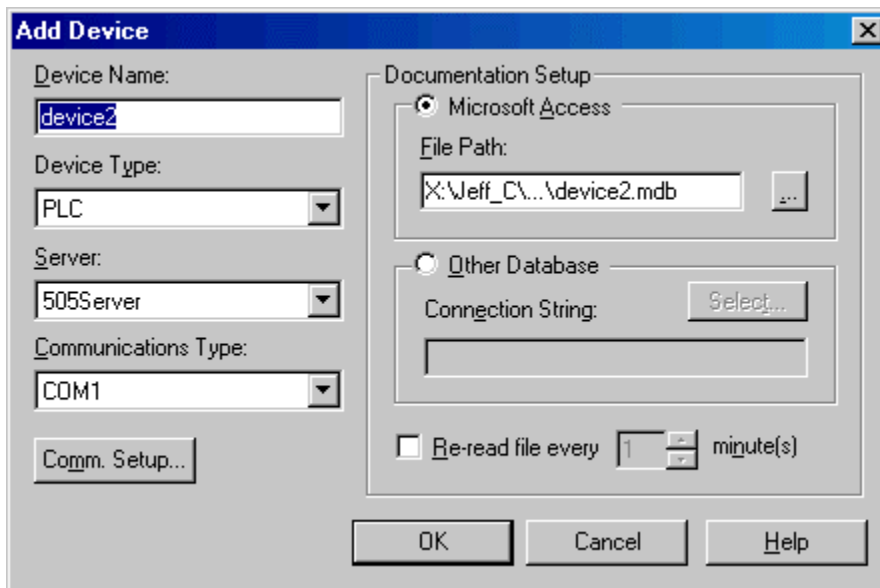
3. Save the current configuration to a file or load a saved configuration.
 - **New File:** To create a new configuration file, select the **Create a New Configuration File** option button, and click the **Browse** button to browse for the new file name and location.
 - **Existing File:** To select an 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.

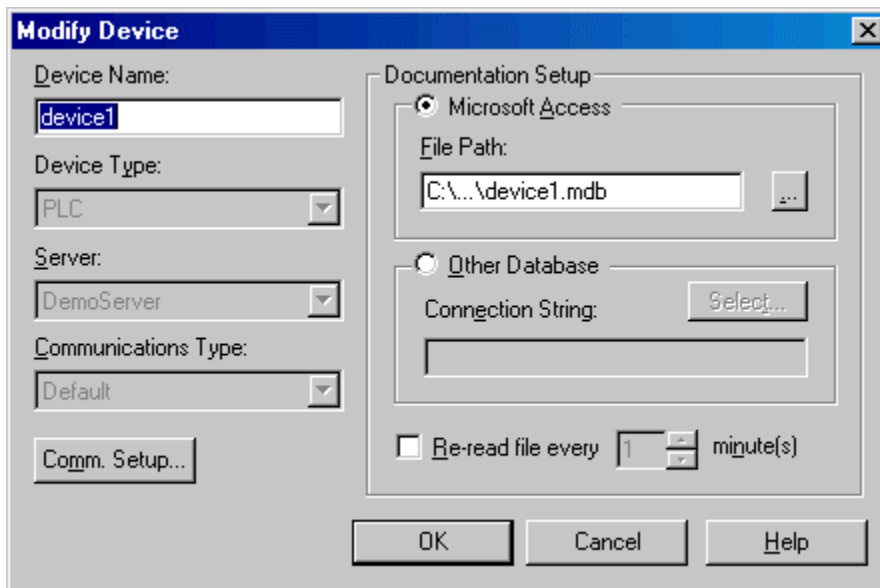
- **Re-read file every:** This option should only be selected when sharing the database with other applications, and only if the database is under development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be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

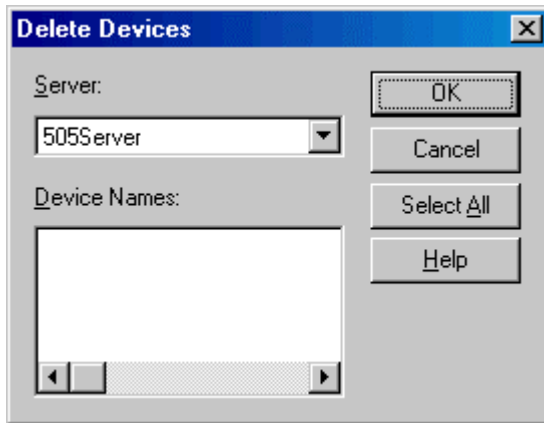
development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be checked for changes.

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.

The screenshot shows the 'Communication Setup' dialog box with the following settings:

Comm. Type:	COM1
Response I.D. (sec):	6
Retries:	3
Dial Modem:	NO
Modem Baud Rate:	9600
Telephone Dialing:	Tone
Modem Force NITP:	YES
Initialization Command:	
Number to Dial:	
Use TIWAY:	NO
MHU/HIU Address:	0
Maximum Secondary:	254
TIWAY Secondary:	1

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

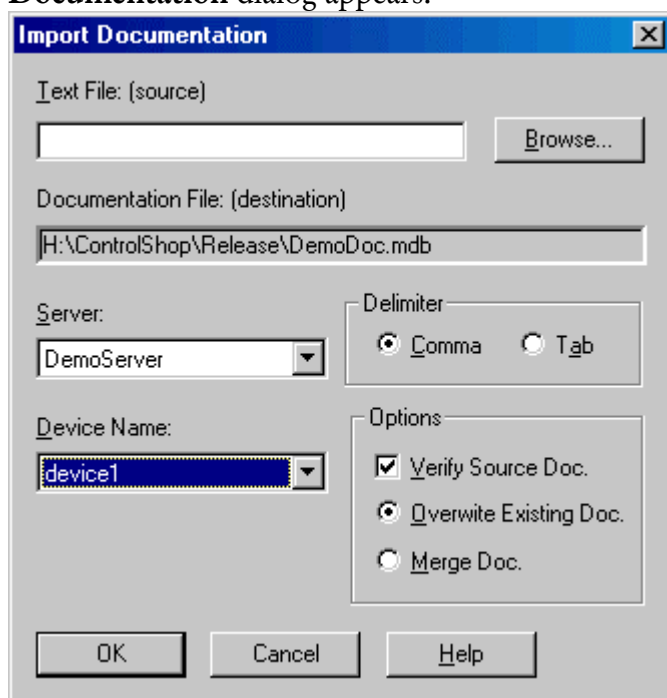
Importing / Exporting Documentation

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.

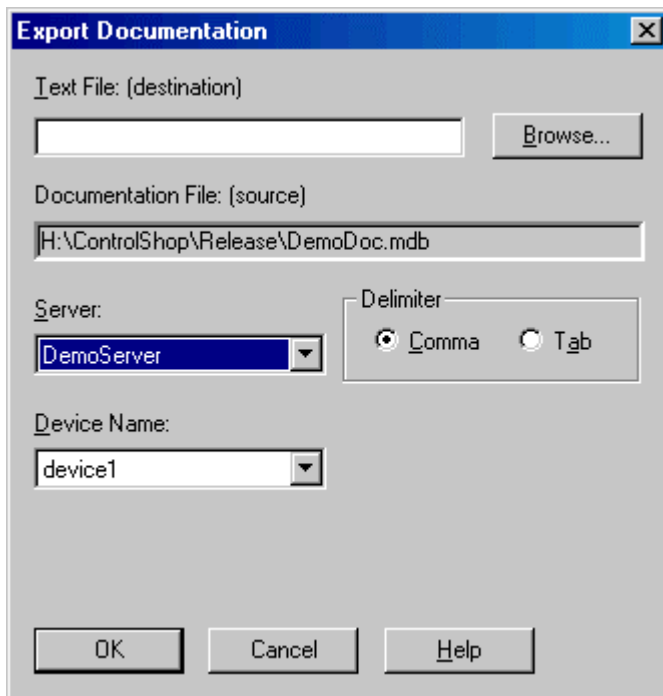
7. Set the **Options** as desired:
 - **Verify Source Doc:** Select the check box to verify tags, addresses, and the source file format. Clear the box for a faster import process.
 - **Overwrite Existing Doc:** When this option is selected, the database is cleared, so the imported documentation is the 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.

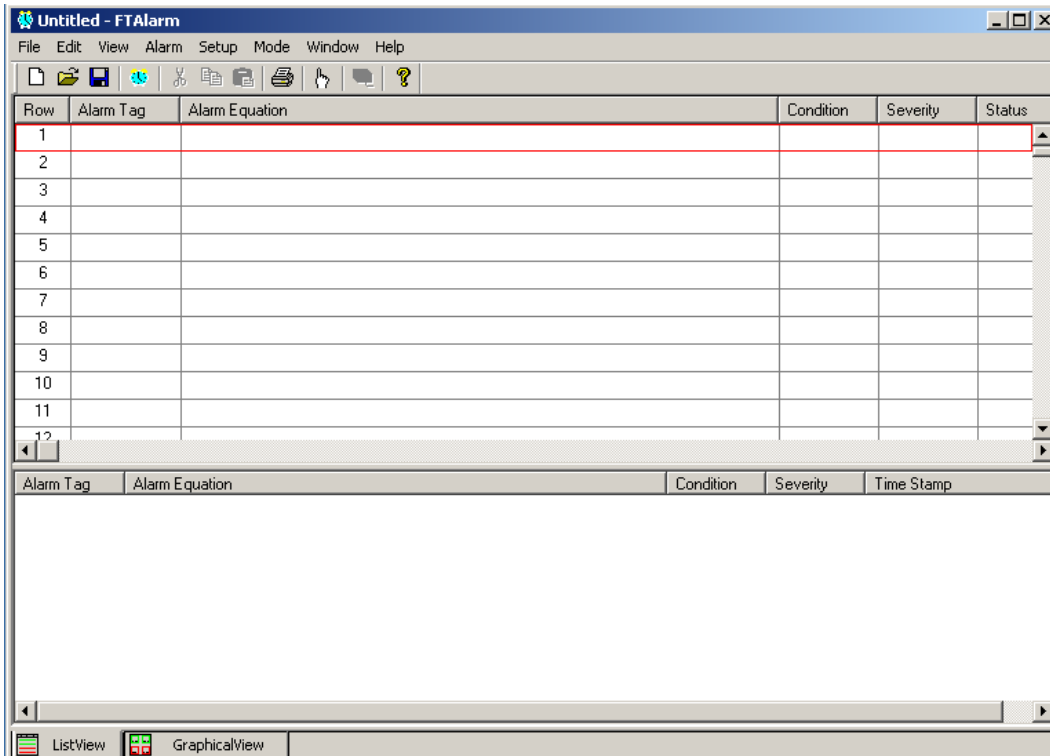


2. Select the destination file by typing in the **Text File (destination)** field or by clicking the **Browse** button.
3. Select the communication **Server** for the device. The list shows servers that are registered on the computer.
4. Select the **Device Name**. The list shows device configuration 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.

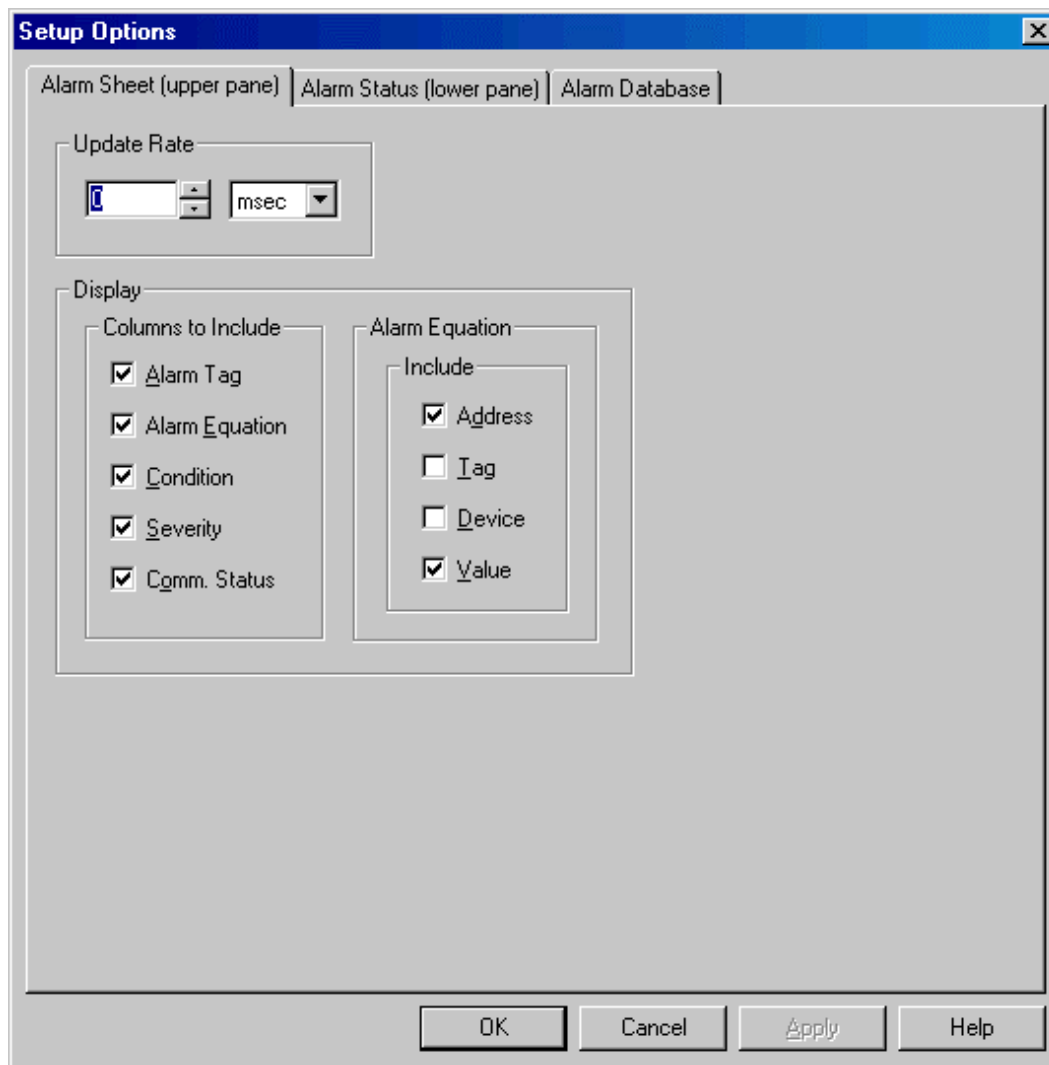


Setup Options

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.

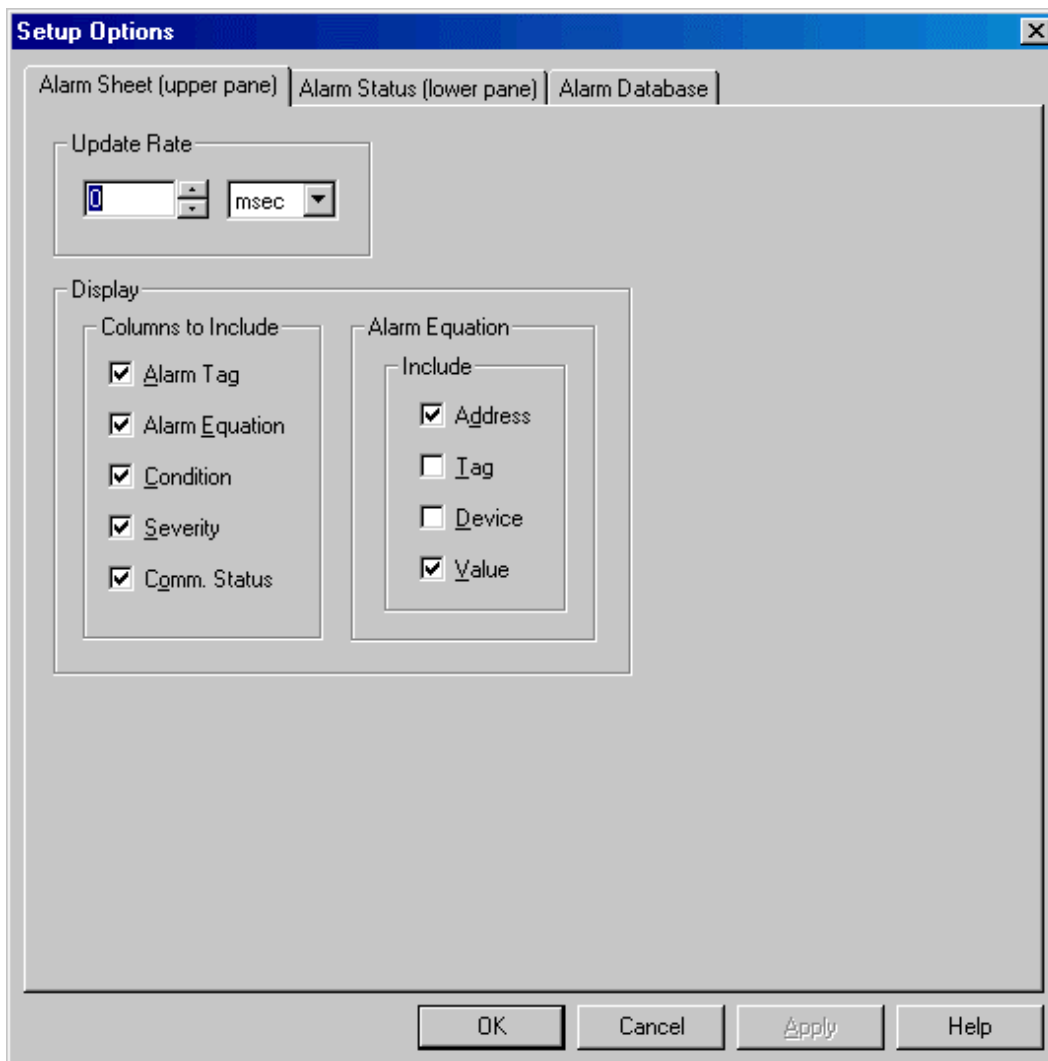
(See **Alarm Sheet Columns** for details on the information shown for each alarm event.)

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.


Alarm Tag	Alarm Equation	Condition	Severity	Time Stamp
Siemens 5...	0.990607 F32 > 0.99	Triggered	High	10:54:24.514 AM 10/04/04
Siemens 5...	0.989358 F32 > 0.99	Normal	None	10:53:22.254 AM 10/04/04
Siemens 5...	0.991038 F32 > 0.99	Triggered	High	10:53:19.380 AM 10/04/04
Siemens 5...	0.98889 F32 > 0.99	Normal	None	10:52:17.631 AM 10/04/04
Siemens 5...	0.990105 F32 > 0.99	Triggered	High	10:52:14.676 AM 10/04/04
Siemens 5...	0.857299 F32 > 0.99	Normal	None	10:52:10.570 AM 10/04/04
Modicon/A...	N7:5 / 100 > 400011	Offline	None	11:03:12.632 AM 10/04/04
Modicon/A...	0 U16 / 100 > -0.486906 F32	Triggered	Low	11:01:51.046 AM 10/04/04
Modicon/A...	N7:5 / 100 > 400011	Offline	None	10:55:28.576 AM 10/04/04
Modicon/A...	96 U16 / 100 > 0.957836 F32	Triggered	Low	10:53:38.848 AM 10/04/04
Modicon/A...	95 U16 / 100 > 0.952767 F32	Normal	None	10:53:38.237 AM 10/04/04
Modicon/A...	90 U16 / 100 > 0.893997 F32	Triggered	Low	10:53:32.539 AM 10/04/04
Modicon/A...	89 U16 / 100 > 0.893646 F32	Normal	None	10:53:31.547 AM 10/04/04
Modicon/A...	83 U16 / 100 > 0.820909 F32	Triggered	Low	10:53:26.239 AM 10/04/04
Modicon/A...	82 U16 / 100 > 0.824088 F32	Normal	None	10:53:24.988 AM 10/04/04
Modicon/A...	77 U16 / 100 > 0.76421 F32	Triggered	Low	10:53:19.871 AM 10/04/04

ListView GraphicalView

OFFLINE DVR

- 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.

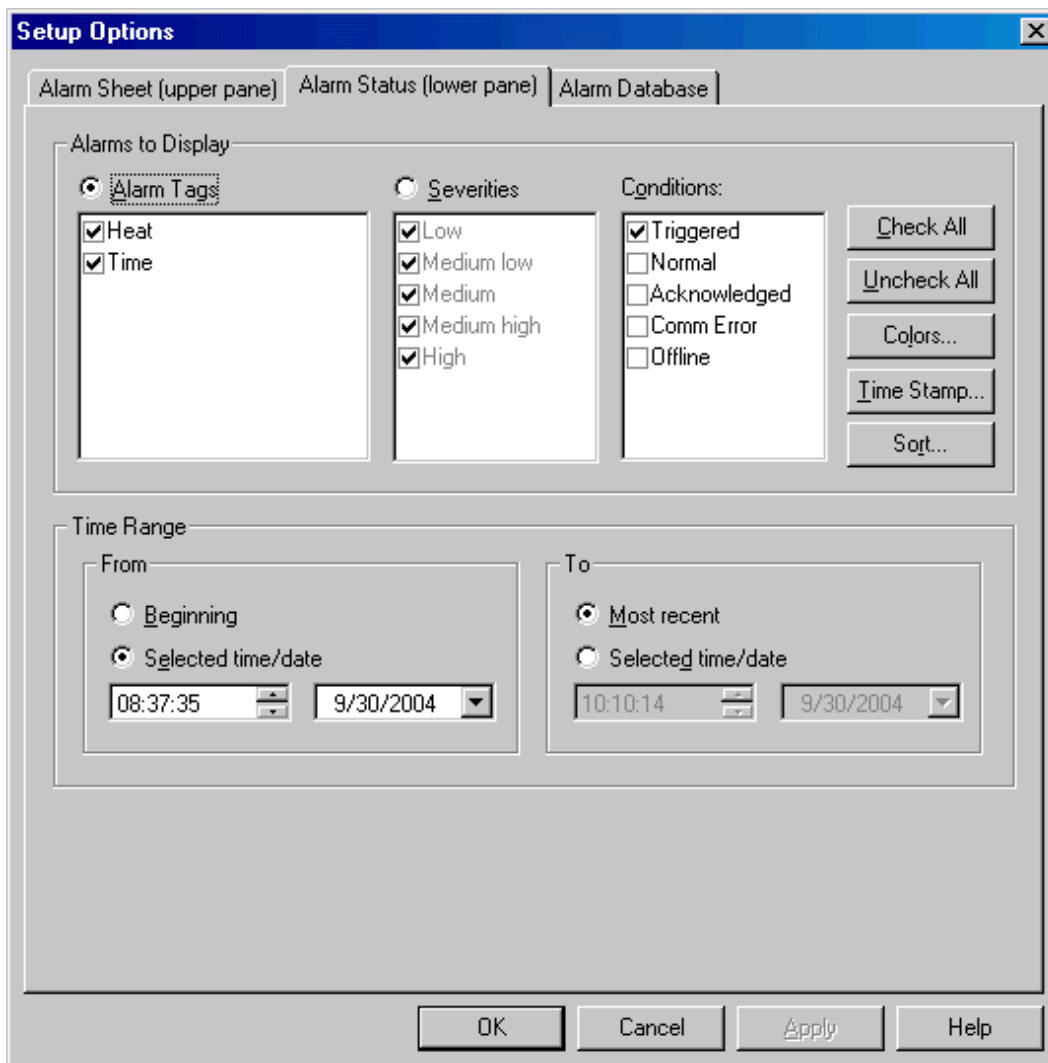
(See **Alarm Status Columns** for details on the information shown for each alarm event.)

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:

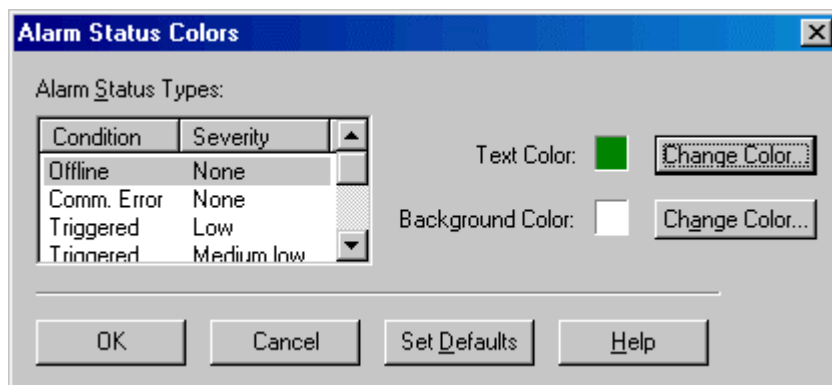
- **Alarm Tag:** The **Alarm Tag** is the string that identifies the alarm equation.
- **Alarm Equation:** The **Alarm Equation** determines when an alarm condition exists. When the alarm equation evaluates to **TRUE**, the alarm is triggered. When the condition is **Normal** or **Triggered**, addresses 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:

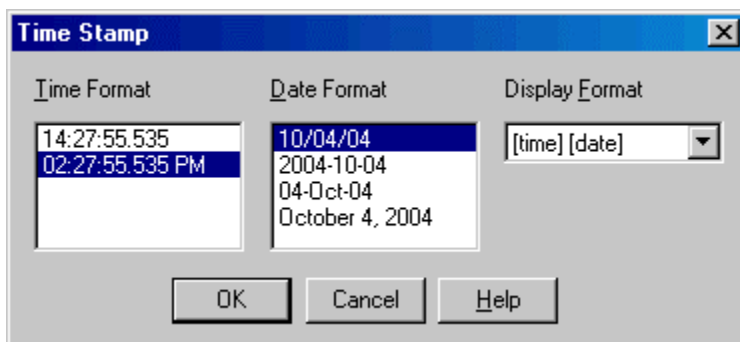
ALARM Condition	ALARM Severity	Color
Normal	None	Green
Offline	None	Green
Comm. Error	None	Blue
Triggered	Low	Blue
Triggered	Medium low	Yellow
Triggered	Medium	Purple
Triggered	Medium high	Orange
Triggered	High	Red

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.



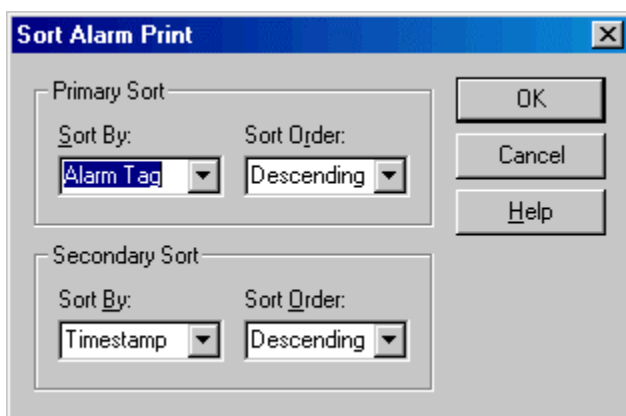
4. Configure the following options and click **OK**.
 - **Time Format:** Select between 24 hour (military) and 12 hour (AM/PM) time.
 - **Date Format:** Select the display format for the date.
 - **Display Format:** Select whether to display date, time, both date and time, and the order in which these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



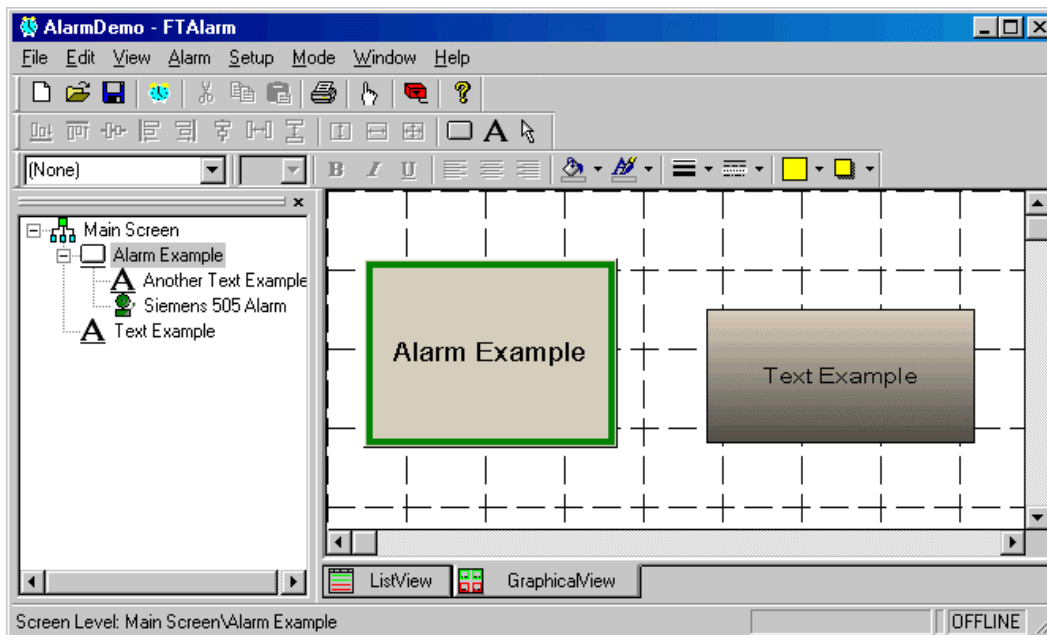
4. Configure the following options and click **OK**.
 - **Primary Sort:** The primary sort is the main sort order.
 - **Secondary Sort:** When several items have the same primary sort value, those items are sorted by a secondary value. For example, if the primary sort is condition, and the secondary 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.

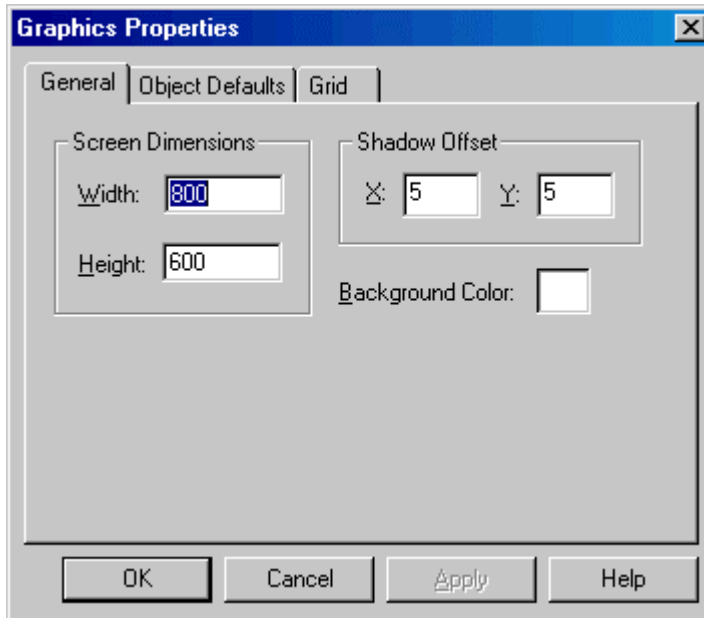
A tree view shows all the buttons, text, and levels. Alarms in the tree view are color-coded to show the alarm status.

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.



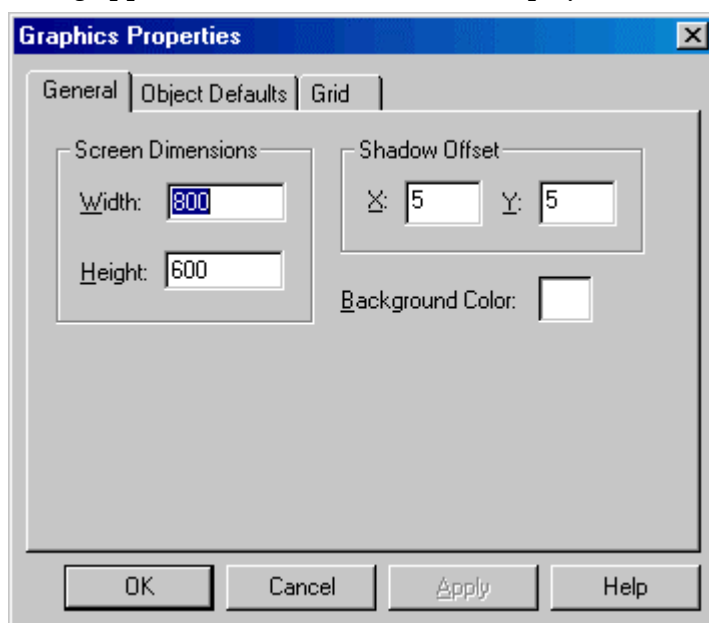
2. Configure graphics properties within the following tabs and click **OK**.
 - **General:** Configure options that apply to the graphical view in general.
 - **Object Defaults:** Configure initial settings for newly created graphic objects.
 - **Grid:** Configure the grid used in design mode to help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



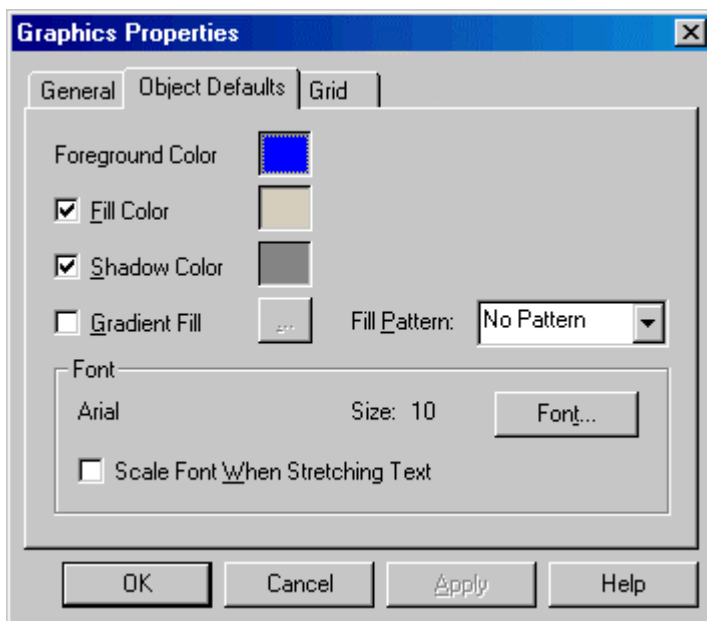
2. Configure the following options and click **OK**.
 - **Screen Dimensions:** Set the size in **pixels** for the graphical view's virtual screen. This is the size of the area on which graphic objects can be placed and not necessarily the size of the physical screen. If the virtual screen is larger than 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.

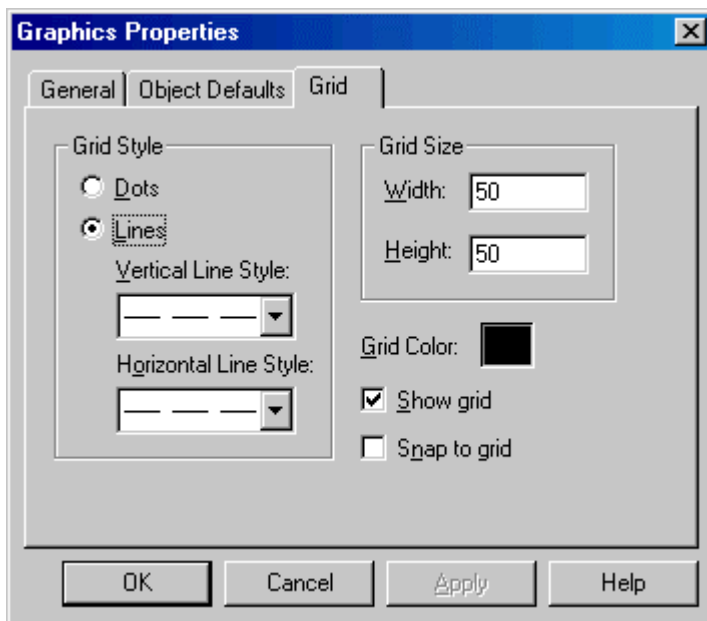
- **Font:** Click the **Font** button to access a standard font specification dialog.
 - If the **Scale Font When Stretching Text** check box is selected, text can be resized by dragging the handles on the text.

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 **A** 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



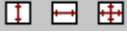
As with most Windows software, objects can be moved by clicking on the interior of the object and dragging. Objects can be sized by clicking and dragging on the handles.

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:

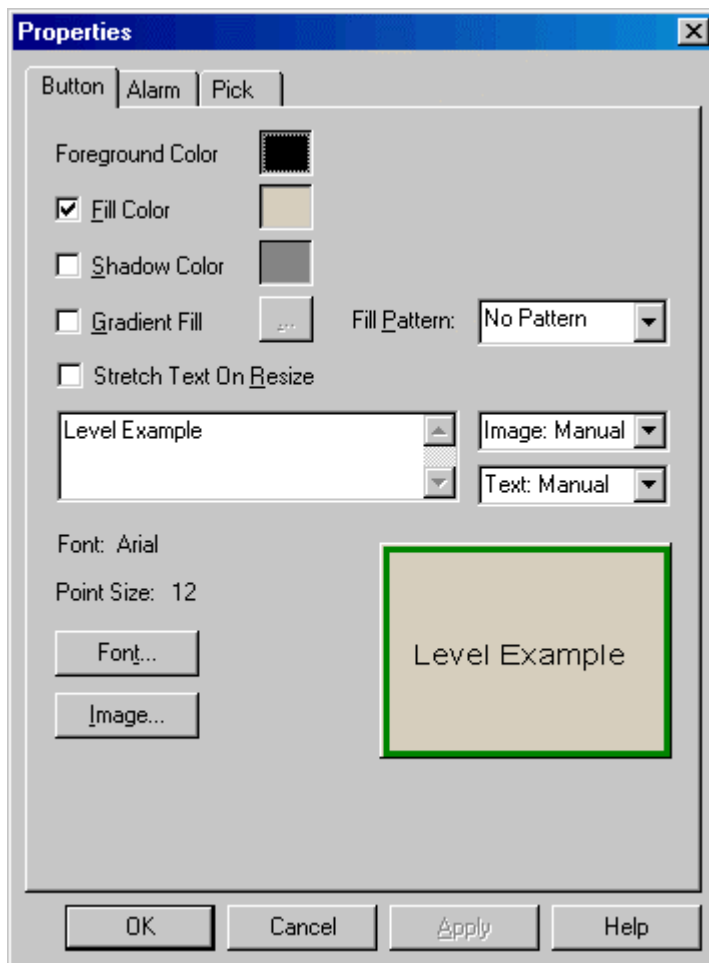
- Right-click on the button that represents it and select the **Next Level** option.
- On the tree view, click on an item in the level.

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.



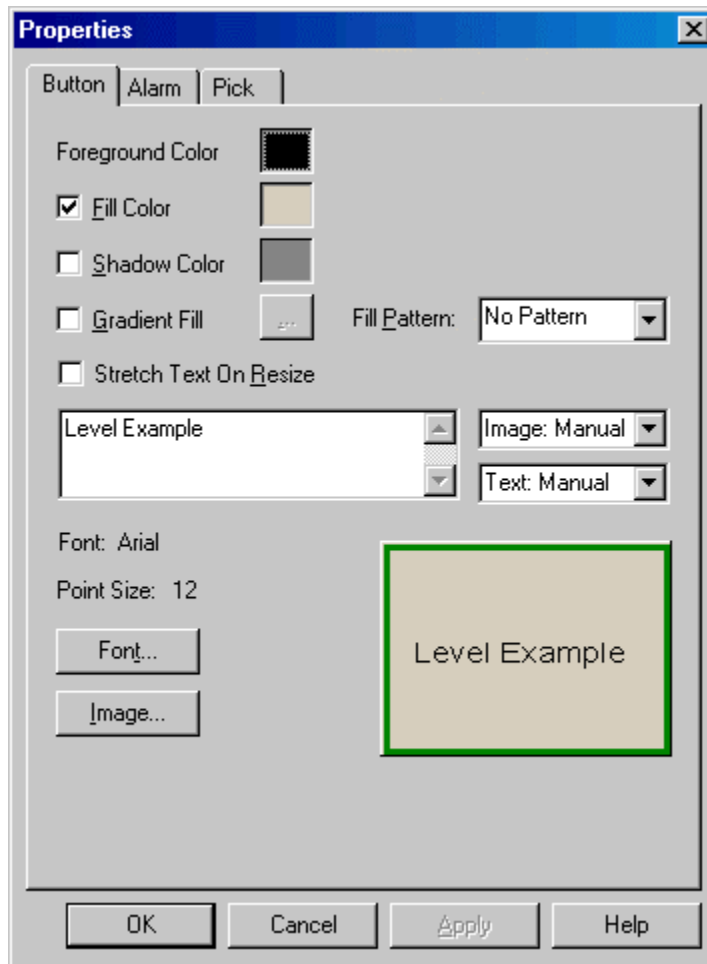
3. Configure button properties within the following tabs and click **OK**.
 - **Button:** Configure the appearance of the button.
 - **Alarm:** Configure the alarm or level parameters for the button.
 - **Pick:** Configure the action that occurs when a button is clicked.

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.

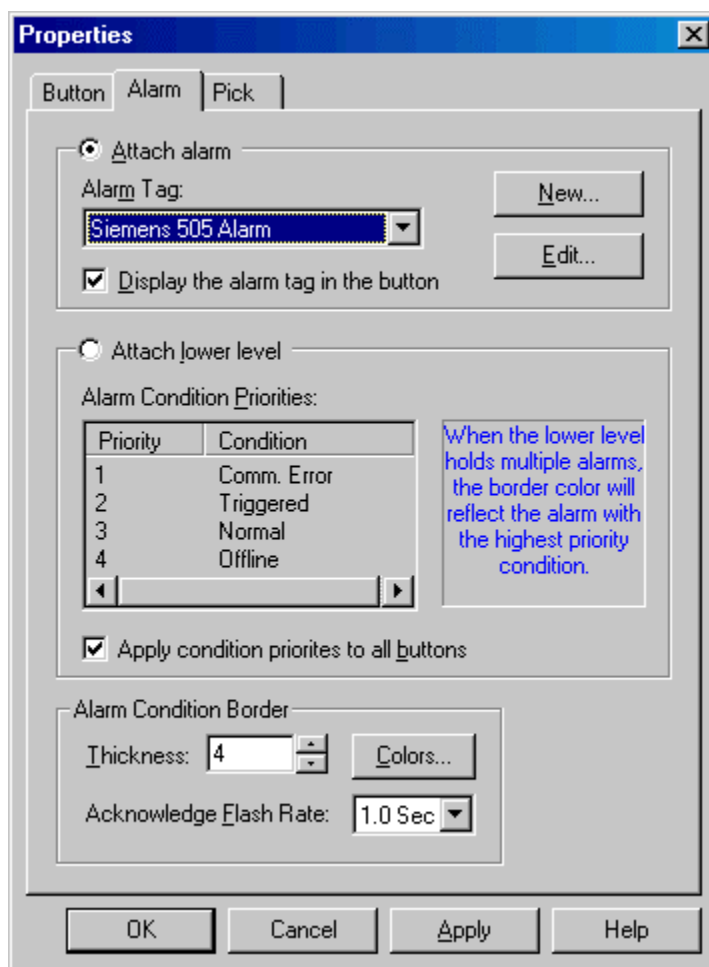
- **Image:** Click the **Image** button to browse for a graphic file (*.BMP, *.DIB, *.WMF, *.EMF) to appear on the button.

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.

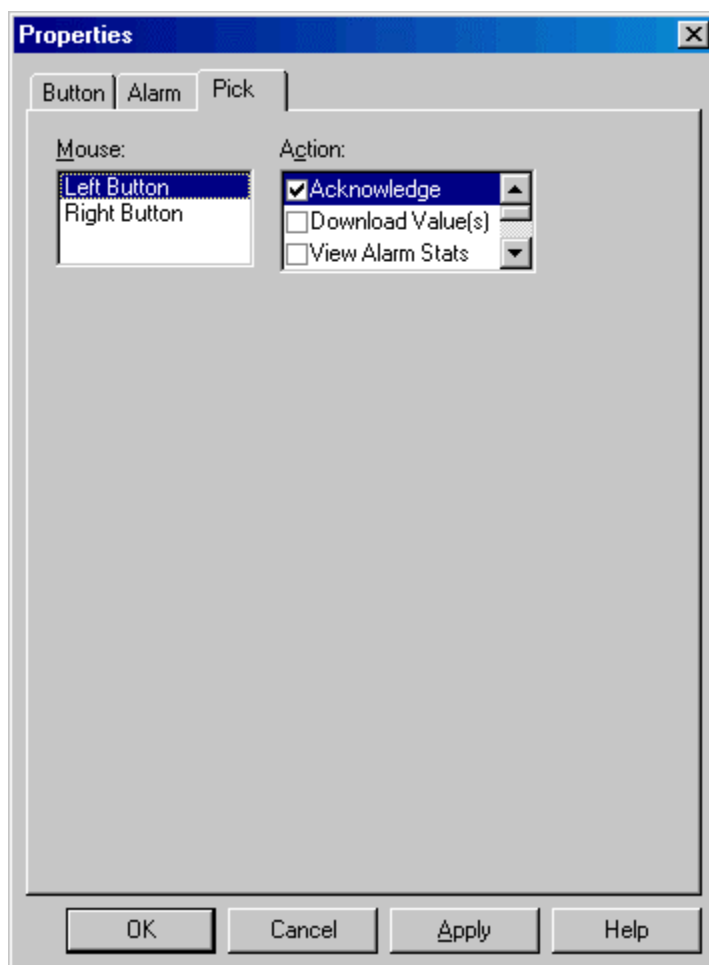
- **Edit:** Click the **Edit** button to edit the selected alarm in the **Edit Alarm** dialog.
- **Attach lower level:** Select the **Attach lower level** option button to configure the button to represent a **level**.
 - **Alarm Condition Priorities:** The button represents a level, which may include 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:

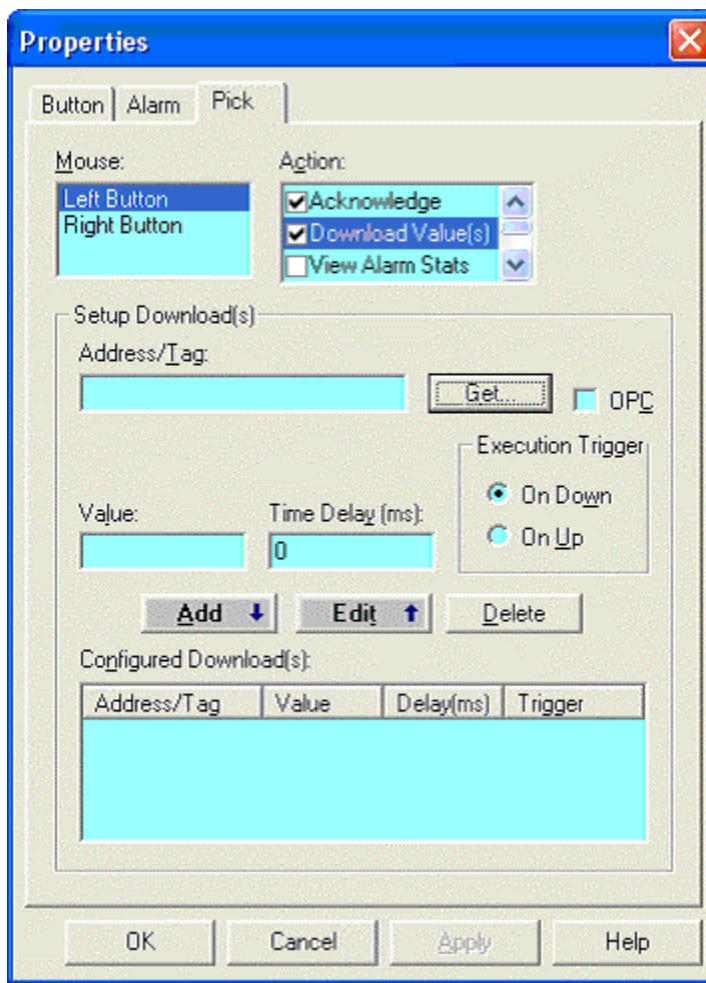
1. Within the **Graphical View** window, right-click the button, either in the graphic screen or in the tree view, and select the **Properties** option. The **Properties** dialog appears.
2. Click the **Pick** tab.



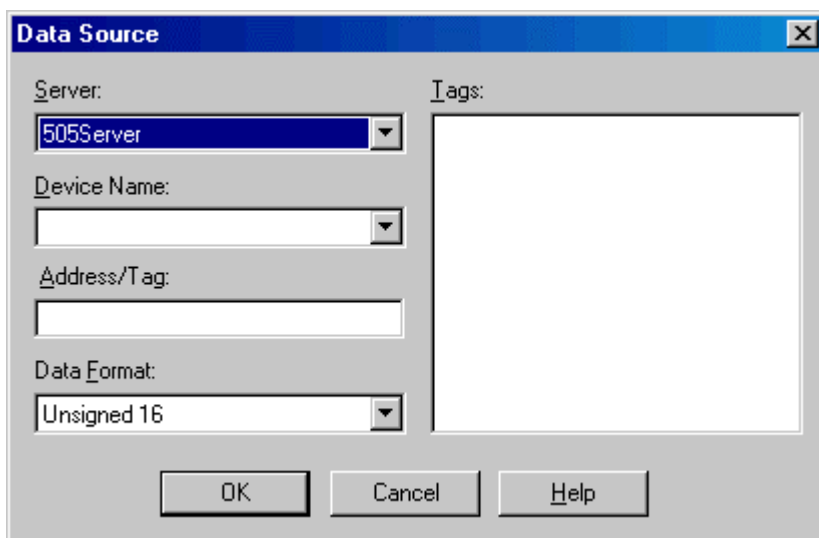
3. Configure the following options and click **OK**.
 - **Mouse:** Select the mouse button that you are configuring.
 - **Action:** Select the check boxes for the actions to be performed when the user clicks the selected mouse button. Some actions require additional configuration. When one of those actions 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:



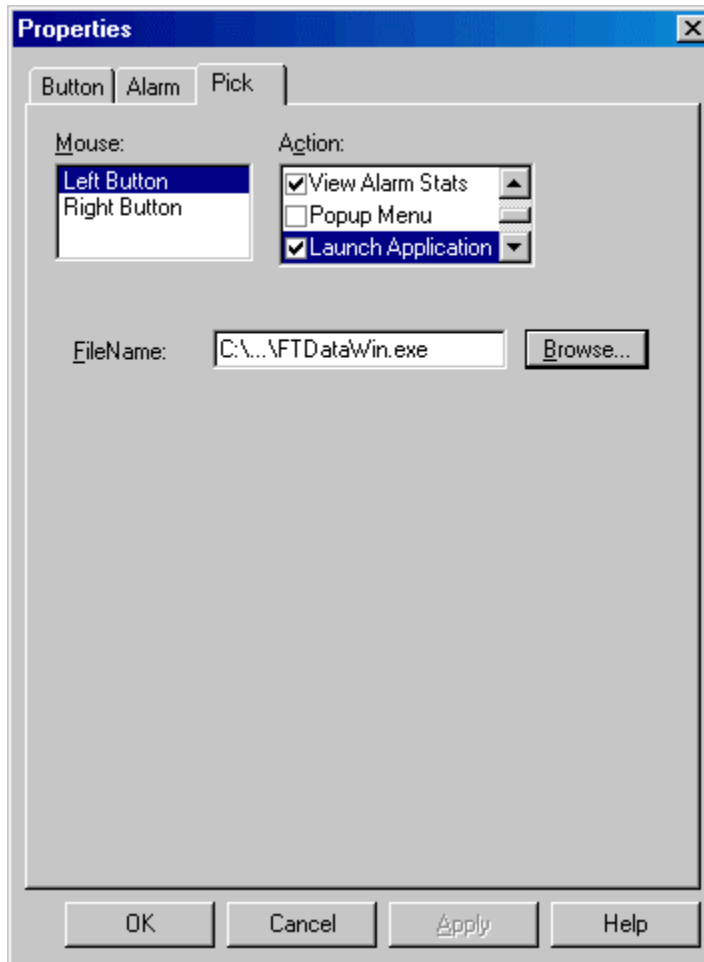
- **Address/Tag:** Select the **OPC** check box to choose an OPC tag or leave the box unchecked to choose a FasTrak register.
 - **FasTrak Register:** Enter the **FasTrak register** where the value is to be downloaded or click the **Get...** button to choose a FasTrak register from a pre-configured device.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



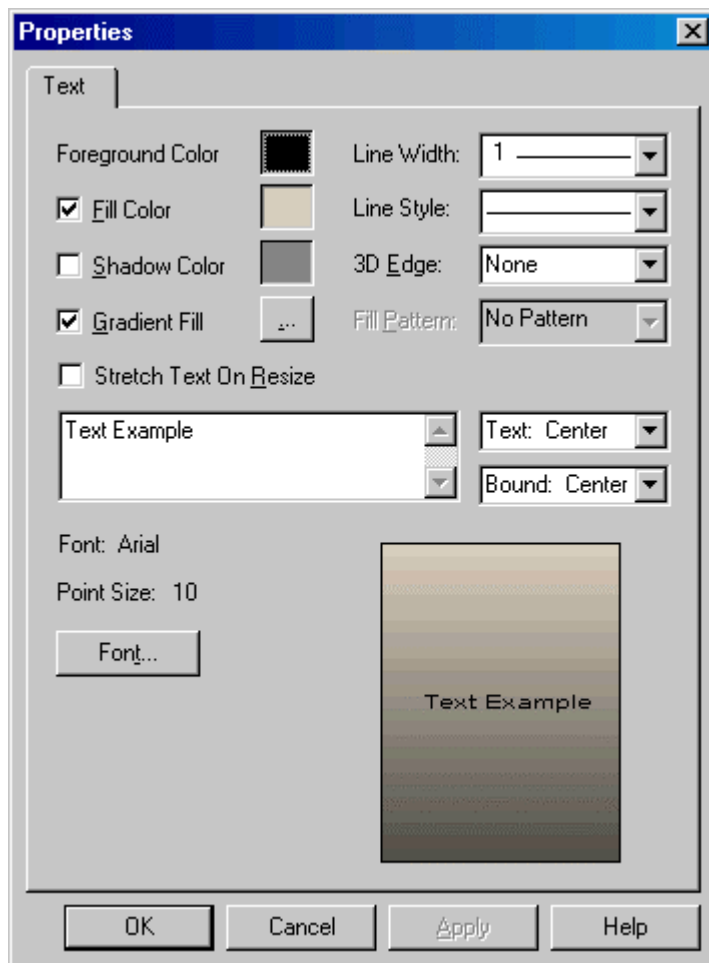
- Type the path and file name of the application to be launched, or click the **Browse** button to browse for the application.

Configuring Text Object Properties

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

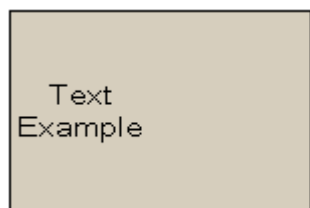
To configure text objects:

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.

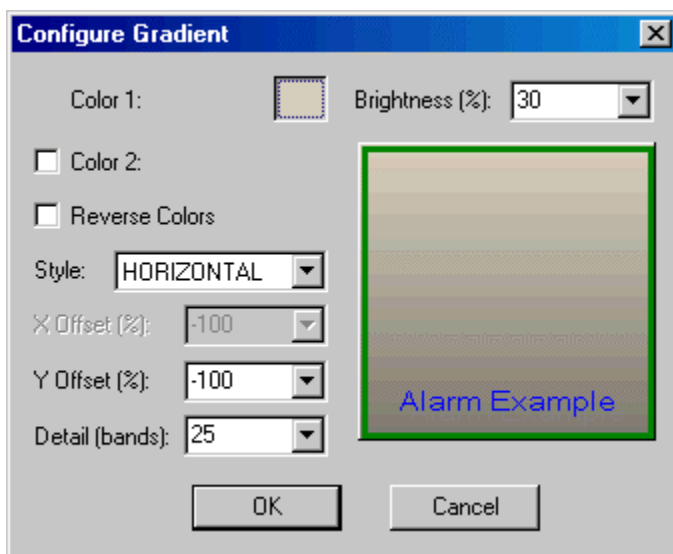
NOTE: The **foreground color** selected overrides the font color.

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.



- **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:



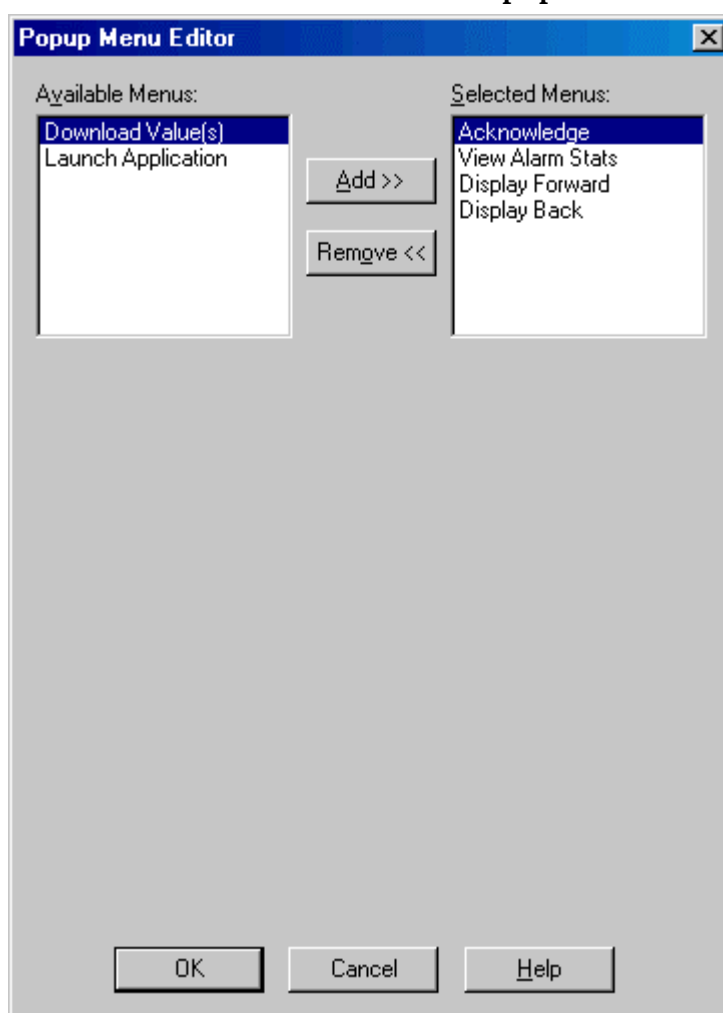
- **Detail (bands):** From the drop-down menu, select the number of bands the gradient will include to configure just how smooth the transition is. A higher number will produce a smoother transition.

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.

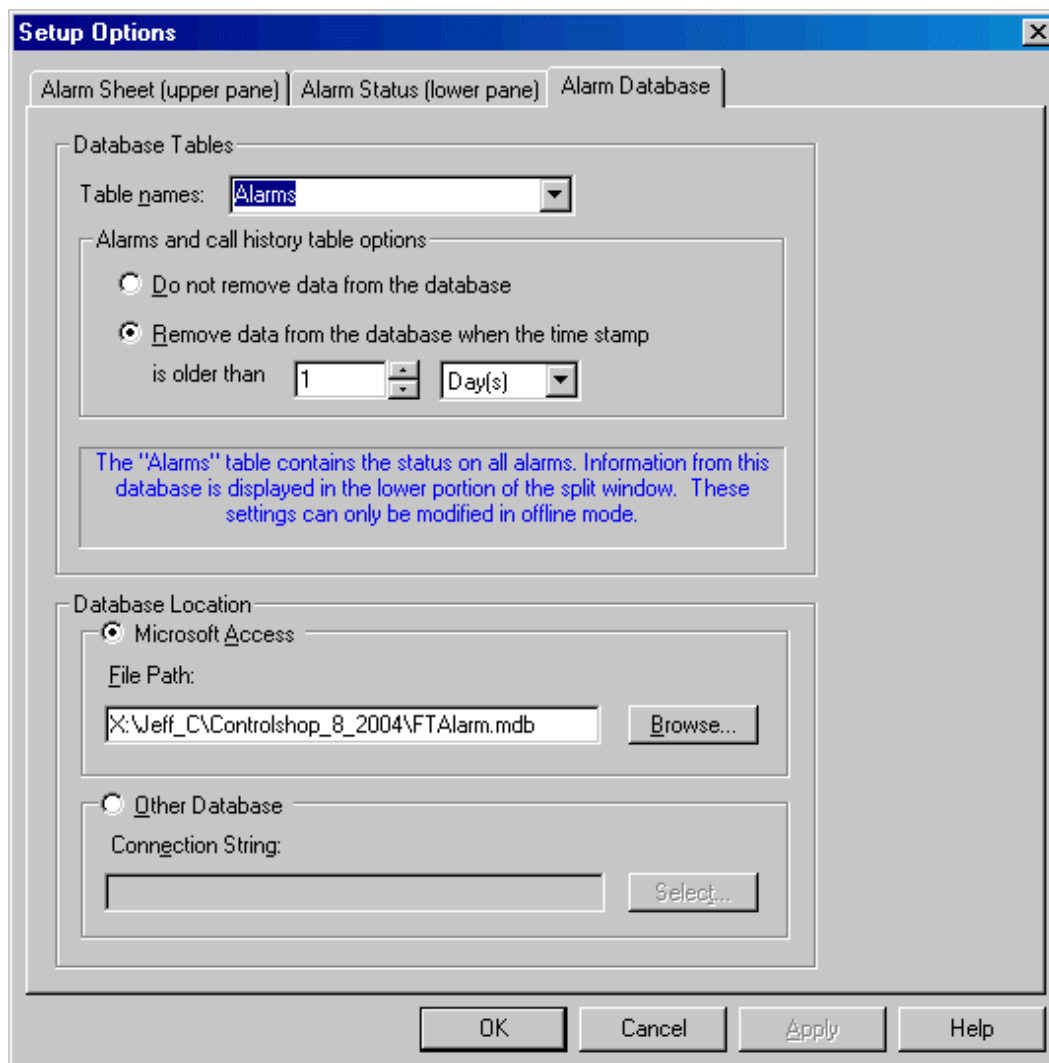
- **Severity:** Severity level is **None** when the alarm is not triggered. When the alarm is triggered, the severity level is that which has been specified by the user when the alarm was configured. The options are **Low**, **Medium low**, **Medium**, **Medium high**, or **High**.
- **Time Stamp:**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

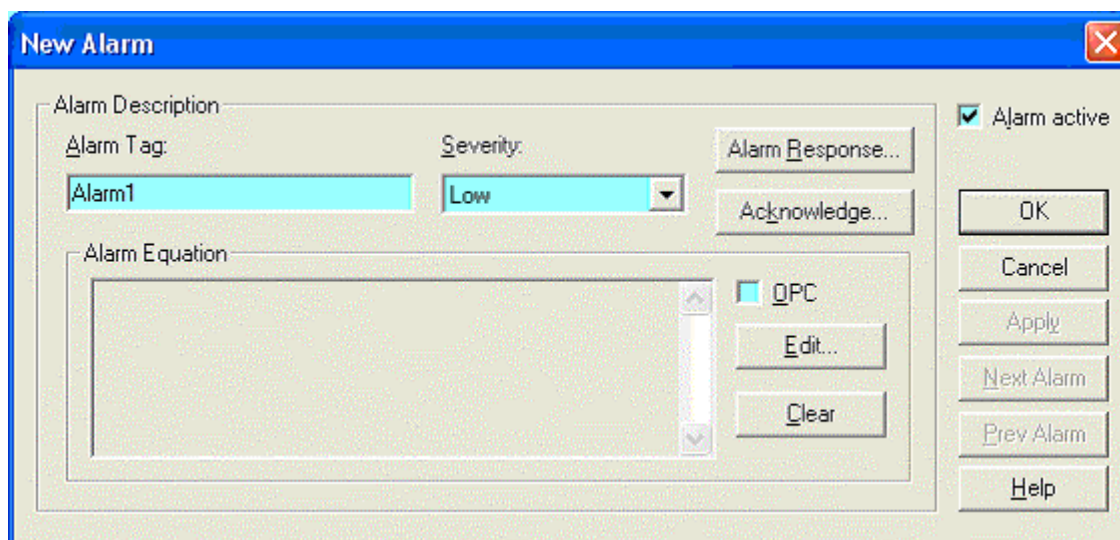
- **OutCalls:** The **OutCalls** table records calls that FTAlarm makes to report alarms. See **Pager/Phone** for details.
- **InCalls:** The **InCalls** table records call-in activity by a remote user.
- **Alarms and call history table options:** Use these settings to configure automatic deletion of 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.

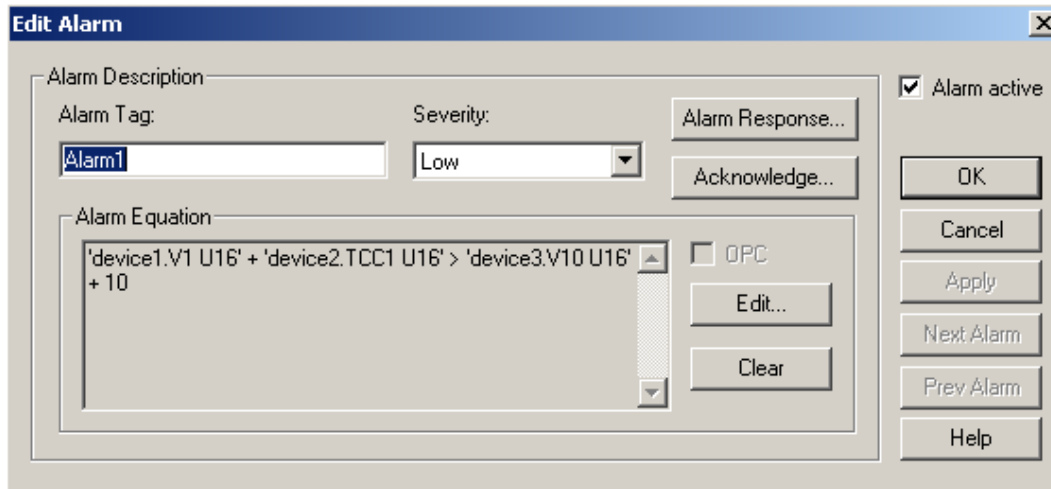
- **OPC:** Select the **OPC** check box to select an address from an OPC Data Access Standard (Version 2.05 or below) communication server.
- **Edit:** Click the **Edit** button to add an alarm equation or edit the existing alarm equation. (See **Setting an Alarm Expression**.)
- **Clear:** When an expression 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.

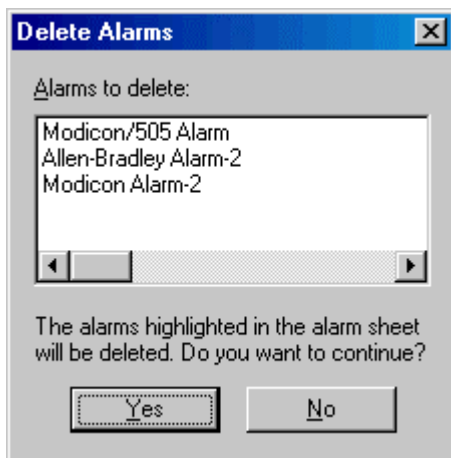
- **OPC:** Select the **OPC** check box to select an address from an OPC Data Access Standard Version 2.0 communication server.
- **Edit:** Click the **Edit** button to edit the alarm equation. (See **Setting an Alarm Expression**.)

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]

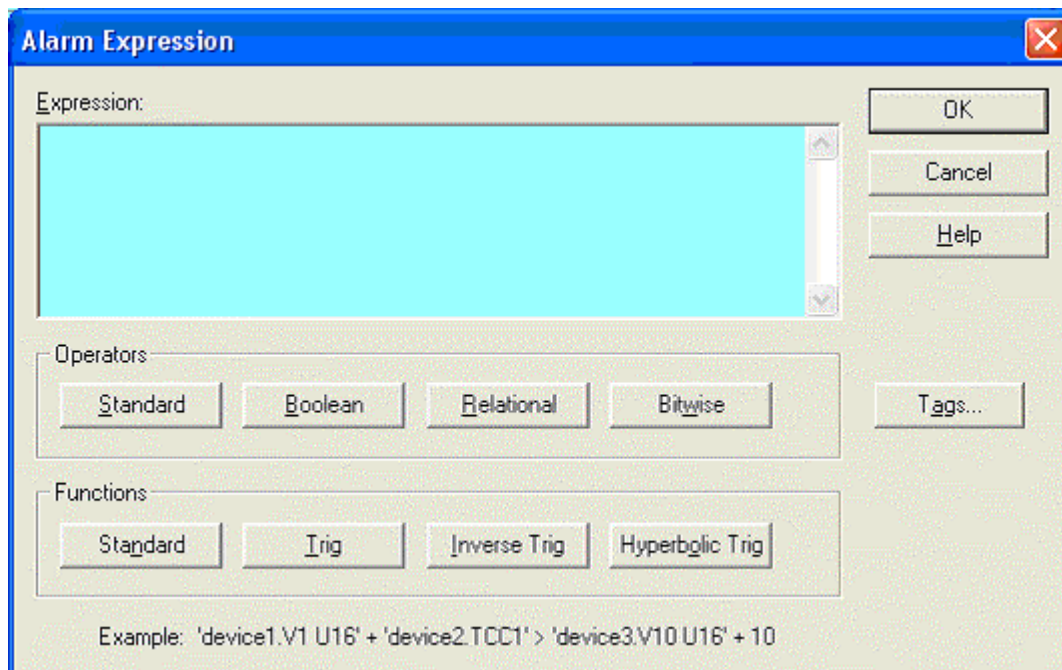
Alarm Details

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 drop 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)					

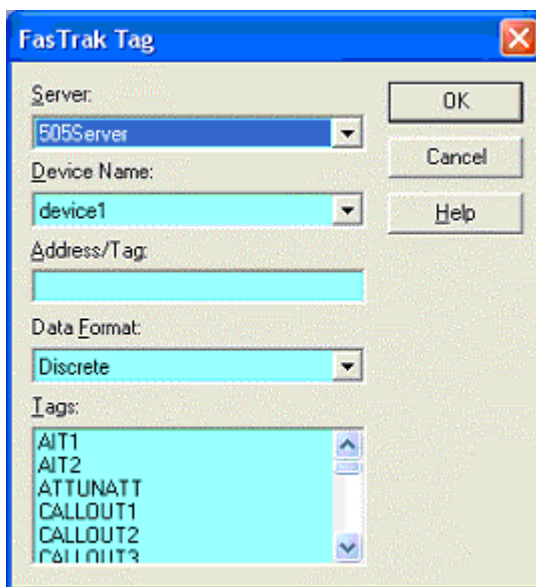
Standard Operators	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
^	Power
-	Unary sign
(
)	
Boolean Operators	
!	Not
&&	And
	Or
==	Equal To
!=	Not Equal To
<=	Less Than Or Equal To
>=	Greater Than Or Equal To
>	Greater Than
<	Less Than
?:	If (condition1) return(condition2)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



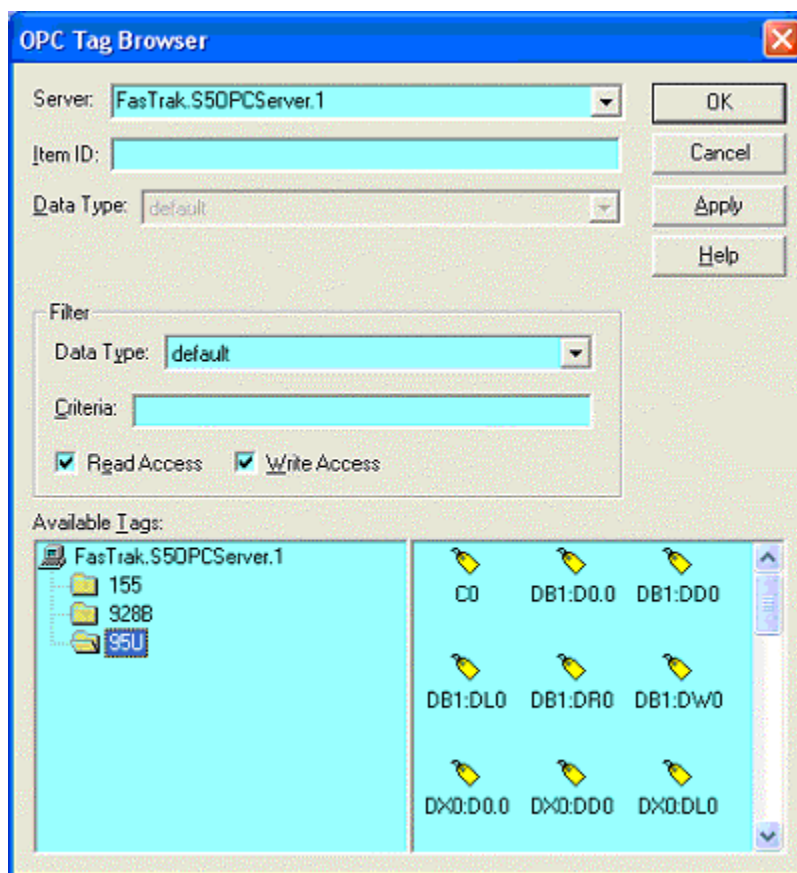
4. Configure the following options and click **OK**.
 - **Server:** Lists the FasTrak server that the current Alarm Sheet is attached to.
 - **Device Name:** Choose from the list of devices that the current Alarm Sheet is attached to.
 - **Address/Tag:** Manually enter an address or tag from a selected 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.

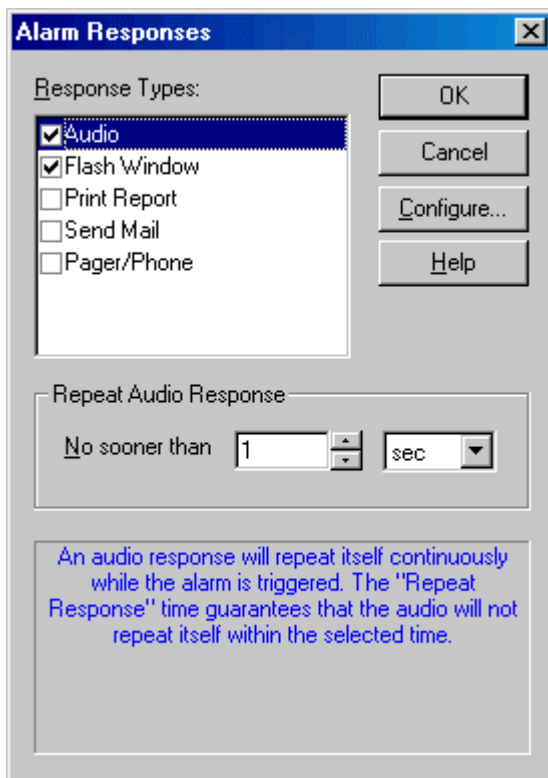
Alarm Response

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.

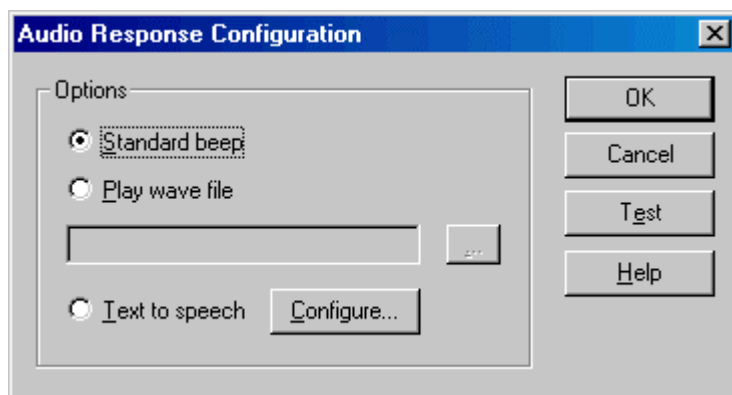
- **Pager/Phone:** Call and/or page one or more recipients after an alarm has been triggered.
- **Configure:** When a response type check box is selected, clicking the **Configure** button accesses the configuration dialog for that response. There is no configuration dialog for **Flash Window**.
- **Repeat 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.

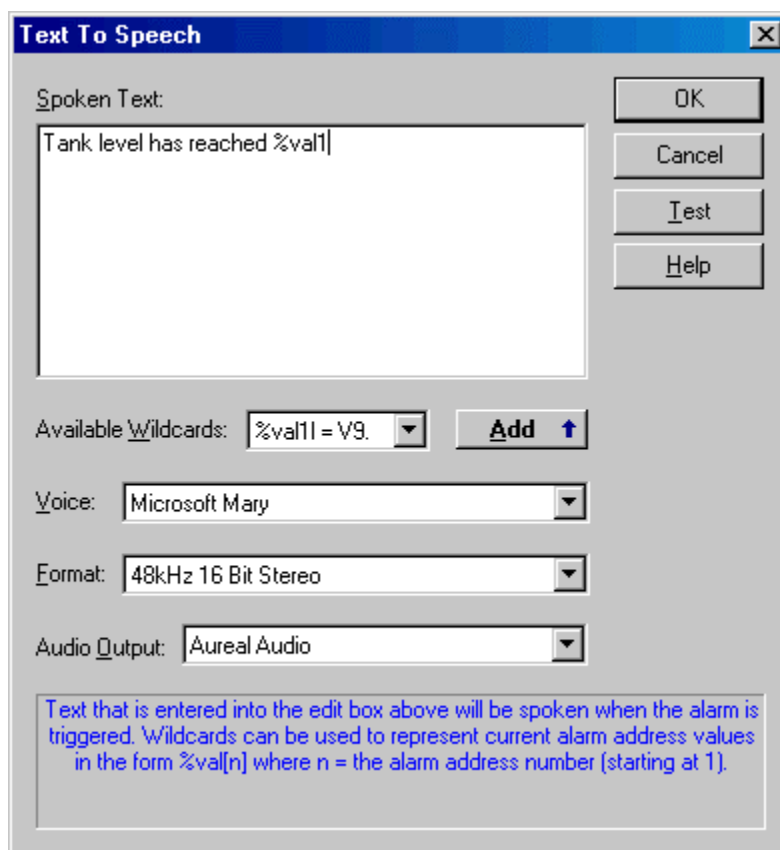
All the sounds repeat until the alarm is acknowledged. Use the **Repeat Audio Response** control on the **Alarm Response** dialog to control how frequently the sound is repeated while the alarm is triggered.

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

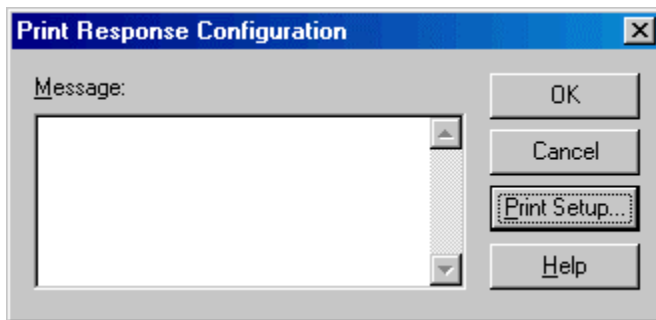
- spoken text, select the wildcard from the drop-down list and click the **Add** button.
- **Voice:** Select the speaking voice from the **Voice** drop-down list. Options include one female and two male voices.
 - **Format:** Select the sound output format from the **Format** drop-down list.
 - **Audio 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

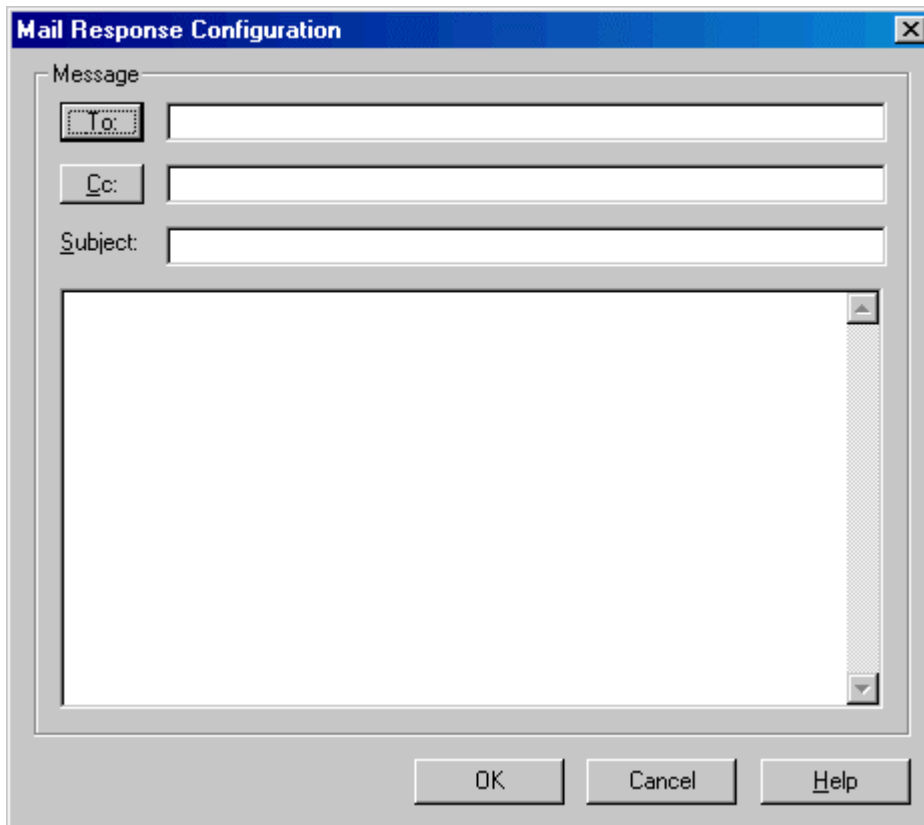
FTAlarm can be configured to send an email (via Microsoft Outlook or Outlook Express) when an alarm is triggered.

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.



The screenshot shows the "Mail Response Configuration" dialog box. It has a title bar with the text "Mail Response Configuration" and a close button (X). The dialog is divided into a "Message" section and a bottom control section. The "Message" section contains three text input fields: "To:" (with a dotted border), "Cc:", and "Subject:". Below these fields is a large, empty text area with a vertical scrollbar on the right side. At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

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.

The screenshot shows the 'Pager/Phone Setup' dialog box. At the top, there's a 'Line To Use' section with a dropdown menu currently set to 'Line 4:IPCONF LINE' and a 'Properties...' button. To the right are 'OK', 'Cancel', and 'Help' buttons, and below them are 'Options...' and 'Contacts...' buttons. The main area is divided into 'Configure Recipient' and 'Message' sections. 'Configure Recipient' has fields for Name, Number, Service Type (set to 'Static'), and Condition (set to 'Call in addition to previous number'). 'Message' has fields for Type, File Path (with a 'Browse...' button), and Recipient Response Timeout (sec.). Below these are 'Add' and 'Edit' buttons. At the bottom is the 'Recipients' section, which includes a table with columns for Contact Name, Number, Service Type, and Condition. To the right of the table are buttons for 'Move Up', 'Move Down', 'Import...', and 'Delete'.

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.

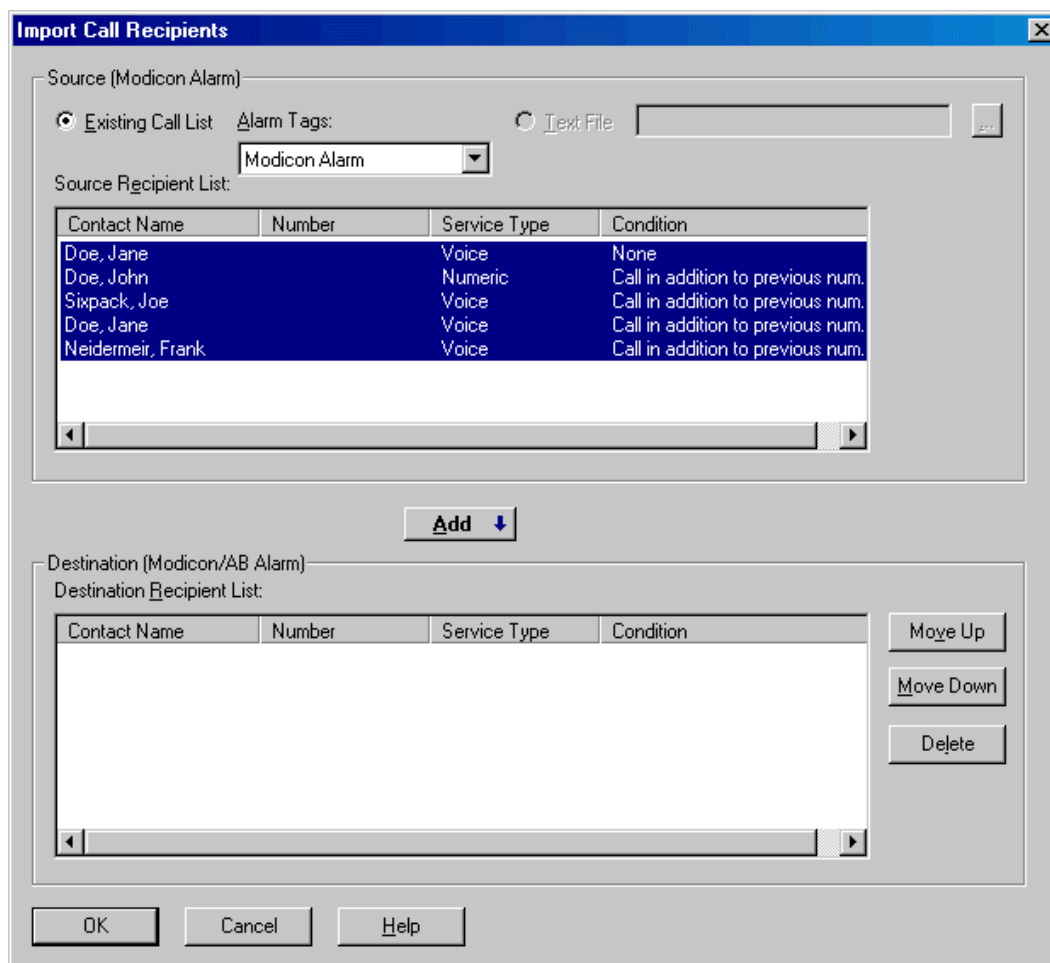
- Press **3** to insert a colon character.
- Press **4** to insert a space character.
- Selecting 1-4 will insert the character into the address or value. The user can then resume entering further digits via the method above. When finished entering an address or value, the user must select the **#**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

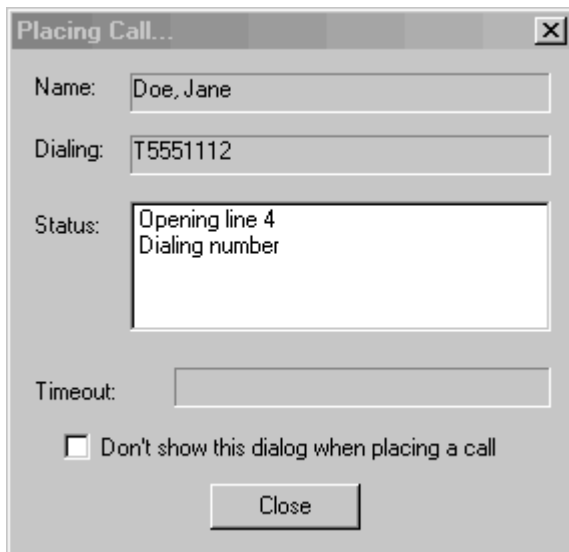
To configure whether call status dialogs will be displayed:

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.

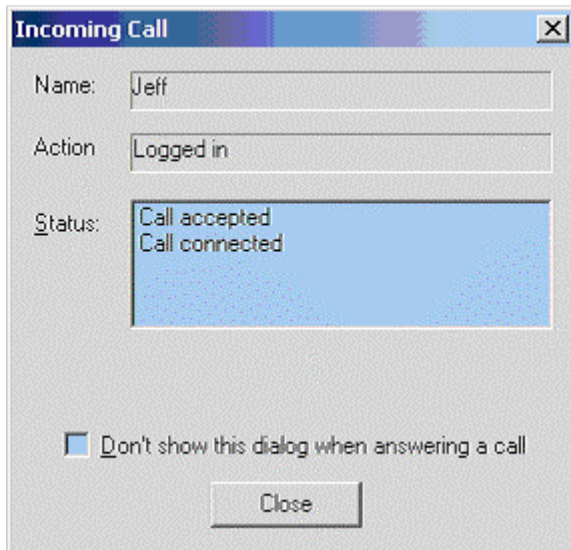
Outgoing Call



- 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.

Contacts

New Contact

Name

Last: Doe First: Jane

Calling information

Country: United States of America (1)

Area Code: 414 Use country and area code

Phone Number: 555-1112 Service Type: Voice

Add ↓ Edit ↑

Available Contacts

Last Name	First Name	Number	Service
Doe	John	1 (414) 555-1111	Numeri
Sixpack	Joe	1 (414) 555-1113	Voice

Schedule... Delete

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.

Call Schedule

Name: Number: Service Type:

Availability

October, 2004

SUN MON TUE WED THU FRI SAT

1 2

3 4 5 6 7 8 9

10 11 12 13 14 15 16

17 18 19 20 21 22 23

24 25 26 27 28 29 30

31

Friday, October 1, 2004

Start Time:

End Time:

Apply To...

One Day Every Friday Every Day 2 days

Next Day Prev. Day Apply

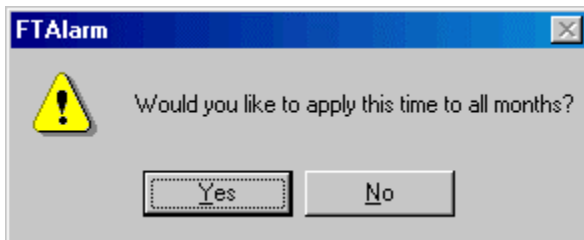
Remove

Every in Apply

OK Cancel Help

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.

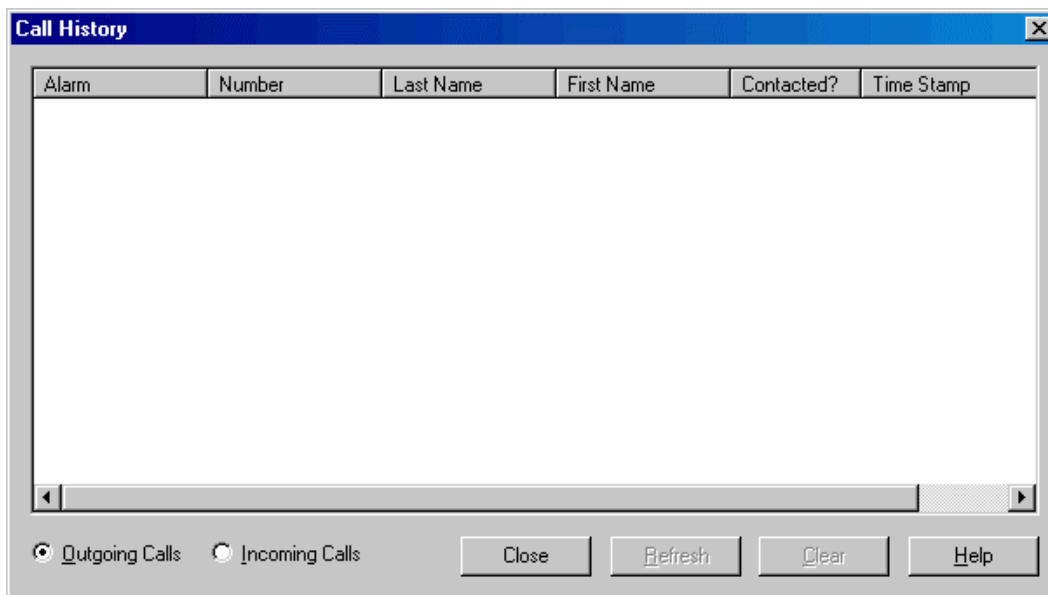
Viewing Call History

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:

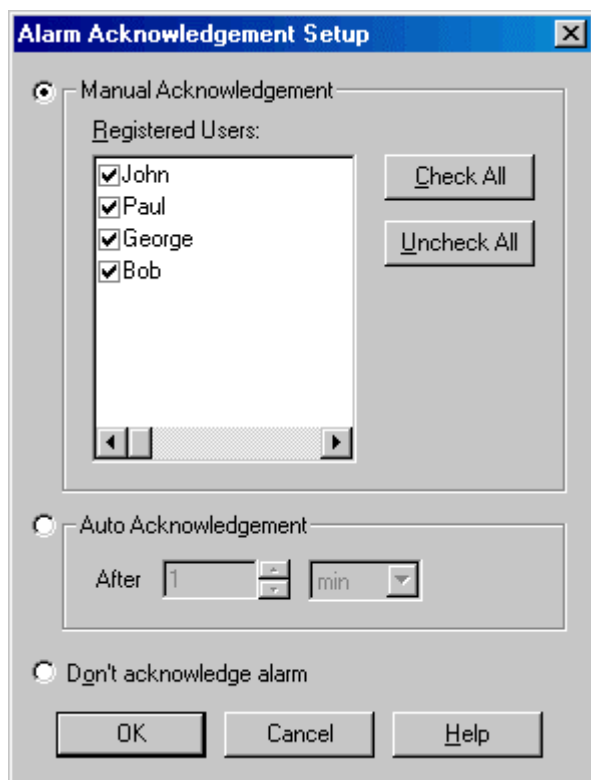
- The acknowledged alarm is removed from the Alarm Acknowledgement dialog. If this is the only alarm in the dialog, the dialog is removed.
- Any audio, flash window, or other repetitive responses for the alarm are halted.
- An entry is logged to the Database and Alarm Status Sheet (if configured) listing: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

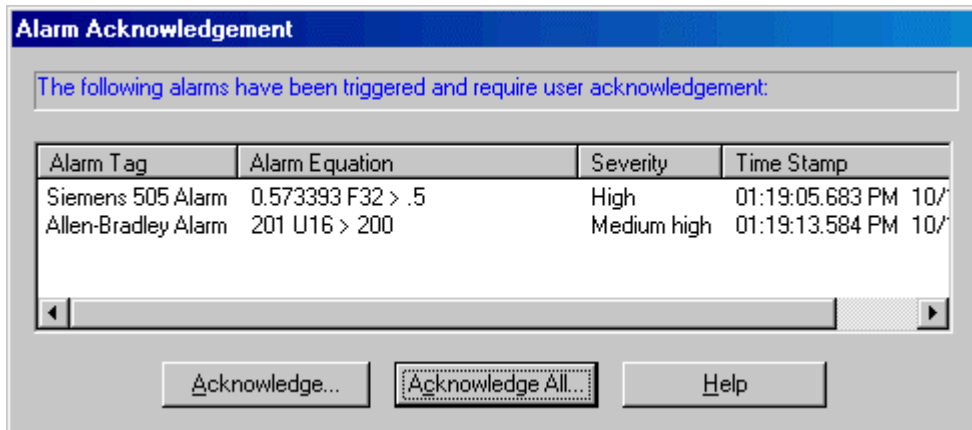


3. Configure the following options and click **OK**.
 - **Manual Acknowledgement:** Select the **Manual Acknowledgement** option button to configure the alarm to require a local user's acknowledgement. Select the **Registered Users** who are authorized to acknowledge this alarm. The list shows users 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

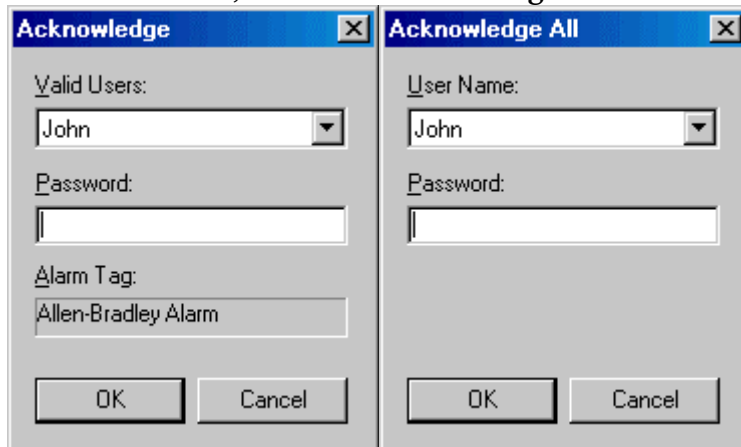
When an alarm that is configured for manual acknowledgement is triggered, the **Alarm Acknowledgement** dialog appears.



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.



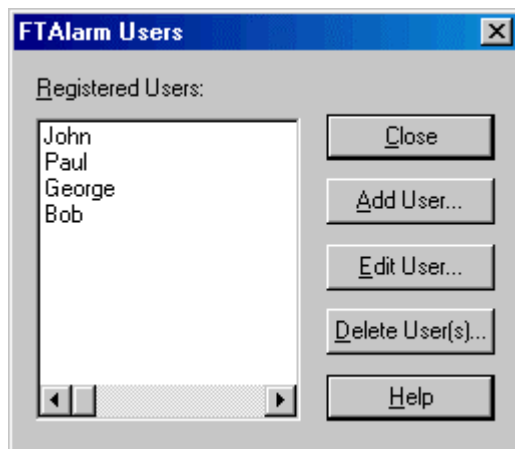
2. Select the user name from the list.
3. Enter the **Password** and click **OK**.

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.

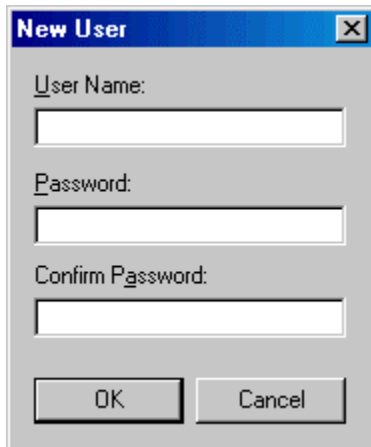


- **Registered Users:** The **Registered Users** list shows currently registered users.
2. Click the following buttons to access configuration options.
 - **Add User:** Add a user to the list.
 - **Edit User:** Edit a user's information.
 - **Delete User(s):** Delete one or more users from the list.

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.



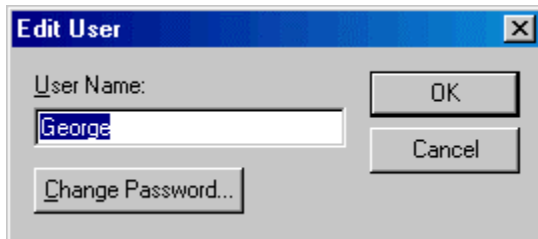
The image shows a standard Windows-style dialog box titled "New User". It has a blue title bar with a close button (X) on the right. The dialog contains three text input fields, each with a label above it: "User Name:", "Password:", and "Confirm Password:". At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

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**.

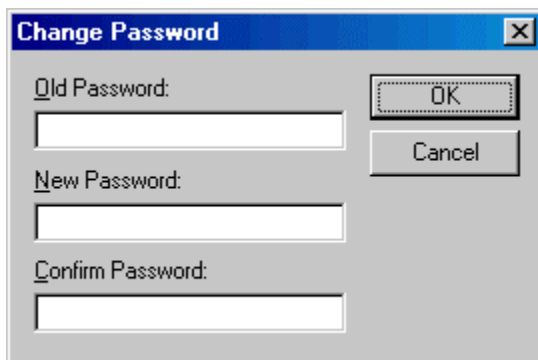
Edit a User's Information

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.

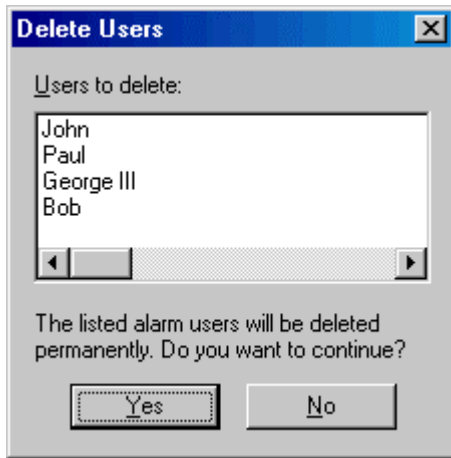


4. Enter the current password in the **Old Password** field.
5. Enter the **New Password**.
6. Enter the password again in the **Confirm Password** field to verify that it was entered correctly and click **OK**.

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.

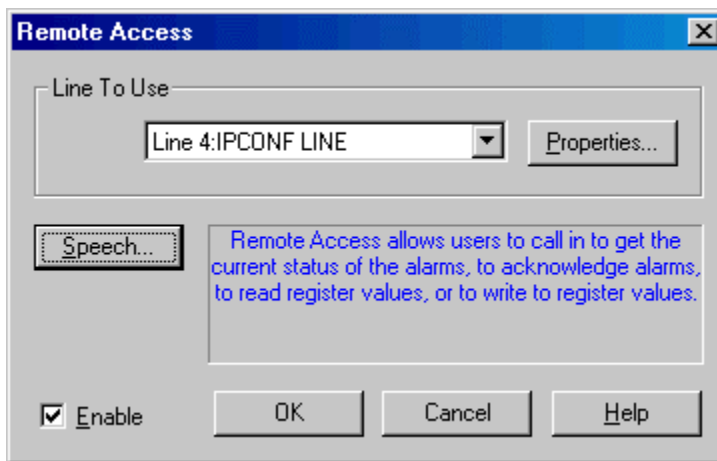
Configuring Remote Access

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**.)

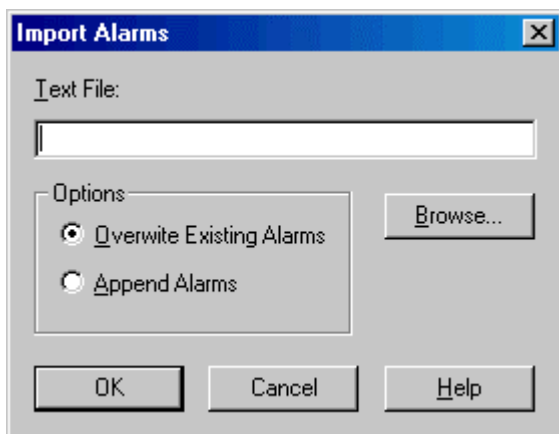
Importing / Exporting Alarms

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**.)

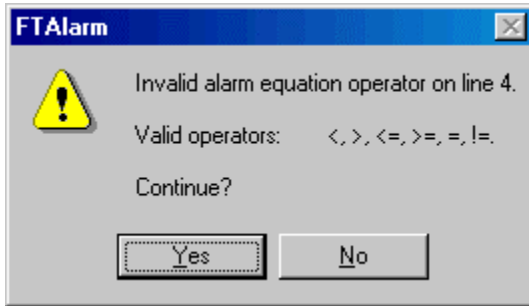
To import alarms from a text file:

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.

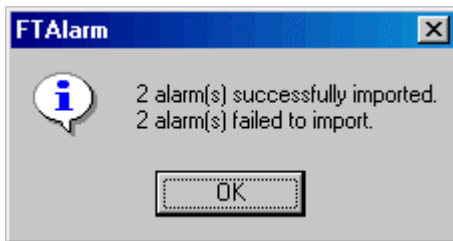


3. Click the **Browse** button to browse for the text file containing the alarms.
4. Select one of the following options:
 - **Overwrite Existing Alarms:** The alarms in the import file will replace the existing alarms. Alarms that were in the existing project but not in the import file will be deleted.
 - **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.

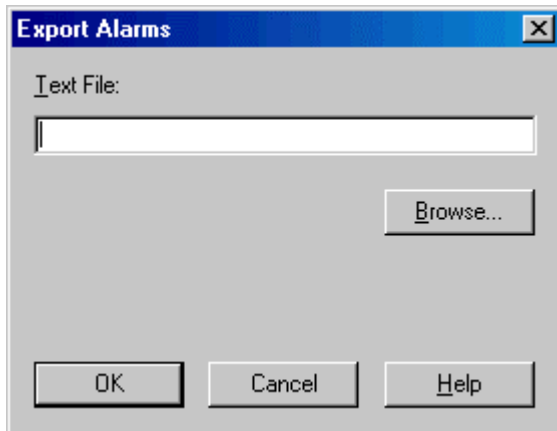


Exporting Alarms

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

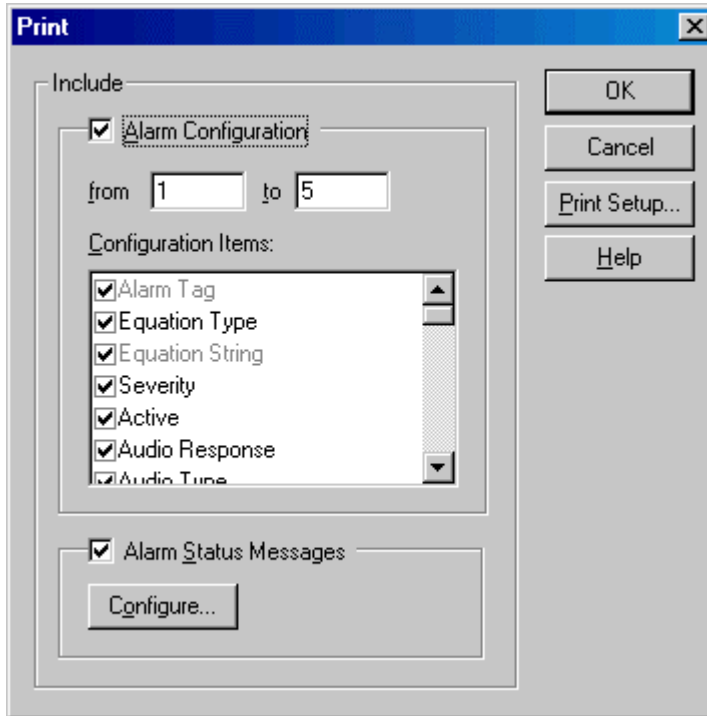
PAGER/PHONE RESP DELAY	From 1 sec to 23 hours (30 min default)	NO
ACK TYPE:	Manual, Auto, None	NO
ACK USERS:	"[User 1]"[User 2]"[User 3]" ...	NO
AUTO ACK TIME:	1-59 Sec, 1-59 Min, 1-23 Hour, 1-365 Day	NO

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.



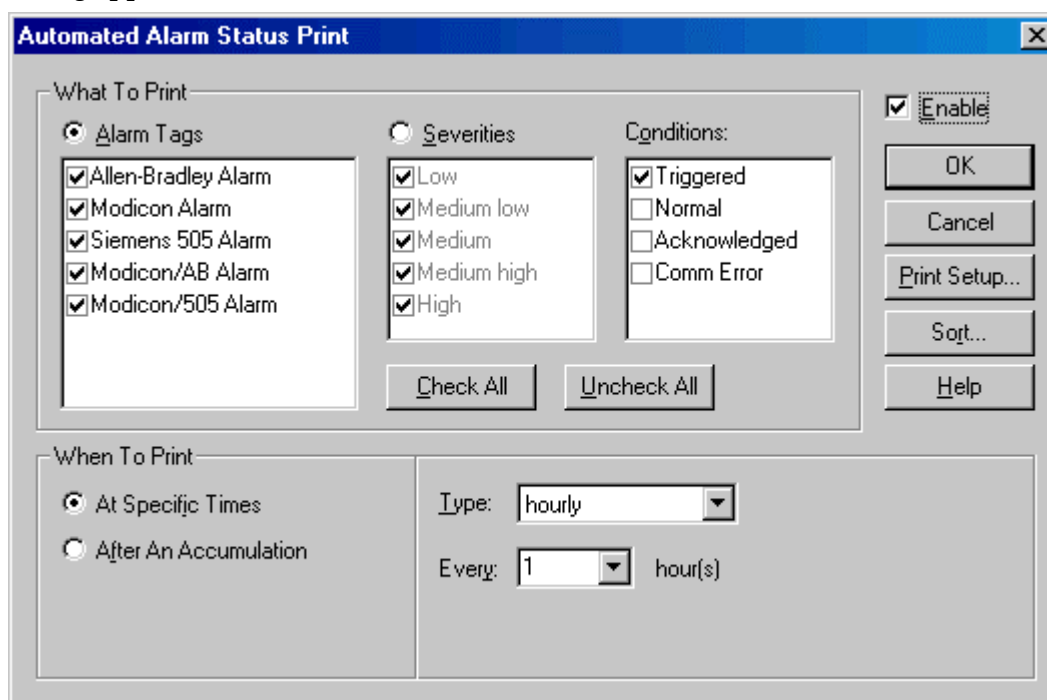
2. Select the printer and configure any other print options. Click **OK**.
 - **Alarm Configuration:** to print the alarm configuration, check the box.
 - **from / to:** Select a range of alarms to print. By default, the range includes all configured alarms.
 - **Configuration Items:** Select which details 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.


Print after receiving status messages

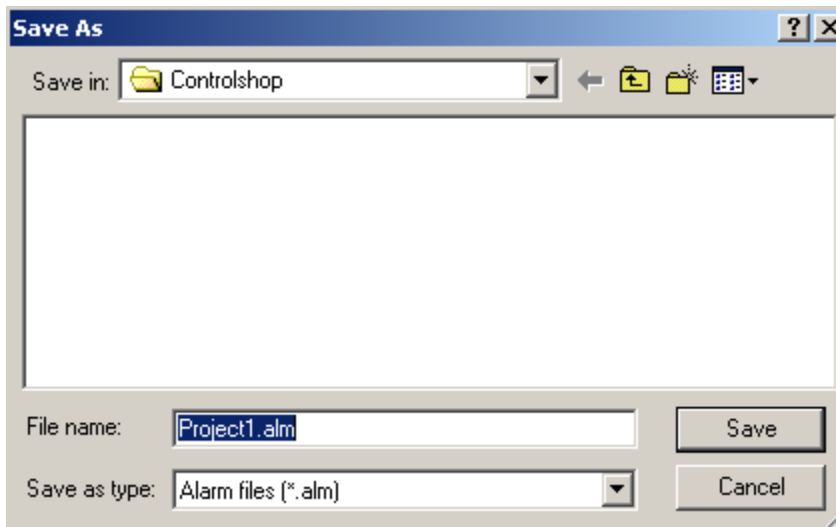
Saving and Opening

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.

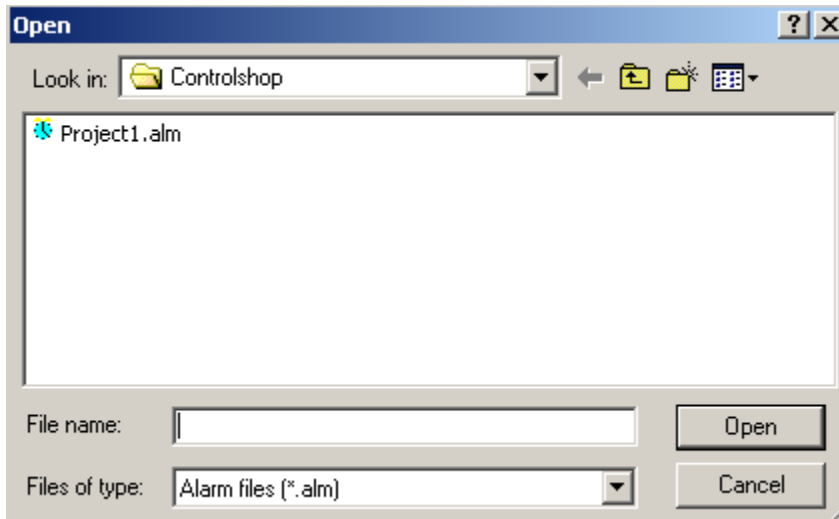
To save the current configuration and settings under a new name:

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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ControlShop™

FTBatch

Version 2.02

By FasTrak SoftWorks, Inc.

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FTBatch Overview

FTBatch allows multiple numeric values (called batches or recipes) to be written to one or more devices (PLCs) at a time. These values are displayed in Batch Sheets, which are comprised of row and column spreadsheet-like cells.

Each Batch Sheet can have up to 255 rows and 255 columns. Each row of a Batch Sheet represents one batch. Each column represents one address in one device. All the values in a batch (row) are downloaded at one time. Although each can write to multiple addresses in multiple devices, each column refers to only one address in one device. These values can be entered manually or read from the numeric fields of external user-defined Microsoft Access or SQL database files.

A Batch Sheet can communicate with multiple FasTrak or OPC Data Access Standard (Version 2.05 or below) communication servers. Each server may include multiple devices. Multiple devices can be written to as long as the device belongs to a server to which the Batch Sheet window is communicating.

NOTE: One or more devices must be added to a FasTrak server before any addresses can be added to a Batch Sheet window.

Modes


Depending on the operation being used, FTBatch is placed in one of the following modes:

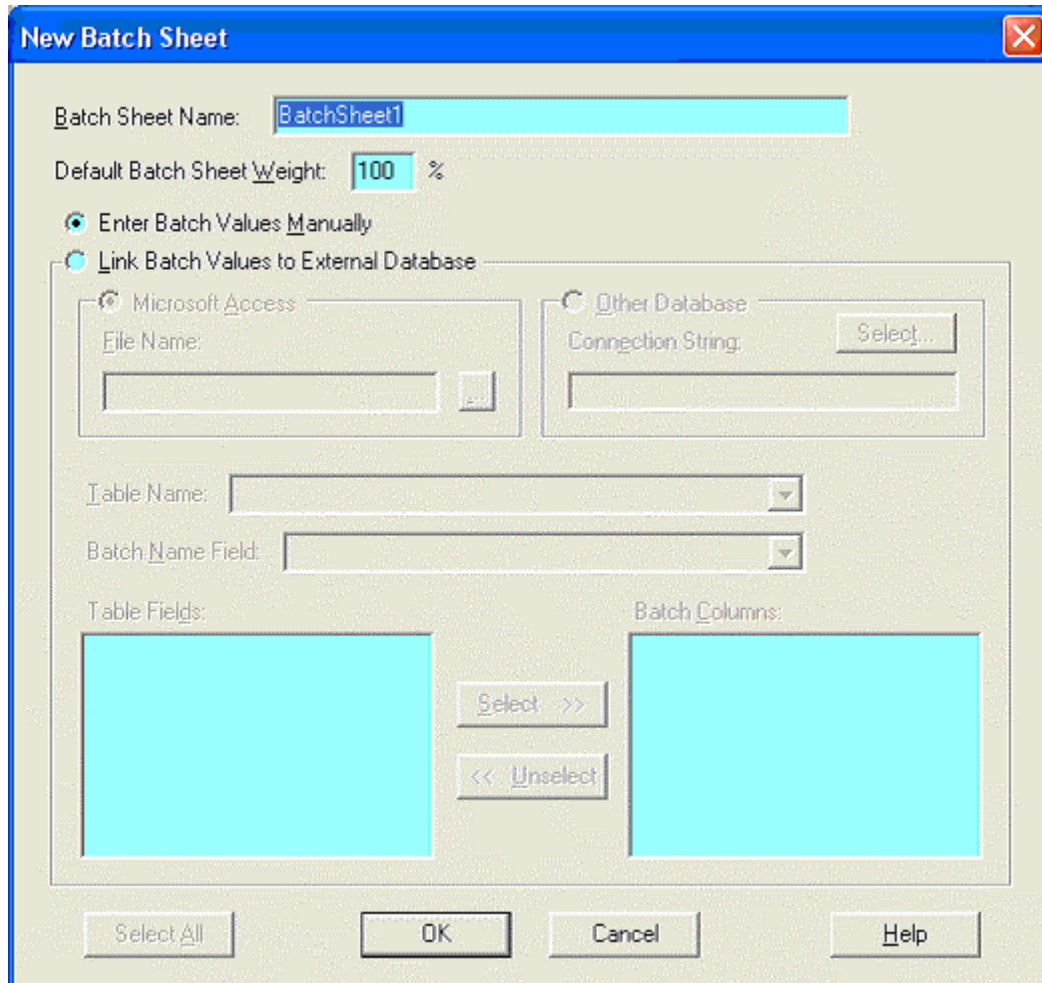
- **Development:** Used to create batch sheets, set up batch downloads and communications, and configure devices. When the application is initially started, FTBatch is in **Development** mode.
- **Runtime:** Batches can be downloaded automatically or manually in **Runtime** mode. Batches and values that are downloaded in **Runtime** mode can not be edited. (See **Switching Modes**.)
- **Offline:** While in **Runtime** mode, FTBatch is **Offline**.
- **Online:** Switch from **Offline** mode to **Online** mode to download a batch automatically based on an event evaluation. An event expression must have been specified to use this option. Event expressions are not evaluated unless in **Online** mode. (See **Switching Modes**.)

Creating a Batch Sheet

A Batch Sheet holds the values that represent the batches (recipes) to be downloaded.

To create a new Batch Sheet:

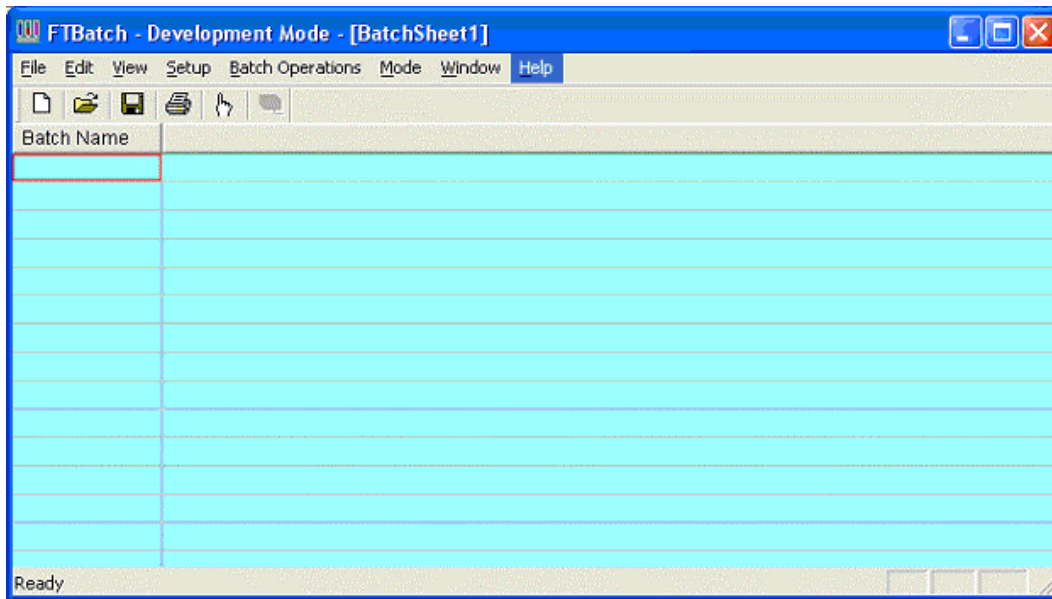
1. Select the **File / New** menu option or click the  toolbar button. The **New Batch Sheet** dialog appears.



2. Configure the following options and click **OK**:
 - **Batch Sheet Name:** Each Batch Sheet window in the current open file must have a unique alphanumeric name. The Batch Sheet name is displayed at the top of the Batch Sheet window. The default name is BatchSheet with a number starting with 1 appended to it. For example, the first default Batch Sheet name would be *BatchSheet1*. Enter a unique alphanumeric Batch Sheet name in the **Batch Sheet Name** edit box.
 - **Default Batch Sheet Weight:** Set the percentage of a value to be written (downloaded) to an address or OPC tag. When a column is not weighted, the entire value is downloaded. (See **Setting Weighted Columns**.)

- **Enter Batch Values Manually:** Select this option to enter the values in the batches of the Batch Sheet manually.
- **Link Batch Values to External Database:** Select this option to read the values in the batches of the Batch Sheet from an external user-defined database file.
 - **Microsoft Access:** To select 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. Once selected, the file name is displayed in the **File Name** edit box. If the file does not exist, it will be created.
 - **Other Database:** To select the database in a format other than **Microsoft Access**, (currently **SQL** is the only option) select the **Other Database** option button and click the **Select** button to configure **Data Link Properties**. The **SQL** database file must exist before you can select it.
 - **Table Name:** All the tables defined in the external database file are displayed in the **Table Name** combo box. Select a table from this list.
 - **Batch Name Field:** The **Batch Name Field** combo box contains the list of all alpha fields defined in the table selected in the **Table Name** combo box. This field is used as a unique lookup key to individual records within the selected table of the external database file. All the fields of the previously selected **Table Name** are displayed in the **Batch Name Field**. The text within the selected field is used as the batch name. Select a field from this list.
 - **Table Fields and Batch Columns:** Initially all of the numeric fields for the previously selected **Table Name** are displayed on the left in the **Table Fields** list box. This list box contains all the numeric fields that have not yet been selected for the **Batch Columns** list box on the right. The **Batch Columns** list box contains the fields that have already been selected for the batch. When a field is selected from the **Table Fields** list box, it is removed from that list and added to the **Batch Columns** list box. Conversely, when a field is unselected from the **Batch Column** list box, it is removed from that list and added back to the **Table Fields** list box. Both list boxes are multiple selection list boxes. To select items from the **Table Fields** list box, highlight one or more items and click the **Select >>** button. The highlighted items are removed from the **Table Fields** list box and placed in the **Batch Columns** list box. To unselect items from the **Batch Columns** list box, highlight one or more items and click the **<< Unselect** button. Individual items can be moved to the opposite list box by double-clicking a list box item.
 - **Select All/Unselect All:** All items in the **Table Fields** list box can be **selected** (highlighted) and **unselected** (un-highlighted) by clicking the **Select All / Unselect All** toggle button. Fields in both list boxes are displayed in the same relative order they were defined in the selected table.

3. The new Batch Sheet appears. (See **Batch Sheet**.)




Configuring Device Sources

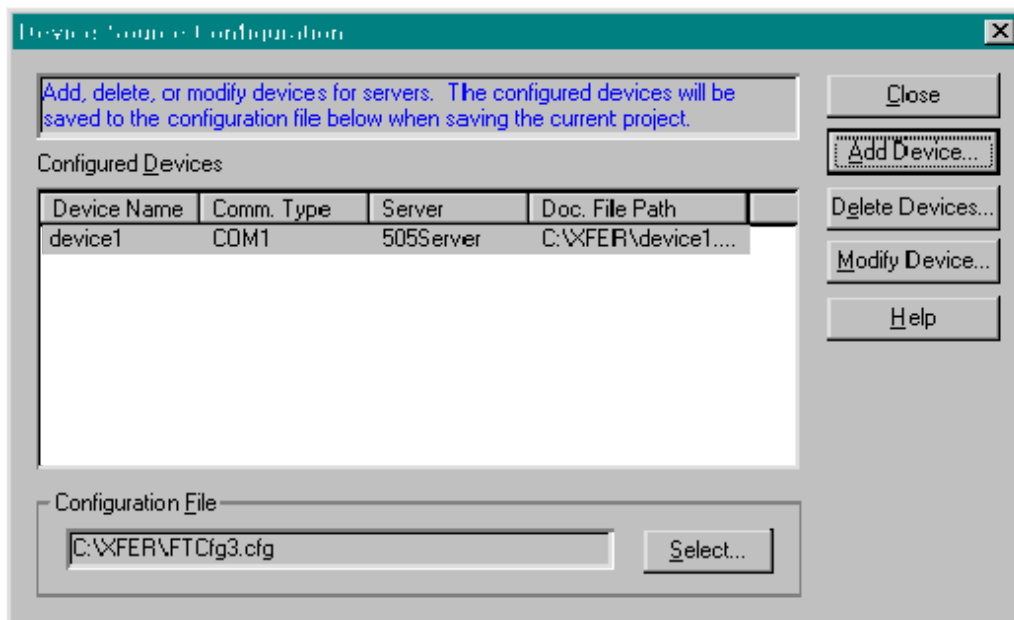
The **Device Source Configuration** dialog allows you to configure the devices, which FTBatch will communicate with. At least one device must be configured before any addresses can be assigned to a non-OPC column of a Batch Sheet.

For each device, FTBatch 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.
- **Communication 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:

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




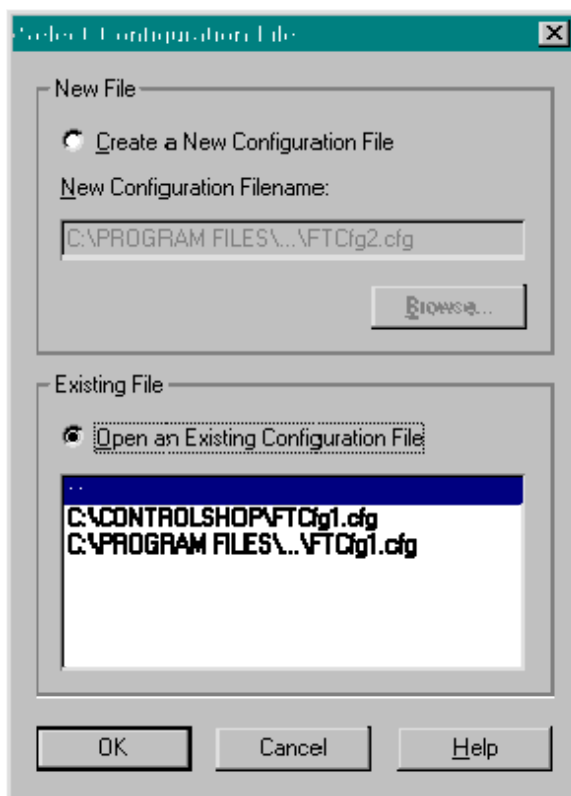
2. Click the following buttons to access configuration options:
 - **Add Device:** Add a new device to the list.
 - **Delete Devices:** Delete the configuration for the highlighted device.
 - **Modify Device:** Edit the highlighted device configuration.
3. Click the **Select** button to save the current configuration to a file or to load a saved configuration. The configuration for the server devices is saved in a .CFG file. (See **Selecting the Configuration File.**)

Selecting the Configuration File

Device configuration information is stored in a .CFG 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 the  toolbar button.
2. Click the **Select** button in the **Configuration File** area. The **Select Configuration File** dialog appears.




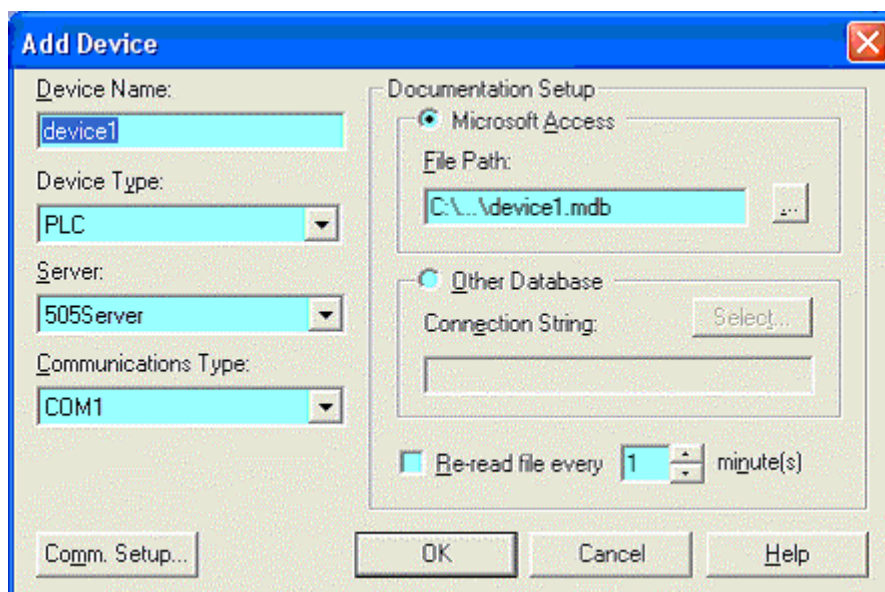
3. Save the current configuration to a file or load a saved configuration.
 - **New File:** To create a new configuration file, select the **Create New Configuration File** option button and click the **Browse** button to browse for the file name and location.
 - **Existing File:** To select an existing configuration file, select the **Open an Existing Configuration File** option button. If the desired file is in the list, click on it to highlight 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 FTBatch 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 that has been 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.

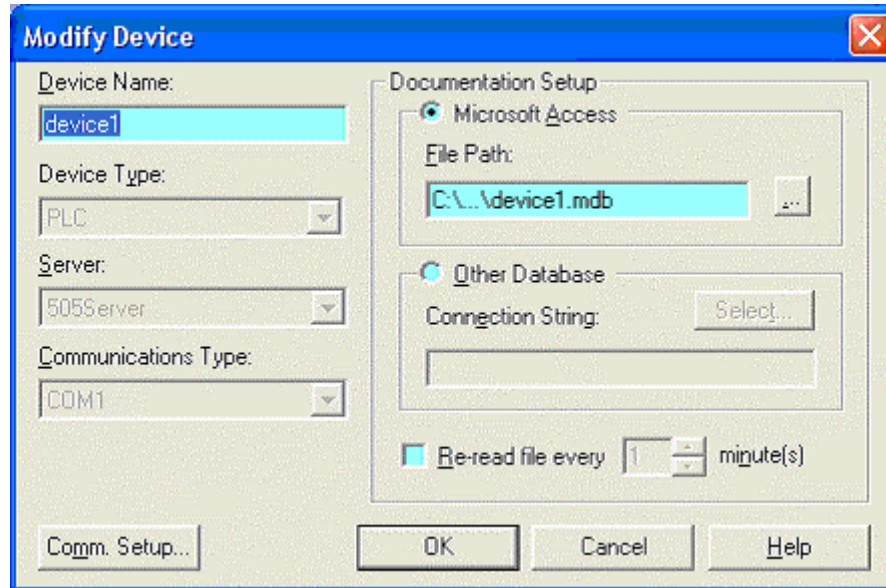
- **Re-read file every:** This option should only be selected when sharing the database with other applications, and only if the database is under development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be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

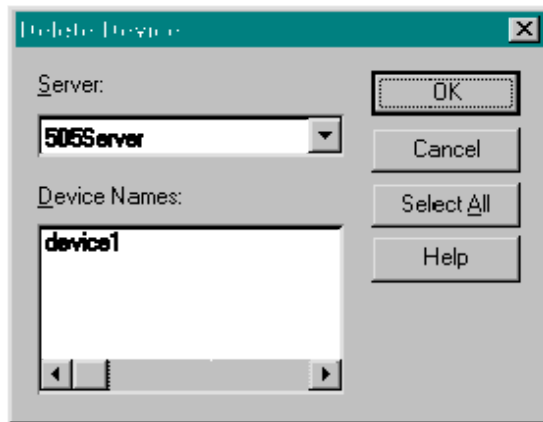
the number of minutes to control how often the documentation database will be checked for changes.

Deleting Devices

The **Delete Devices** dialog is used to delete a device 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.




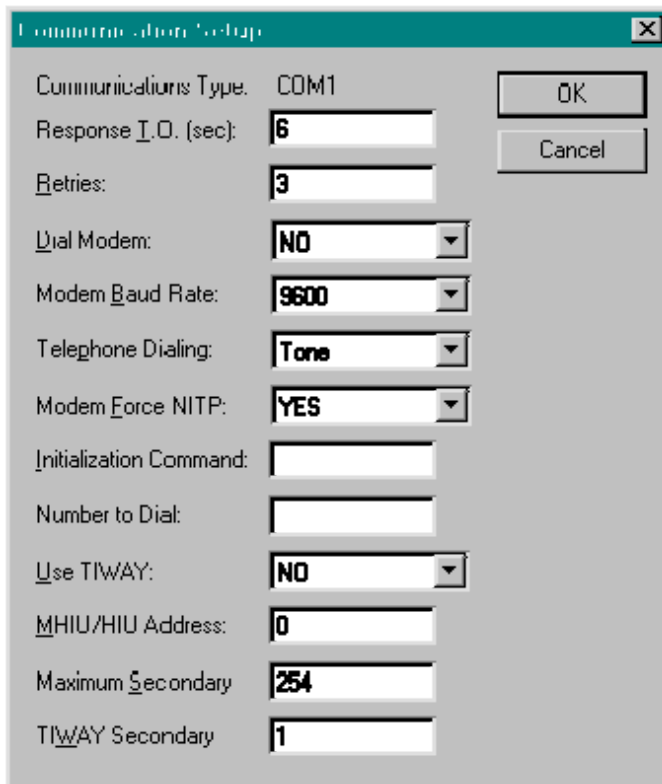
3. Select the **Server** that controls the devices to be deleted. The **Device Names** list shows the devices configured for that server.
4. Select the device(s) to be deleted. To delete all the devices for a server, click the **Select All** button.
5. Click **OK**.

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.



Communications Type:	COM1	OK
Response I.O. (sec):	6	Cancel
Retries:	3	
Dial Modem:	NO	
Modem Baud Rate:	9600	
Telephone Dialing:	Tone	
Modem Force NITP:	YES	
Initialization Command:		
Number to Dial:		
Use TIWAY:	NO	
MHIU/HIU Address:	0	
Maximum Secondary:	254	
TIWAY Secondary:	1	

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

DemoServer Supported Addresses

The **DemoServer** provides a simulated device for testing and demonstrating ControlShop applications. The **DemoServer** supports the following addresses:

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

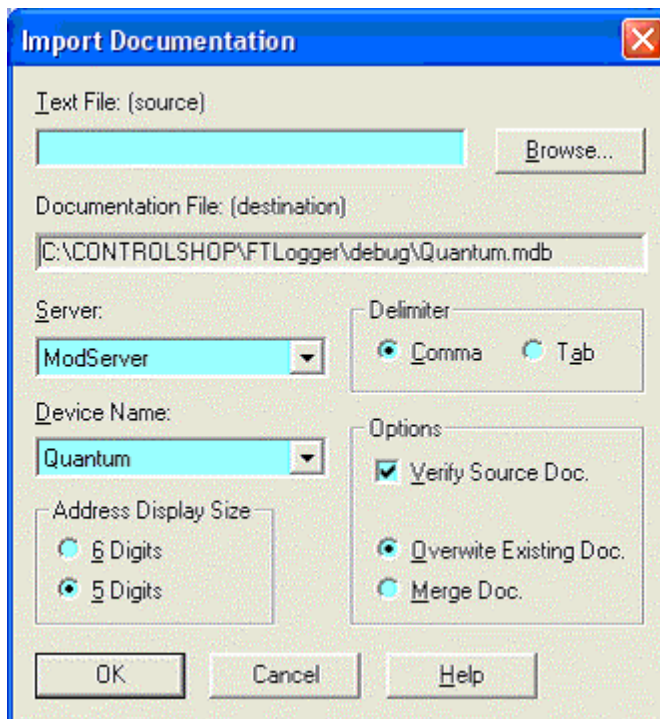
Importing / Exporting Documentation

Importing Documentation

Documentation for a device can be imported from a text file into the existing 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.

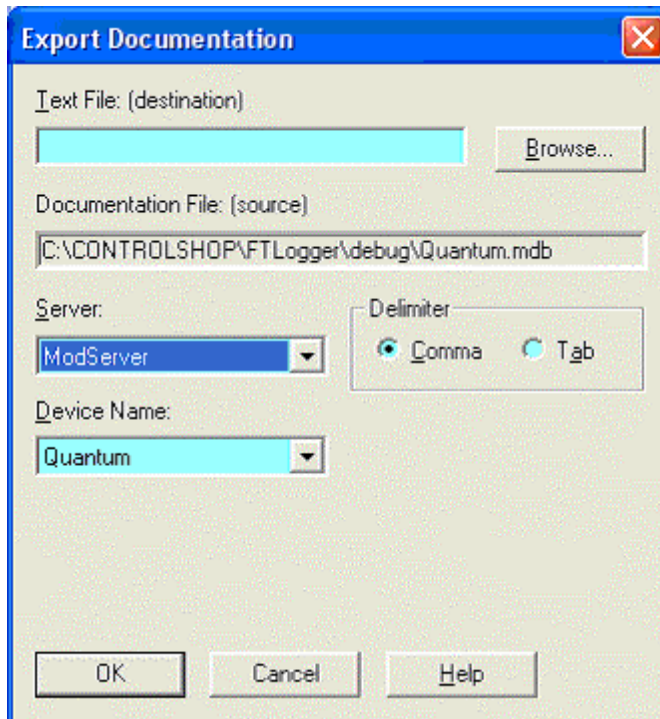
7. Set the **Options** as desired:
 - **Verify Source Doc:** Select the check box to verify tags, addresses, and the source file format. Clear the box for a faster import process.
 - **Overwrite Existing Doc:** When this option is selected, the database is cleared, so the imported documentation is the 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

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:

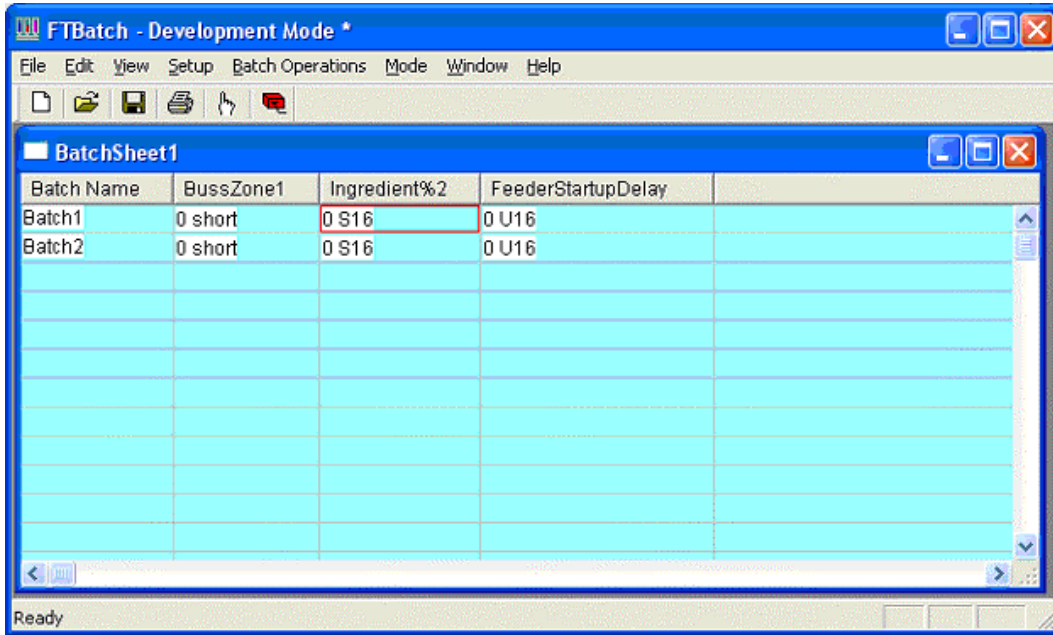
1. Select the **File / Export Documentation** menu option. The **Export Documentation** dialog appears.



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**.

Batch Sheet

After configuring a **New Batch Sheet**, the Batch Sheet appears.



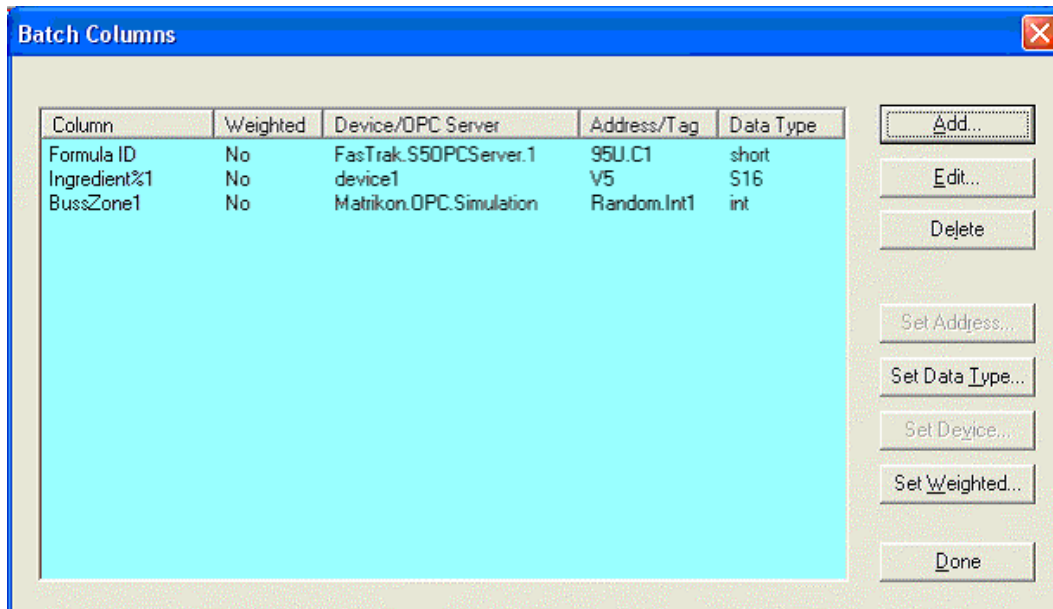
- **Batch Name:** Each batch (row) is uniquely identified by its alphanumeric **Batch Name**. A Batch Sheet can have up to 1024 batches.
 - For Batch Sheets whose batch values are manually entered, click the desired **Batch Name** cell and enter another unique alphanumeric name to change the default **Batch Name**.
 - For Batch Sheets whose batch values are read from external user-defined database files, the **Batch Name** column is filled with the text from the **Batch Name** field of the records from the table selected in the **New Batch Sheet** dialog.
- **Batch Sheet Columns:** Each column of a Batch Sheet is linked to an OPC tag or an address in a device attached to a FasTrak server. The values in these columns, whether manually entered or read from an external user-defined database file, are later loaded into the device address associated with that column. Batches (rows) may have up to 255 columns. The **Column Header** uniquely identifies each column in the Batch Sheet. If the Batch Sheet values are read from external user-defined database files, the field names defined in the external database file are displayed as the text of the column headers. The data from these fields are displayed in the columns. Initially, no columns exist for Batch Sheets whose values are to be entered manually. (See **Configuring Columns**.)

Configuring Columns

Each column of a Batch Sheet is linked to an OPC tag or an address in a device (PLC) attached to a FasTrak server.

To associate a device and address to a column:

1. Select the **Setup / Columns** menu option. The **Batch Columns** dialog appears. The list box of this dialog is initially empty for Batch Sheets whose values are manually entered. Otherwise the previously entered columns or the fields selected from an external database file, appear in the list box.



2. Click the following buttons to access the configuration options:
 - **Add:** Add a column to a Batch Sheet whose values are manually entered. This option is disabled for Batch Sheets whose values are read from external user-defined database files. (See **Adding/Editing Columns - FasTrak Tag** or **Adding/Editing Columns - OPC Tag**.)
 - **Edit:** Modify the settings of the highlighted column. (See **Adding/Editing Columns - FasTrak Tag** or **Adding/Editing Columns - OPC Tag**.)
 - **Delete:** Delete a column from a Batch Sheet whose values are manually entered. This option is disabled for Batch Sheets whose values are read from external user-defined database files.
 - **Set Address:** Set multiple non-OPC columns to contiguous addresses. This option will be disabled if any of the selected columns are OPC designated columns.
 - **Set Data Type:** Set multiple columns to the same data type. This option is disabled for any columns designated as OPC or if both OPC designated columns and non-OPC designated columns are selected at the same time.

- **Set Device:** Set **multiple non-OPC columns to the same device**. This option will be disabled if any of the selected columns are OPC designated columns.
- **Set Weighted:** Set **multiple columns to** write a percentage of a value to an address (**weighted**) or to write the full value to an address (not weighted) while in Runtime mode.

Adding / Editing Columns - FasTrak Tag

Columns, which hold the values of addresses within devices, may be added to or edited within an existing Batch Sheet. The option to add a column is disabled for Batch Sheets whose values are read from external user-defined database files. (Refer to **Adding / Editing Columns - OPC Tag** to add or edit a column, which will download a value to an OPC tag.)

To add or edit a column, which will download a value to a device attached to a FasTrak Server:

1. Access the **Batch Columns** dialog by selecting the **Setup / Columns** menu option.
2. To add a column to a Batch Sheet whose values are manually entered, click the **Add** button. To modify the settings of an existing column, select it in the list box and click the **Edit** button or double-click an item in the list box. Either way, the **Column Setup** dialog appears.

3. Configure the column and click **OK**.
 - **Column Number:** The **Column Number** is initially set to the next unused column number in the Batch Sheet. This number can be accepted or changed to a lower number. If a lower number is selected, this new column will be inserted into that position. All existing columns from that position are moved up one position to make room for the new column.
 - **OPC:** Select the OPC check box to set up the column to download a value to an OPC tag. (See **Adding / Editing Columns - OPC Tag**.)
 - **Column Title:** The **Column Title** is the actual text that appears as the heading of the Batch Sheet column. Manual Batch Sheets allow modification

of this text. However, linked Batch Sheets do not allow the Column Title to be changed because this text is read directly from the external database file.

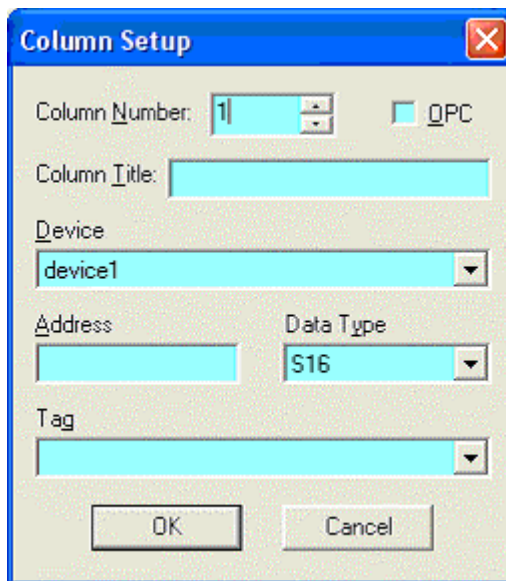
- **Device:** The **Device** combo box contains the list of all configured devices for all servers currently running. Select the desired device from the list.
- **Address:** Enter the device's address, which will be associated with this column. Any matching tag found within the shared documentation file (which was selected when the device was configured) is automatically displayed in the **Tag** edit box.
- **Tag:** Enter a tag, and any matching address found in the shared documentation file will be automatically displayed in the **Address** edit box.
- **Data Type:** The **Data Type** combo box contains the list of available data types. Depending on the address entered, data types may include: S16, U16, H16, O16, B16, and F32. Select a data type, which is valid for the address entered.

Adding / Editing Columns - OPC Tag

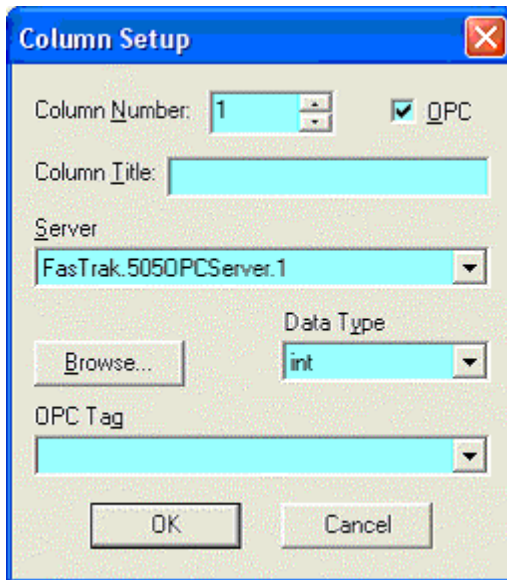
Columns, which hold the values of addresses within devices, may be added to or edited within an existing Batch Sheet. The option to add a column is disabled for Batch Sheets whose values are read from external user-defined database files. (Refer to **Adding / Editing Columns - FasTrak Tag** to add or edit a column, which will download a value to a device attached to a FasTrak Server.)

To add or edit a column, which will download a value to an OPC Tag:

1. Access the **Batch Columns** dialog by selecting the **Setup / Columns** menu option.
2. To add a column to a Batch Sheet whose values are manually entered, click the **Add** button. To modify the settings of an existing column, select it in the list box and click the **Edit** button or double-click an item in the list box. Either way, the **Column Setup** dialog appears.



3. Select the **OPC** check box. The modified **Column Setup** dialog appears.



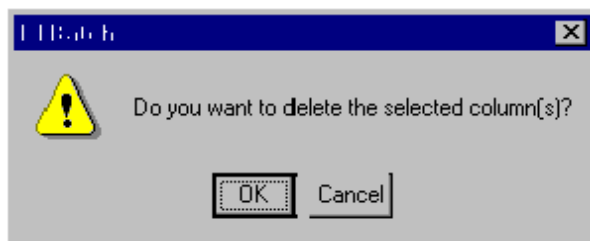
4. Configure the column and click **OK**.
 - **Column Number:** The **Column Number** is initially set to the next unused column number in the Batch Sheet. This number can be accepted or changed to a lower number. If a lower number is selected, this new column will be inserted into that position. All existing columns from that position are moved up one position to make room for the new column.
 - **OPC:** Previously selected to set up the column to download a value to an OPC tag and display the modified **Column Setup** dialog.
 - **Column Title:** The **Column Title** is the actual text that appears as the heading of the Batch Sheet column. Manual Batch Sheets allow modification of this text. However, linked Batch Sheets do not allow the Column Title to be changed because this text is read directly from the external database file.
 - **Server:** The **Server** combo box contains the list of all locally registered **OPC Data Access Servers**. Select the desired server from the list, and any matching OPC tag found in the shared documentation file will be automatically displayed in the **OPC Tag** edit box.
 - **OPC Tag:** Enter an OPC tag, and any matching server found in the shared documentation file will be automatically displayed in the **Server** edit box. Or click the **Browse** button to select a tag. (See **OPC Tag**.)
 - **Data Type:** The **Data Type** combo box contains the list of available data types. Depending on the address entered, data types may include: byte, unsigned short, int, unsigned int, long, unsigned long, float, double, boolean, date, and character. Select a data type, which is valid for the OPC tag entered.

Deleting Columns

Columns may be deleted from an existing Batch Sheet. This option is disabled for Batch Sheets whose values are read from external user-defined Access database files.

To delete one or more columns from a Batch Sheet whose values are manually entered:

1. Access the **Batch Columns** dialog by selecting the **Setup / Batch Column** menu option.
2. Highlight one or more items in the list box and click the **Delete** button. The following confirmation message appears.



3. Click **OK**.

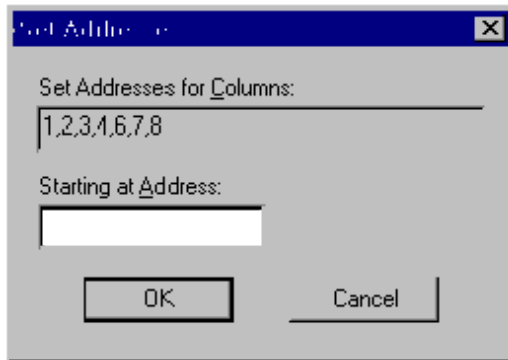
NOTE: Since columns in a Batch Sheet must be continuously numbered, FTBatch will renumber applicable columns to close any gaps created by deleting columns.

Setting Addresses

Contiguous addresses for multiple non-OPC columns can be set at one time.

To set multiple columns to contiguous addresses:

1. Access the **Batch Columns** dialog by selecting the **Setup / Batch Column** menu option.
2. Highlight one or more items in the list box and click the **Set Address** button. The **Set Addresses** dialog appears.



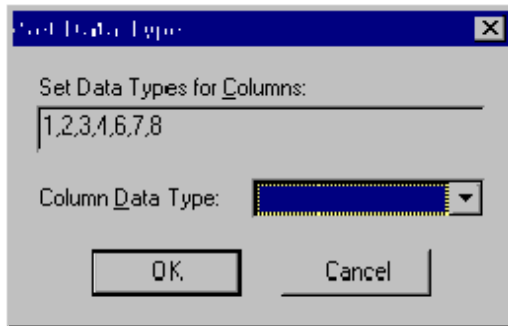
3. Enter the address for the first column in the **Set Addresses for Columns** list and click **OK**.
 - **Set Addresses for Columns:** The numbers of the first few items highlighted in the previous dialog appear in this edit box. These column numbers are displayed here for information purposes only and cannot be edited.
 - **Starting at Address:** Enter the address from which contiguous addresses will be assigned to the selected list of columns. This means that the address entered in this edit box will be assigned to the first column listed in the **Set Addresses for Columns**. The next address will be assigned to the next column listed, and so on.

Setting Data Types

Multiple columns can be set to the same data type at one time.

To set multiple columns to the same data type:

1. Access the **Batch Columns** dialog by selecting the **Setup / Batch Column** menu option button.
2. Highlight one or more items in the list box and click the **Set Data Type** button. The **Set Data Types** dialog appears.



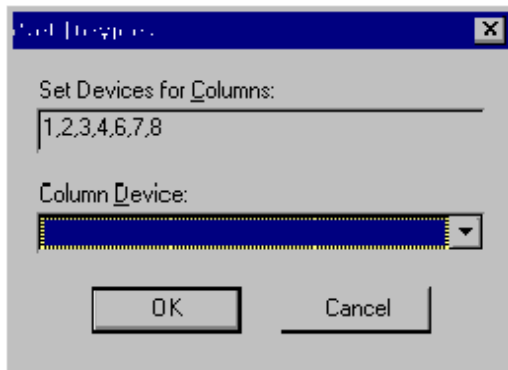
3. Select the **Column Data Type** and click **OK**.
 - **Set Data Types for Columns:** The numbers of the first few items highlighted in the **Batch Columns** dialog appear in this edit box. These column numbers are displayed here for information purposes only and cannot be edited.
 - **Column Data Type:** This combo box contains the list of valid data types to which the selected columns can be assigned. Select a data type from this list. The following types are included:
 - **When OPC designated columns are selected:** byte, unsigned short, int, unsigned int, long, unsigned long, float, double, boolean, date, and character.
 - **When non-OPC designated columns are selected:** S16, U16, H16, O16, B16, and F32.

Setting Devices

Multiple non-OPC columns can be set to the same device at one time.

To set multiple columns to the same device:

1. Access the **Batch Columns** dialog by selecting the **Setup / Batch Column** menu option.
2. Highlight one or more items in the list box and click the **Set Device** button. The **Set Devices** dialog appears.



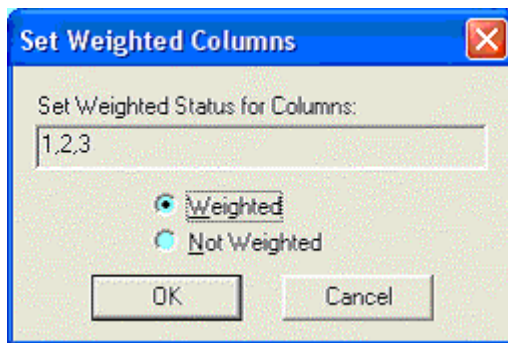
3. Select a **Column Device** and click **OK**.
 - **Set Devices for Columns:** The numbers of the first few items highlighted in the **Batch Columns** dialog appear in this edit box. These column numbers are displayed here for information purposes only and cannot be edited.
 - **Column Device:** This combo box contains the list of all configured devices for all servers currently running. Select a device from this list.

Setting Weighted Columns

Multiple columns can be set at one time to download a percentage of a value (weighted) or the entire value (not weighted) to an address or OPC tag. Weighting is only applied while in Runtime mode.

To set multiple columns to weighted or not weighted:

1. Access the **Batch Columns** dialog by selecting the **Setup / Batch Column** menu option.
2. Highlight one or more items in the list box and click the **Set Weighted** button. The **Set Weighted Columns** dialog appears.



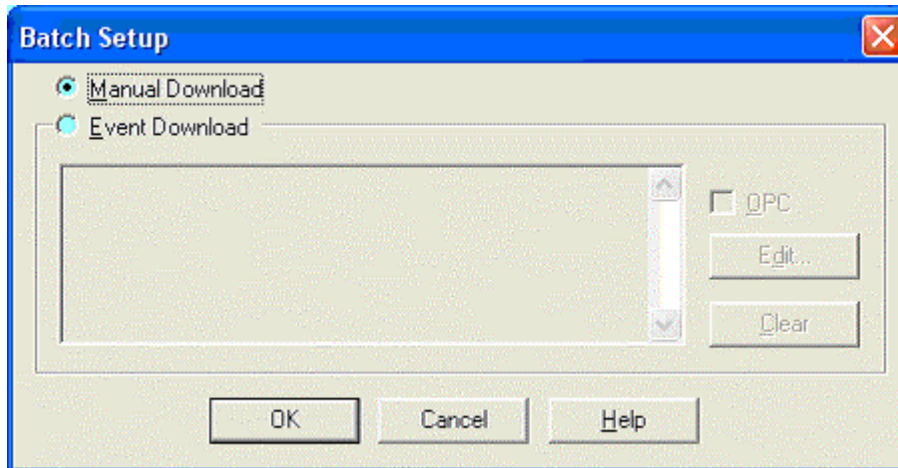
3. Select the **Weighted** or **Not Weighted** option button and click **OK**.
 - **Set Weighted Status for Columns:** The numbers of the first few items highlighted in the previous dialog appear in this edit box. These column numbers are displayed here for information purposes only and cannot be edited.
 - **Weighted:** When a column is weighted, the value that is written to the address or OPC tag reflects the percentage selected in the New Batch Sheet dialog.
 - **Not Weighted:** When a column is not weighted, the entire value is written to the address or OPC tag. The **Default Batch Sheet Weight** within the **New Batch Sheet** dialog is set to 100%.

Setting Up a Batch Download

Batches can be downloaded either manually or automatically. Automatic downloads occur when the contents of a selected address are set to a specific value.

To choose the method by which the batch downloads:

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

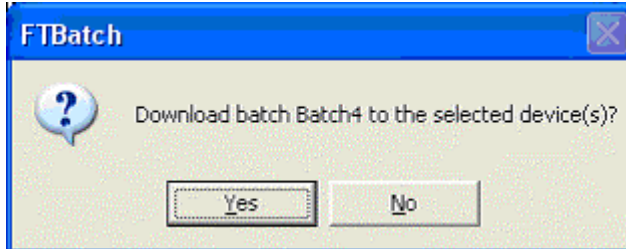


2. Configure the batch download and click **OK**.
 - **Manual Download:** Select the **Manual Download** option button if the batch will be manually downloaded. (See **Downloading a Batch Manually**.)
 - **Event Download:** Select the **Event Download** option button if the batch will be automatically downloaded. (See **Downloading a Batch Automatically**.)
 - **OPC:** Select the **OPC** check box if using an OPC expression.
 - **Edit:** Select the **Edit** button to edit the event expression. (See **Setting an Event**.)
 - **Clear:** Select the **Clear** button to clear the event expression.

Downloading a Batch Manually

To download all the values of a single batch into the device addresses:

1. Select the **Batch Operations / Download Batch** menu option. The following **FTBatch** confirmation message appears.



2. Click **Yes** to download all the values of the selected batch to the designated device addresses.

Downloading a Batch Automatically

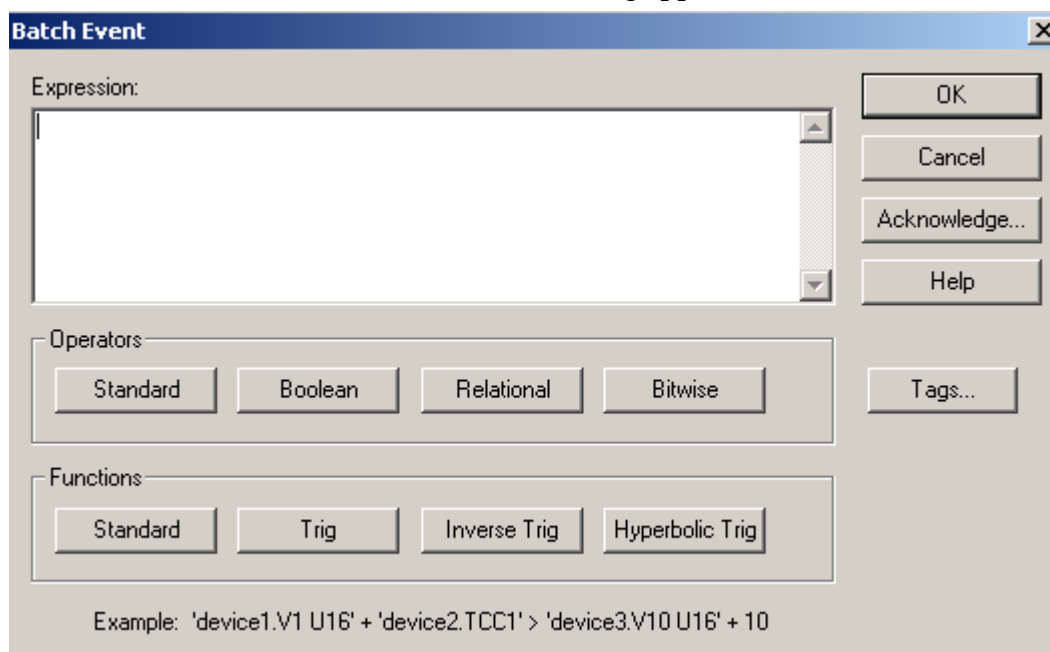
Automatic downloads occur when a pre-configured event expression (one for each batch) evaluates to **TRUE**. (See **Setting an Event**.) Select the **Mode / Online** menu option to monitor the event expression. When the expression is **TRUE**, the corresponding batch will be downloaded.

Setting a Batch Event

Automatic downloads occur when the contents of a selected address or OPC tag are set to a specific value.

To set an event expression:

1. Access the **Batch Setup** dialog by selecting the **Setup / Batch** menu option.
2. Click the **Edit** button. The **Batch Event** dialog appears.



An event is set up by creating a custom expression based on tags, operators, and functions.

- **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**.)
- **Functions:** Choose functions by clicking on the **Standard**, **Trig**, **Inverse Trig**, and **Hyperbolic Trig** buttons to display drop 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**.)
- **Tags:** Click on the **Tags** button to select a tag. The **Tag** dialog that appears will depend on whether or not the **OPC** check box was selected in the **Batch Setup** dialog. (See **Selecting a FasTrak Tag** or **Selecting an OPC Tag**.)
 - **Acknowledge:** Click on the **Acknowledgement** button to configure an acknowledgement for the triggered event. The **Acknowledge Event** dialog that appears will depend on whether or not the **OPC** check box was selected in the **Batch Setup** dialog. (See **Acknowledging an Event - FasTrak Tag** or **Acknowledging an Event - OPC Tag**.)

Operators and Functions

The **Expression** box on the **Set Event** dialog allows you to trigger an event 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	Relational 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()
(?: (if else)		Floor()			
)				Rand()			

Standard Operators	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulus
^	Power

(
)	

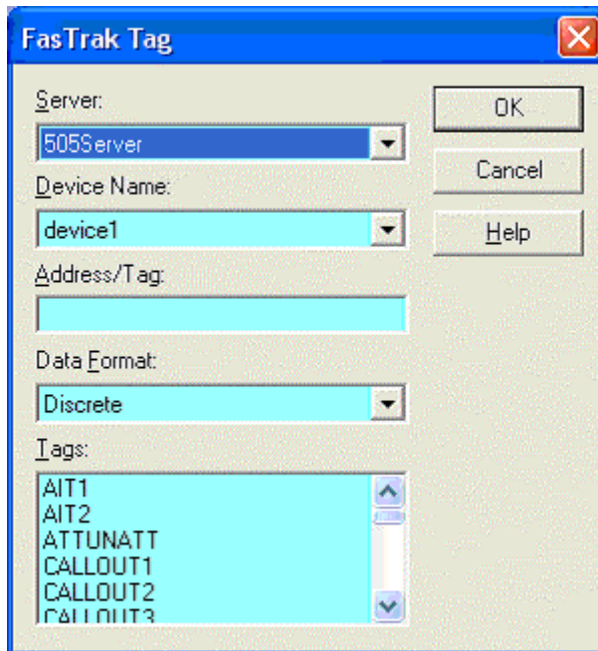
Boolean Operators	Description
!	Not
&&	And
	Or
Relational Operators	Description
==	Equal To
!=	Not Equal To
<=	Less Than Or Equal To
>=	Greater Than Or Equal To
>	Greater Than
<	Less Than
?:	If (condition1) return(condition2) else return(condition3)
Bitwise Operators	Description
&	Bitwise And
	Bitwise 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 to which values will be downloaded using a FasTrak server. (Refer to **Selecting an OPC Tag** to select an OPC tag.)

To select a FasTrak tag:

1. Access the **Set Event** dialog by selecting the **Setup / Columns** menu option and clicking the **Edit** button.
2. Click the **Tags** button. The **FasTrak Tag** dialog appears.



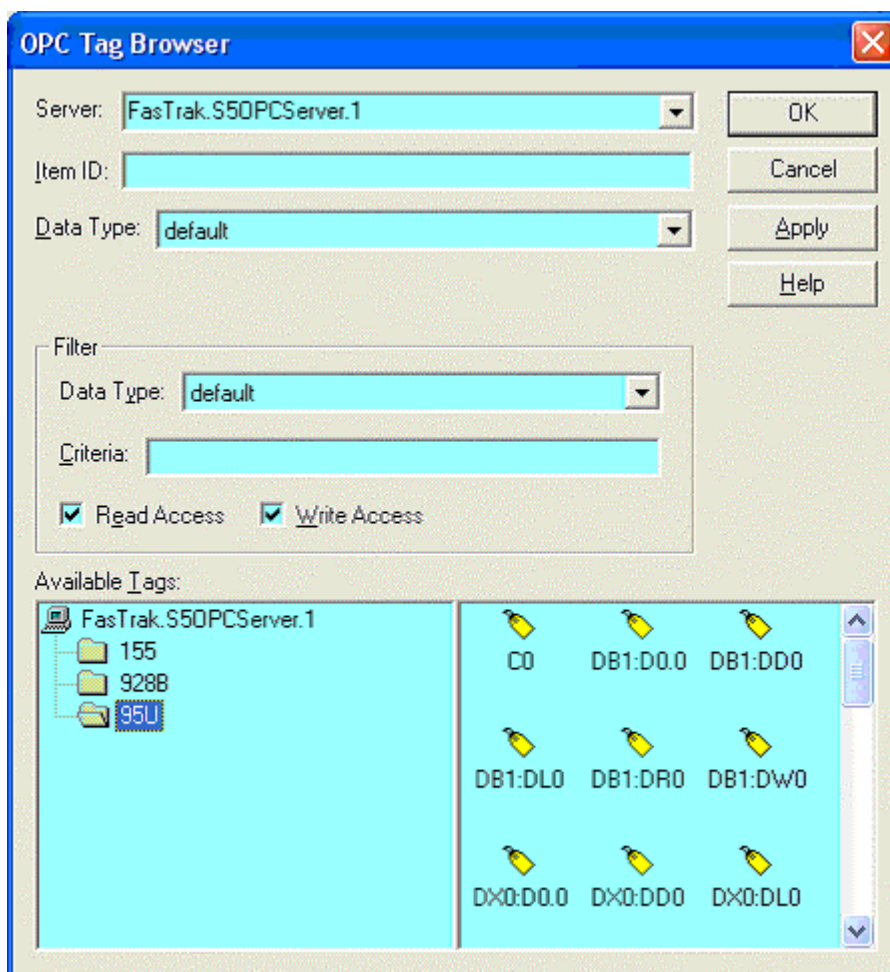
3. Configure the tag and click **OK**.
 - **Server:** Select a server from the registered servers list.
 - **Device Name:** Choose from the list of devices that the Batch Sheet will download values to.
 - **Address/Tag:** Manually enter an address or tag from a selected device or click on an item in the **Tags** pane to display the corresponding address.
 - **Data Format:** Affects how the value is displayed in the Batch Sheet.

Selecting an OPC Tag

The **OPC Tag Browser** is used to select a tag to which values will be downloaded using an OPC Data Access Standard (Version 2.05 or below) communication server. (Refer to **Selecting a FasTrak Tag** to select a FasTrak tag.)

The OPC Tag Browser can be accessed from the **Column Setup** dialog or the **Set Event** dialog. To select an OPC tag:

1. Access the modified **Column Setup** dialog by selecting the **Setup / Columns** menu option and selecting the **OPC** check box. From the modified **Column Setup** dialog, click the **Browse** button. The **OPC Tag Browser** dialog appears.
OR
2. Access the **Set Event** dialog by selecting the **Setup / Batch Setup** menu option and clicking the **Edit** button. Click the **Tags** button. The **OPC Tag Browser** dialog appears.



3. Configure the tag and click **OK**.
 - **Server:** Lists the server that was selected in the Column Setup dialog.

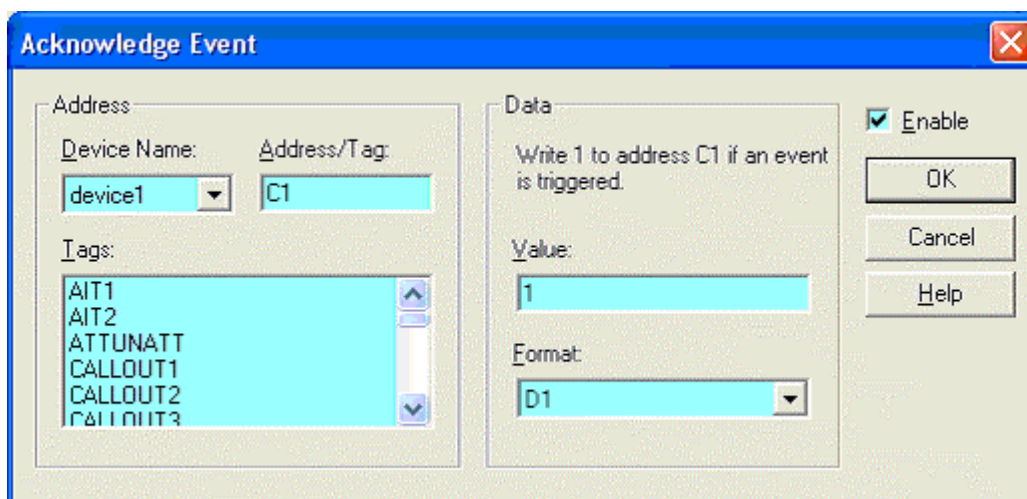
- **Item ID:** Identifies the tag. Manually enter or modify a tag, or select a tag from the **Available Tags** pane.
- **Data Type:** There are 13 different data types to choose from, which will affect how the value is displayed in the Batch Sheet. The default will display the canonical (native) data type.
- **Filter:** Controls which tags display in the **Available Tags** pane.

Acknowledging an Event - FasTrak Tag

When an event occurs, FTBatch has the ability to acknowledge the capture of the data to the communicating device. (Refer to **Acknowledging an Event - OPC Tag** to send an acknowledgement to an OPC tag.)

To send data back to the device:

1. Access the **Set Event** dialog by selecting the **Setup / Batch Column** menu option and clicking the **Edit** button.
2. Click the **Acknowledge** button. The **Acknowledge Event** dialog appears.



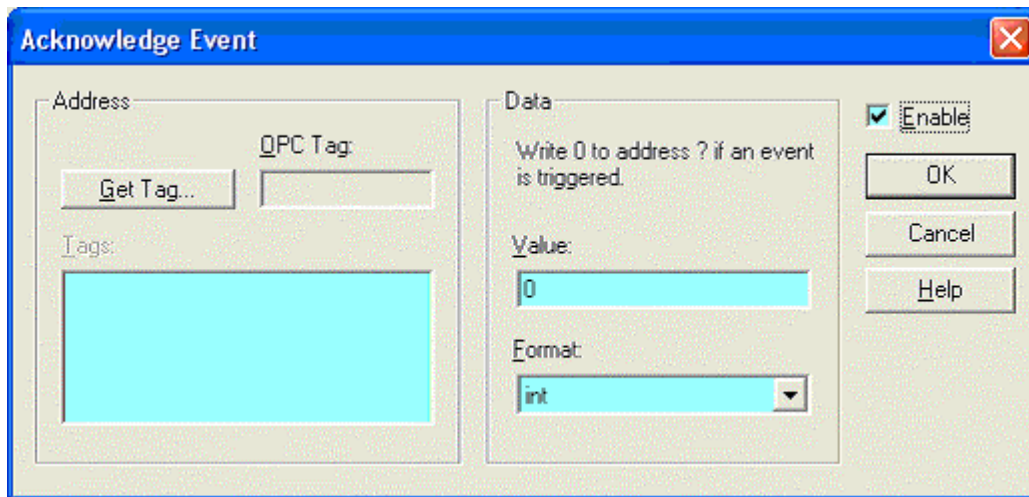
3. Select on the **Enable** check box to enter data.
4. Specify the **Address** to be written to.
 - **Device Name:** Select the device to which the PLC value is to be written.
 - **Address/Tag:** Enter the PLC address or the tag for that address. Or select a tag from the **Tags** list.
5. Specify the **Data** to be sent. Set the **Value** field and select the data's **Format** from the drop-down box.
6. Click **OK**.

Acknowledging an Event - OPC Tag

When an event occurs, FTBatch has the ability to acknowledge the capture of the data to an OPC tag within the communicating device. (Refer to **Acknowledging an Event - FasTrak Tag** to send an acknowledgment to a device connected to a FasTrak server.)

To send data back to the OPC tag:

1. Access the **Set Event** dialog by selecting the **Setup / Batch Column** menu option and clicking the **Edit** button.
2. Click the **Acknowledge** button. The **Acknowledge Event** dialog appears.

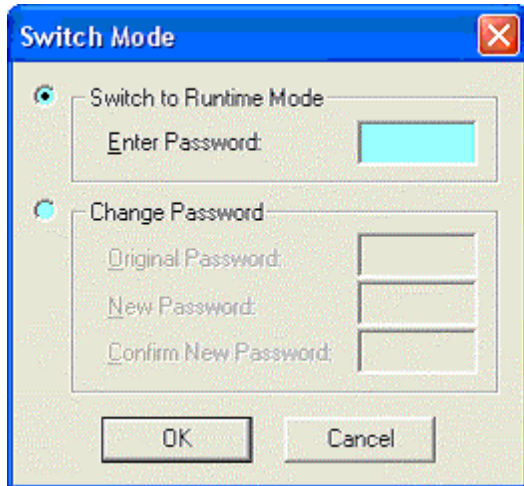


3. Select the **Enable** check box to enter data.
4. Specify the **OPC Tag** to be written to. Select a tag using the **Get Tag** button. (See **Selecting an OPC Tag**.)
5. Specify the **Data** to be sent. Set the **Value** field and select the data's **Format** from the drop-down box.
6. Click **OK**.

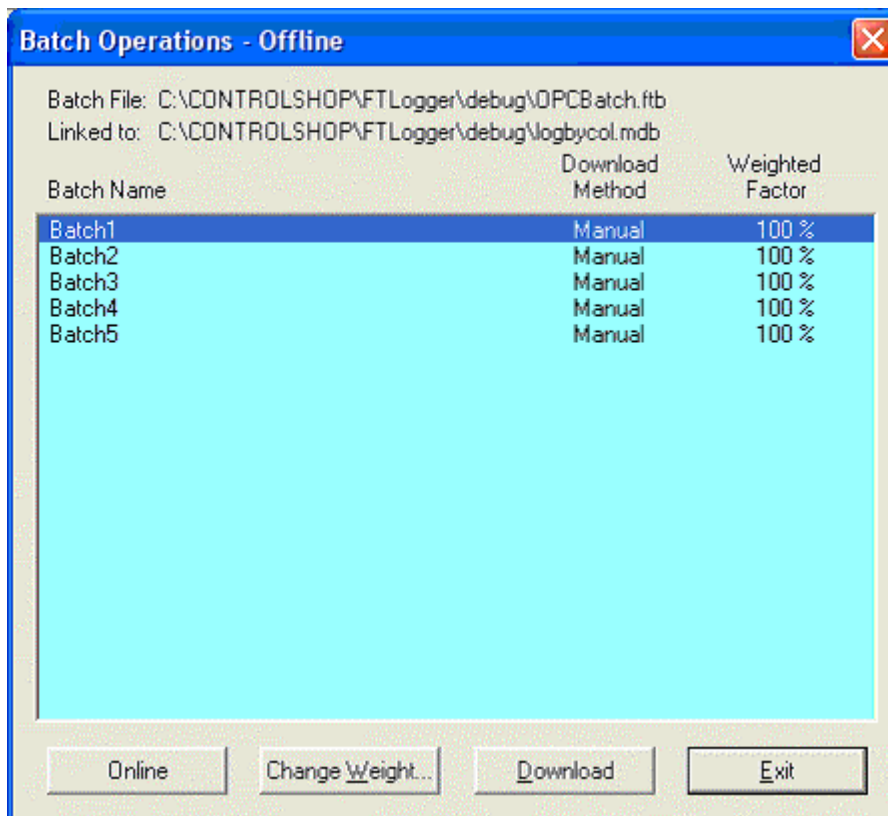
Switching Modes

To switch from **Development** mode to **Runtime** mode:

1. Select the **Mode / Runtime** menu option. The **Switch Mode** dialog appears.



2. Enter the password that will be used to re-enter **Development** mode and click **OK**. A prompt will appear to save any changes, and the current batch file will be closed.
3. Select the **File / Open** menu option to load a batch file. The file will be placed in **Runtime** mode, and the **Batch Operations - Offline** dialog will appear. While in **Runtime** mode, FTBatch is Offline.



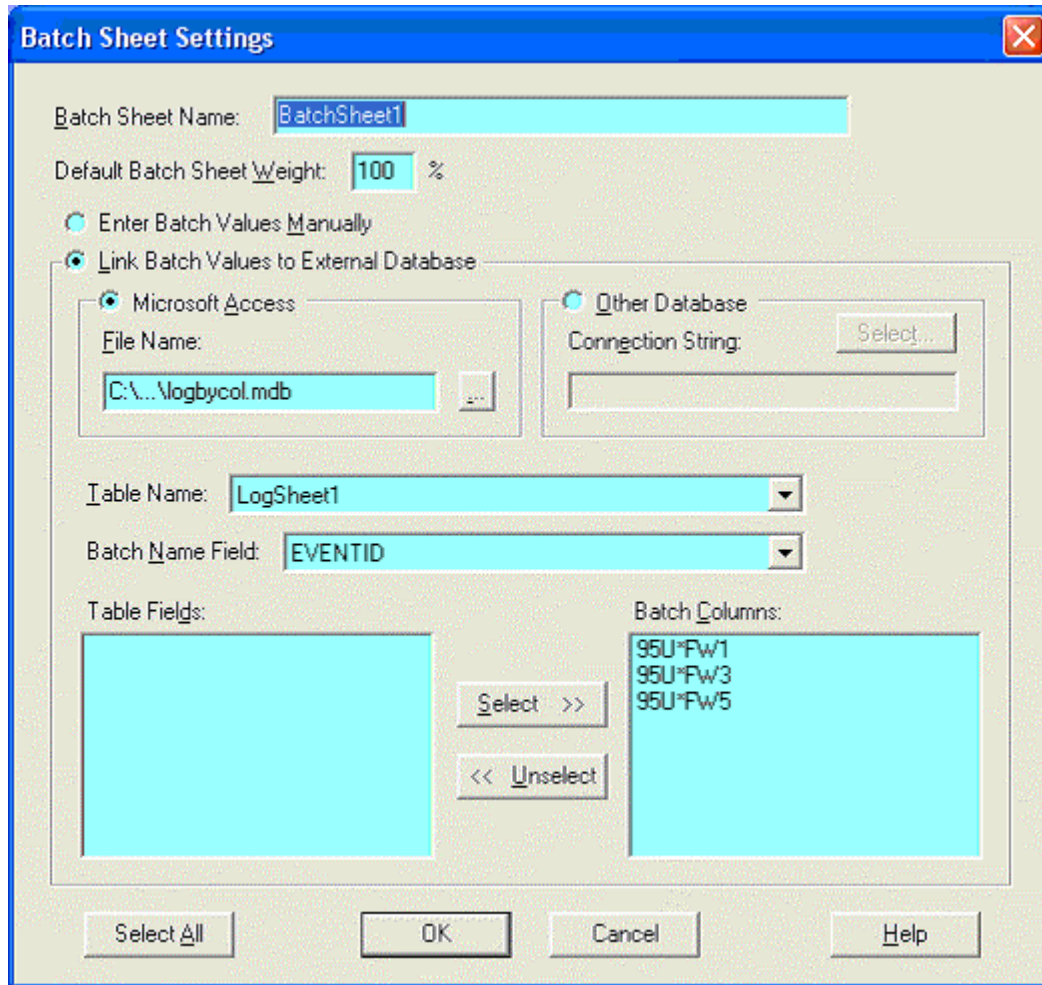
4. Select a batch from the list box to download it and then select one of the following options:
 - **Online:** Switch from **Offline** mode to **Online** mode to download a batch **automatically**. An event expression must have been specified to use this option. Event expressions are not evaluated unless in **Online** mode.
 - **Change Weight:** Change the percentage of a value to be written to an address.
 - **Download:** Download a batch **manually**.

Changing Batch Sheet Settings

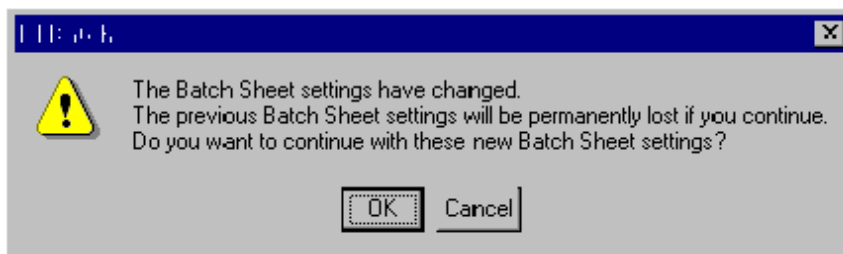
After a Batch Sheet has been created, its settings can be viewed and modified.

To view and revise the general properties of an existing Batch Sheet:

1. Select the **Setup / Batch Sheet** menu option. The **Batch Sheet Settings** dialog appears.



2. Configure the same options that appear in the **New Batch Sheet** dialog and click **OK**. (See **Creating a Batch Sheet**.)
3. The following **FTBatch** confirmation message appears. Click **OK** to confirm the changes.



Copying, Pasting, and Deleting

Copying and Pasting Batches

The values of individual batches can be copied from an existing batch and pasted into the first empty row at the end of the list of batches.

To copy and paste:

1. Click into the batch to be copied.
2. Select the **Edit / Copy Batch** menu option or use the right-click mouse menu.
3. To create a new batch, click into the first empty row at the bottom of the Batch Sheet. To overwrite an existing batch, click into the row of the batch to be replaced.
4. Select the **Edit / Paste Batch** menu option or use the right-click mouse menu.

Deleting Batches

Individual batches can be deleted from a batch sheet.

To delete individual batches:

1. Click into the batch to be deleted.
2. Select the **Edit / Delete Batch** menu option or use the right-click mouse menu. The selected batch is removed from the Batch Sheet. Any batches after the deleted item are moved up one row to close the gap.

Deleting Columns

Individual columns can be deleted from a Batch Sheet.

To delete individual columns:

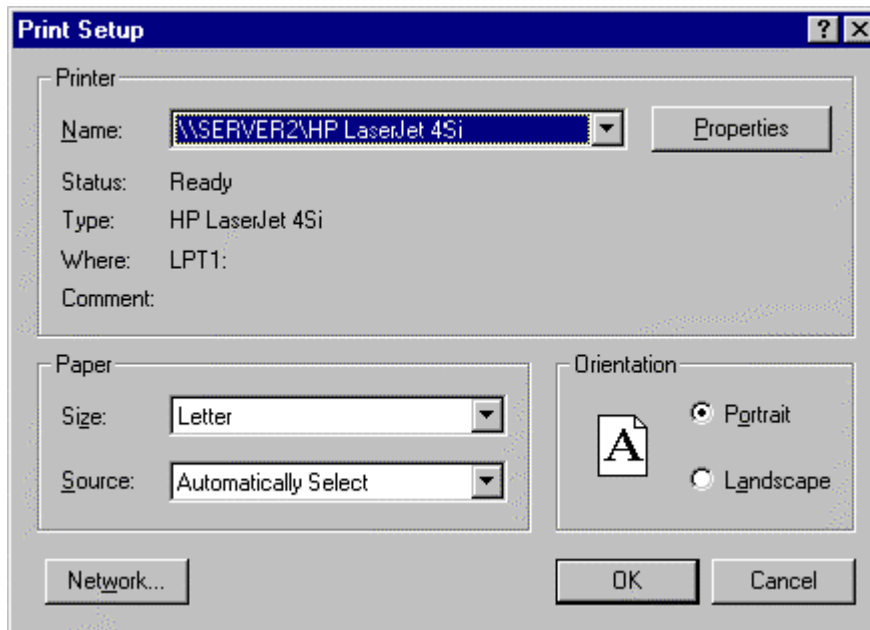
1. Click into the column to delete it from all batches of the Batch Sheet.
2. Select the **Edit / Delete Column** menu option or use the right-click mouse menu. The selected column is deleted from the Batch Sheet. Any columns above the deleted selection are moved down one column to close the gap.

Printing

The settings and values of Batch Sheets can be printed.


To set up print options:

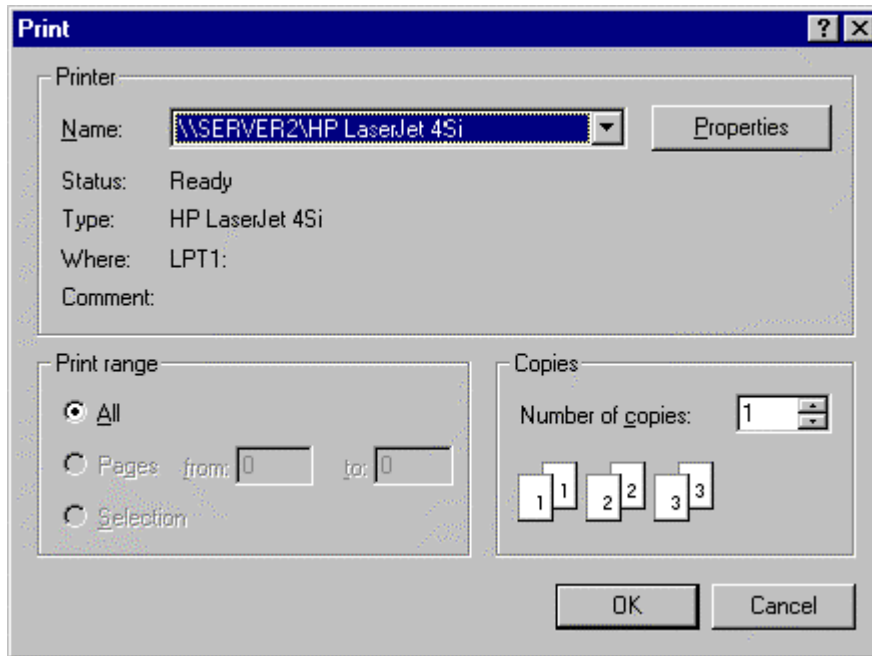
1. Select the **File / Print Setup** menu option. The **Print Setup** dialog appears.



2. Configure print options and click **OK**.

To print the settings and values of a Batch Sheet:

1. Select the **File / Print** menu option or click the  toolbar button. A standard Windows print dialog (which varies depending on the system used) appears.



2. Select the printer and configure any other print options. Click **OK**.

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ControlShop™

FT_OPCConfig

Version 1.06

By FasTrak SoftWorks, Inc.

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OPC Config

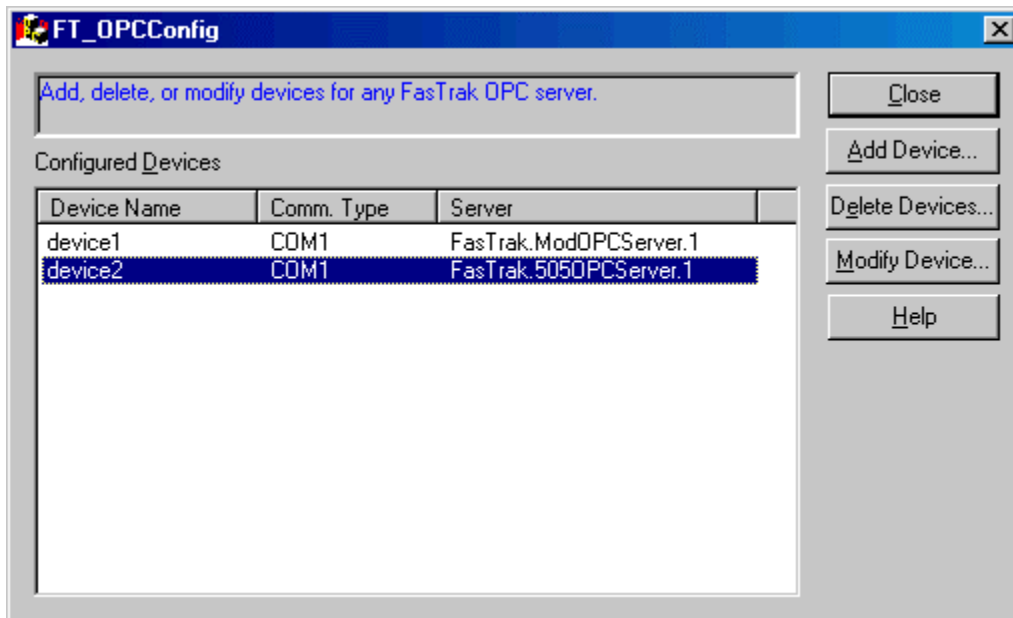
OPC Config

FT_OPCConfig is a utility to configure devices for FasTrak OPC communication servers.

FasTrak OPC servers:

- ModServer
- 505Server
- S5Server.

A device must be configured through FT_OPCConfig before our server can communicate via OPC to the device. The device must be configured prior to the server being launched.

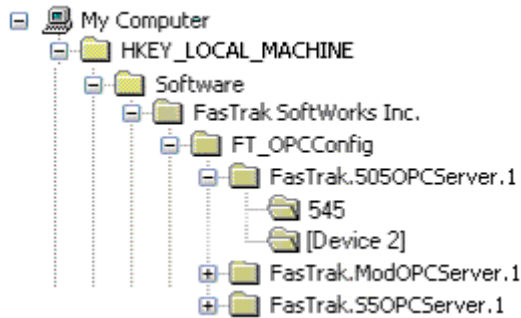


Loading and Saving

There are no menus in FT_OPCConfig, and thus no save or open menu options. The information is automatically saved on exit, and loaded on start.

The configured devices and communication settings are automatically saved to the registry when you exit FT_OPCConfig.

The information is stored in folders within **HKEY_LOCAL_MACHINE /Software/FasTrak SoftWorks, Inc./FT_OPCConfig** as shown below.



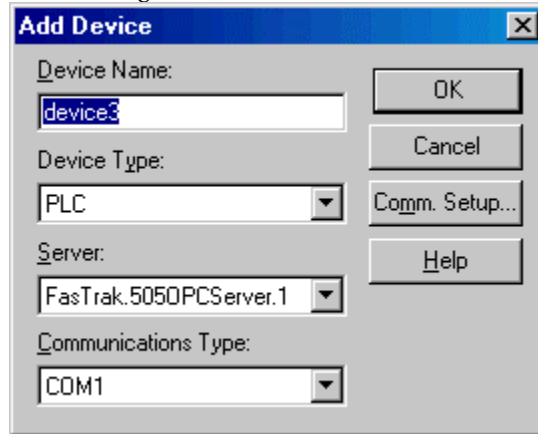
FT_OPCConfig automatically loads the configured devices and communication settings from the registry when you start FT_OPCConfig.

When a FasTrak OPC server is launched, it reads the configuration information that FT_OPCConfig saved in the registry.

Add Device

To add a device:

1. Bring up the Add Device dialog by clicking the Add Device on the FT_OPConfig main dialog.

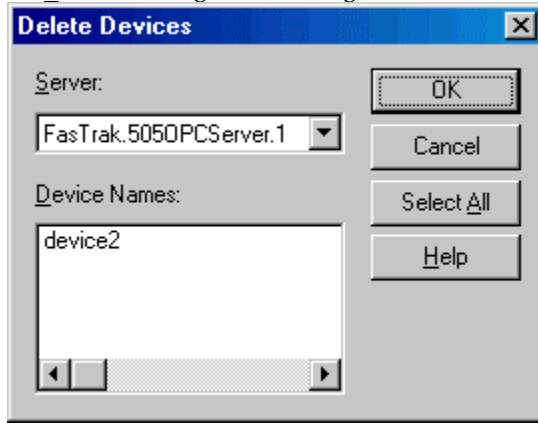


2. Configure the following options, then click the **OK** button:
 3. **Device Name:** Enter a descriptive device name in the edit box. When adding OPC items from the browse area of an OPC client, this is the name that will appear.
 4. **Device Type:** The device type is usually **PLC**. The options depend on the selected server. When the server is FasTrak.ModOPCServer.1, the options are **PLC** or **Frick Quantum**.
 5. **Server:** Select the FasTrak OPC server to use to communicate with the device.
 6. **Communications Type:** Select the communication system. The options depend on the selected server. For example, the options for the FasTrak.505OPCServer.1 are **COM1 - COM4**, **TCP/IP**, **H1 Board**, and **Profibus FMS**.
 7. **Comm Setup:** Click the **Comm Setup** button to configure the communications parameters. The appropriate dialog for the selected server and communications type is displayed.

Delete Devices

To delete devices:

1. Bring up the **Delete Devices** dialog by clicking the **Delete Devices** on the FT_OPCConfig main dialog.



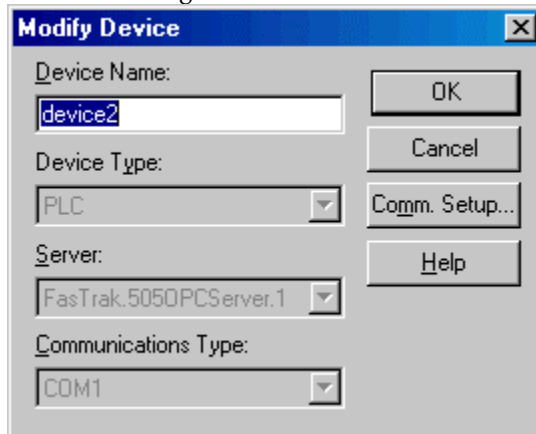
2. Select the **Server** for the device or devices to be deleted.
3. Select the device or devices to be deleted by highlighting them in the **Device Names** list. The **Device Names** list shows devices associated with the selected **Server**. To select all the devices associated with the selected **Server**, click the **Select All** button.
4. Click the **OK** button.

Modify Device

The device name and the communications setup for a device can be modified. The device type, server, and communications type can only be configured when *adding a device*.

To modify a device:

1. Highlight the device to be modified in the Configured Devices list on the FT_OPCCConfig main dialog.
2. Bring up the **Modify Device** dialog by clicking the **Delete Devices** button or by double-clicking the device in the list.

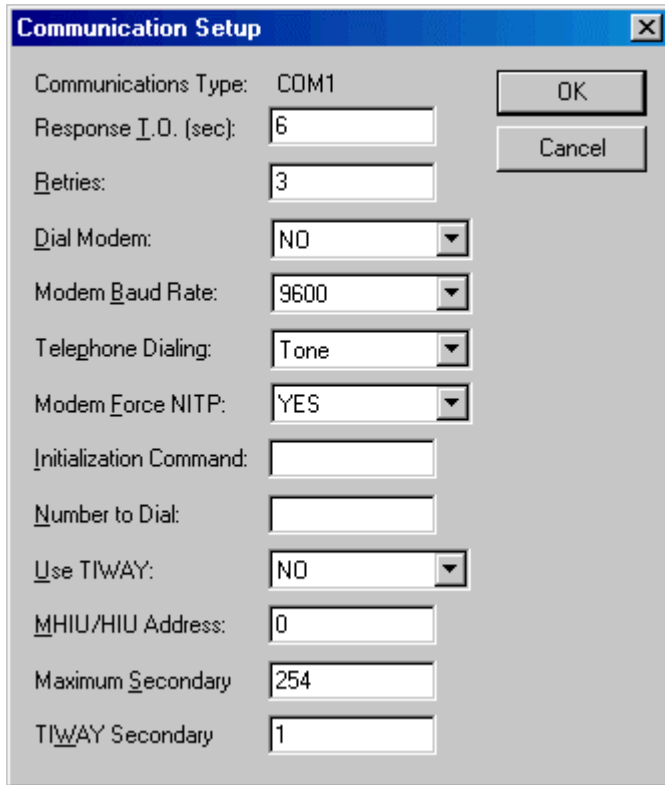


3. To change the **Device Name**, enter the new name in the edit box.
4. To modify the communications parameters, click the *Comm Setup* button.

Communications Setup

Use the Communications Setup dialog to configure the communication options for the selected server and device type.

The dialog varies depending on the server and communications type. The illustration below shows the dialog for serial communications with the **FasTrak.505OPCServer.1** server.



The screenshot shows a dialog box titled "Communication Setup" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

Communications Type:	COM1	OK
Response I.O. (sec):	6	Cancel
Retries:	3	
Dial Modem:	NO	
Modem Baud Rate:	9600	
Telephone Dialing:	Tone	
Modem Force NITP:	YES	
Initialization Command:		
Number to Dial:		
Use TIWAY:	NO	
MHIU/HIU Address:	0	
Maximum Secondary:	254	
TIWAY Secondary:	1	