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ControlShop™

# FTBatch

Version 2.02

By FasTrak SoftWorks, Inc.

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**Contacting FasTrak SoftWorks, Inc.**

FasTrak SoftWorks, Inc.	262-238-8088
Technical Support	262-238-8088
Sales	262-238-8088
Web	<b><a href="http://www.fast-soft.com">http://www.fast-soft.com</a></b>
Email	<b><a href="mailto:support@fast-soft.com">support@fast-soft.com</a></b>
Mail	Attention: Technical Service FasTrak SoftWorks, Inc. PO Box 240065 Milwaukee, WI 53224-9003

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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.

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

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## 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**.)

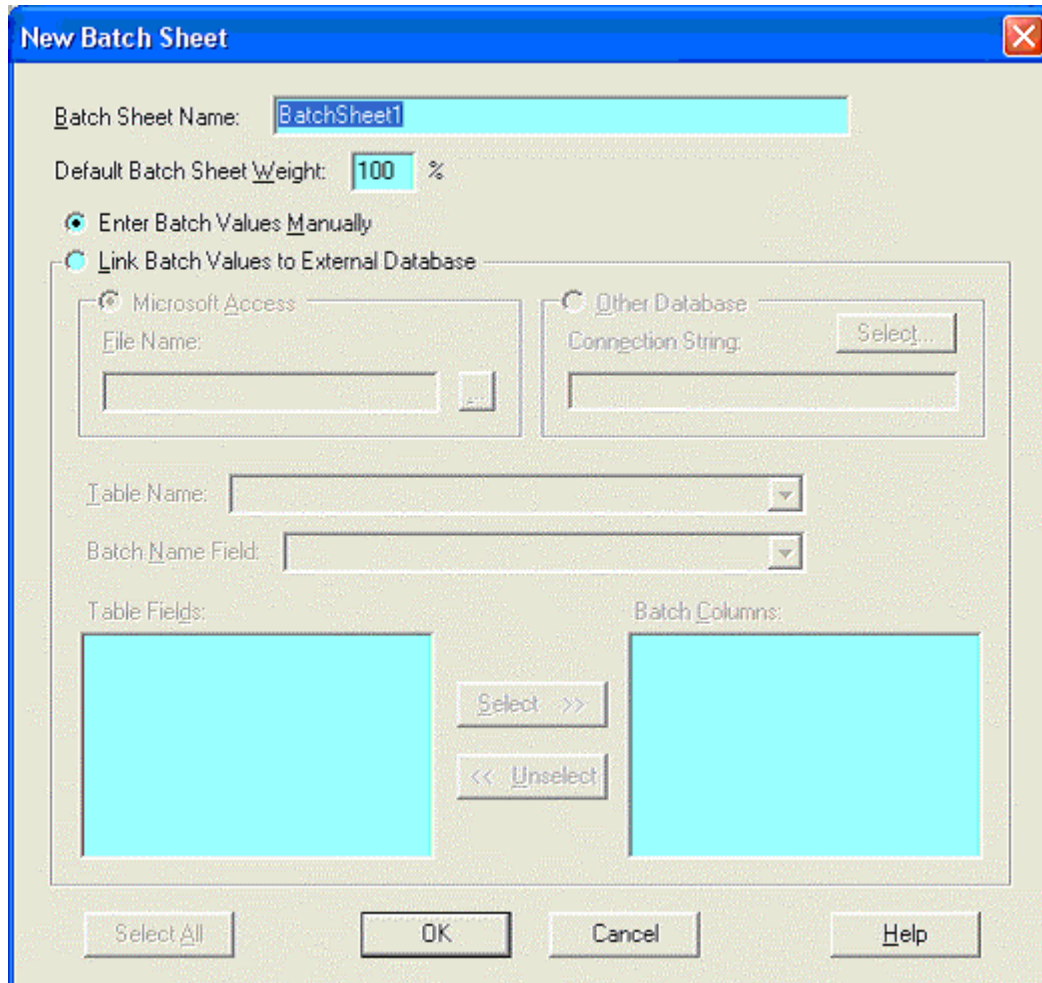


## Creating a Batch Sheet

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

To create a new Batch Sheet:

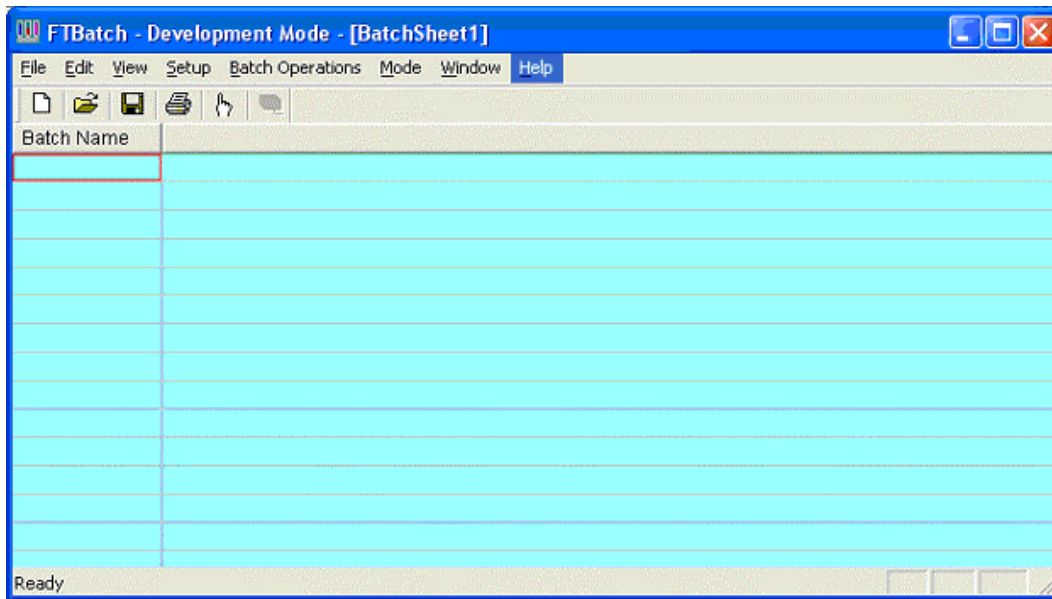
1. Select the **File / New** menu option or click the  toolbar button. The **New Batch Sheet** dialog appears.



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

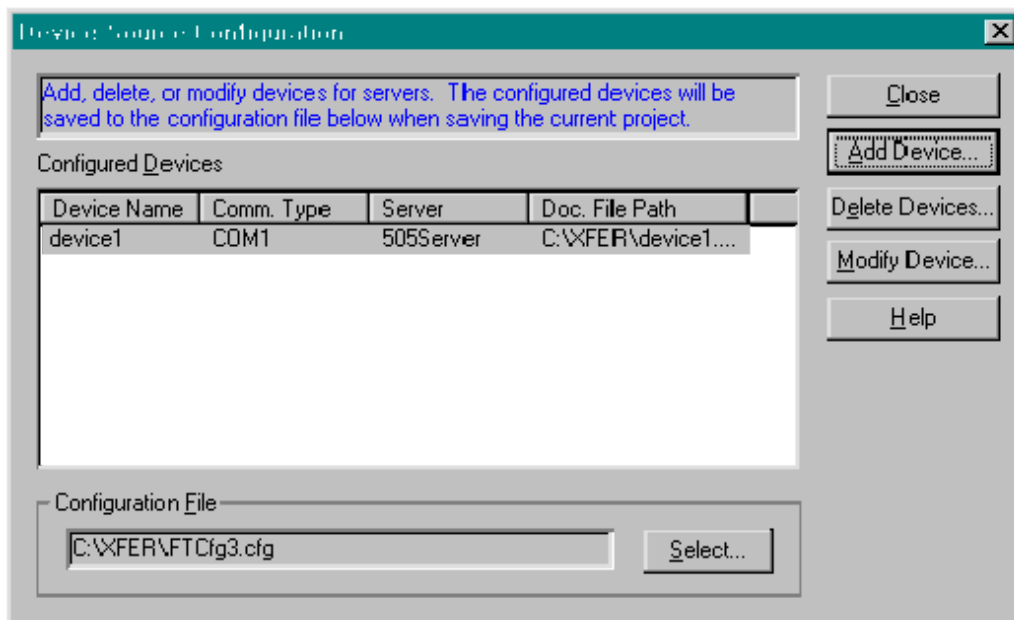
The **Device Source Configuration** dialog allows you to configure the devices, which FTBatch will communicate with. At least one device must be configured before any addresses can be assigned to a non-OPC column of a Batch Sheet.

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.**)

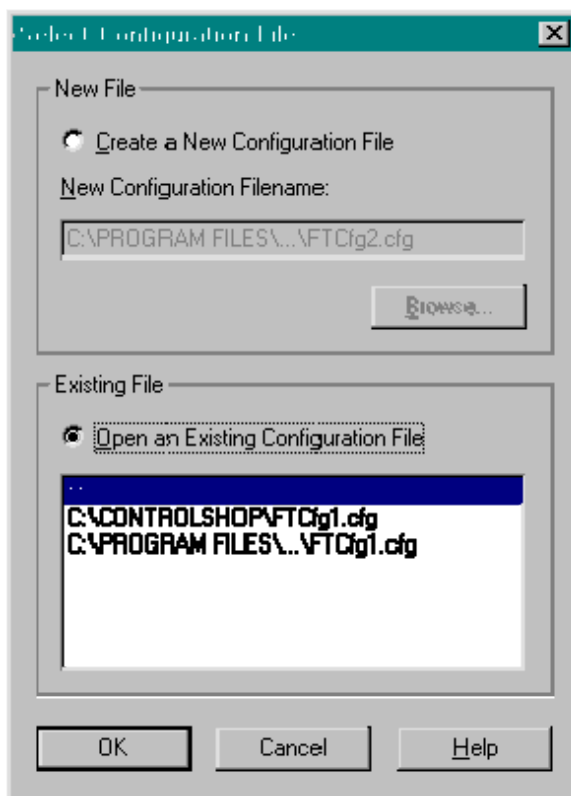


## Selecting the Configuration File

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.




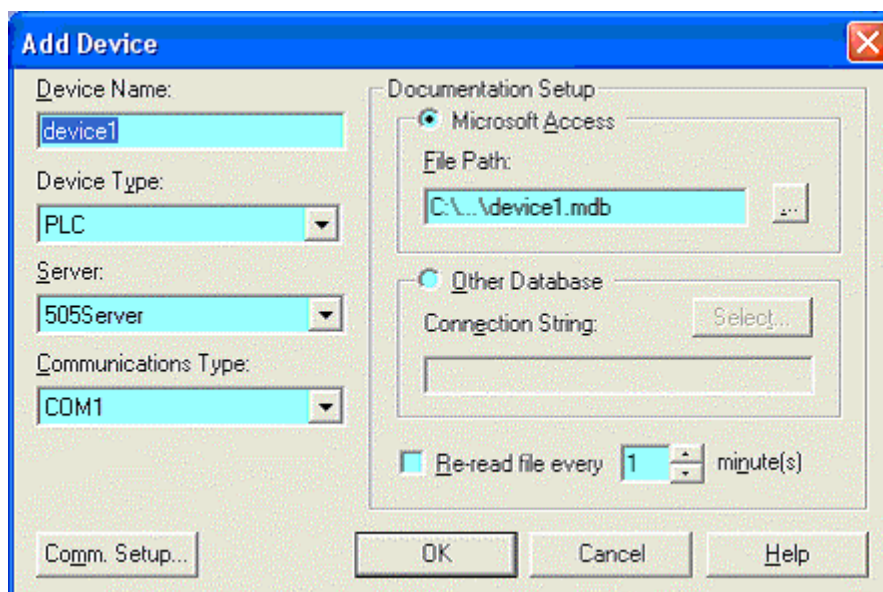
3. Save the current configuration to a file or load a saved configuration.
  - **New File:** To create a new configuration file, select the **Create New Configuration File** option button and click the **Browse** button to browse for the file name and location.
  - **Existing File:** To select an existing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

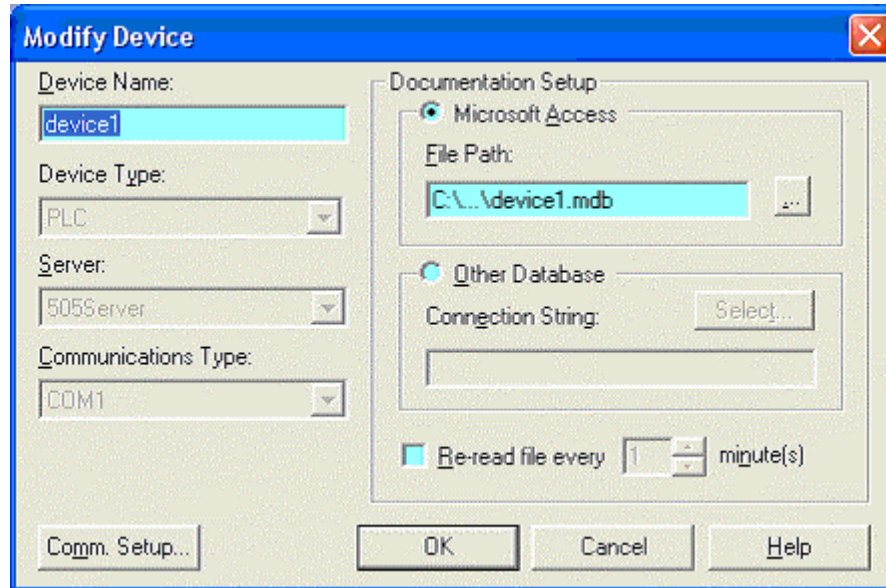
- **Re-read file every:** This option should only be selected when sharing the database with other applications, and only if the database is under development. To keep documentation up-to-date, select the check box and set the number of minutes to control how often the documentation database will be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

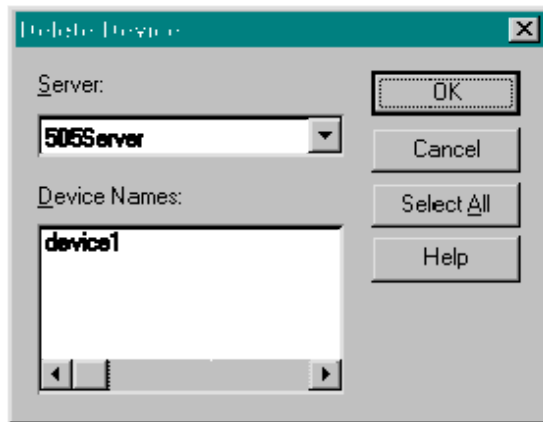
the number of minutes to control how often the documentation database will be checked for changes.

## 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.




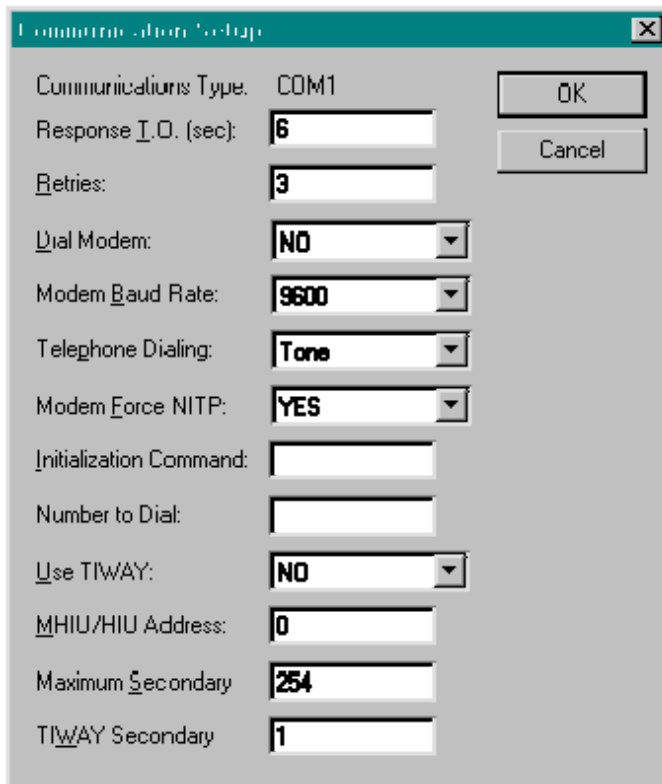
3. Select the **Server** that controls the devices to be deleted. The **Device Names** list shows the devices configured for that server.
4. Select the device(s) to be deleted. To delete all the devices for a server, click the **Select All** button.
5. Click **OK**.

## 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



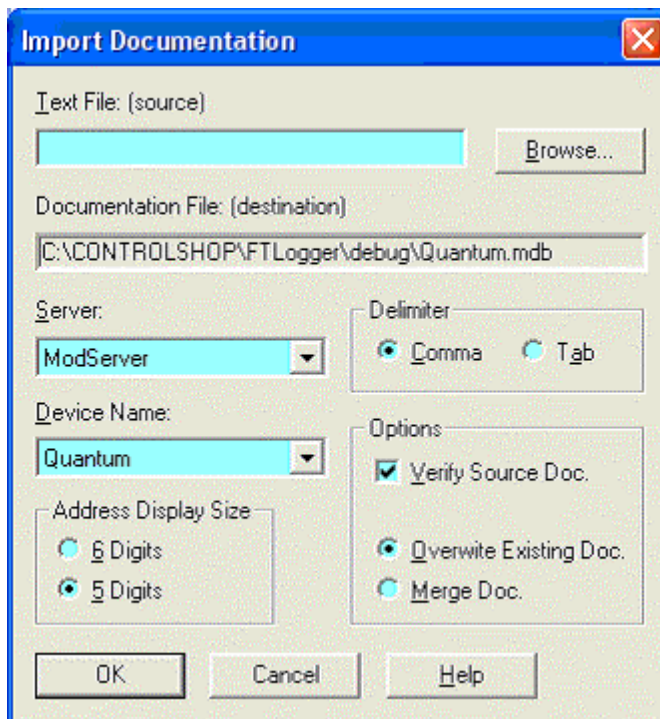
# Importing / Exporting Documentation

## 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.

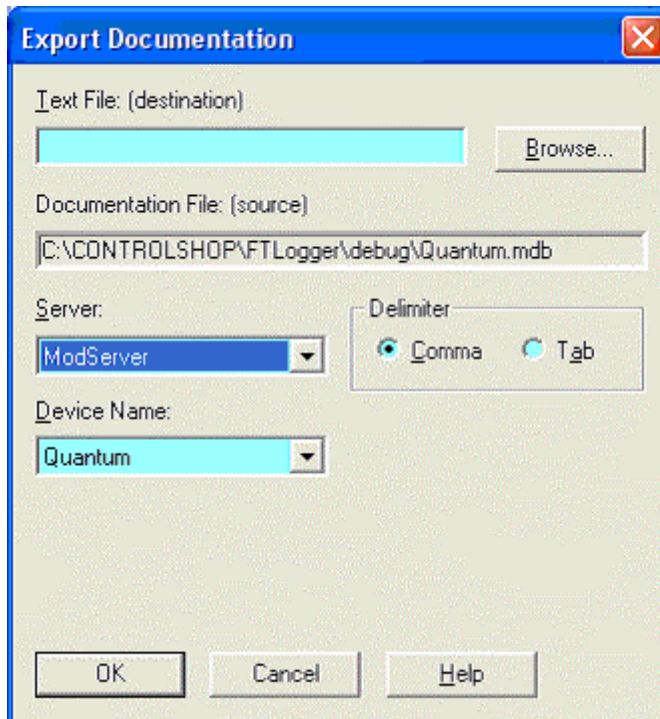
7. Set the **Options** as desired:
  - **Verify Source Doc:** Select the check box to verify tags, addresses, and the source file format. Clear the box for a faster import process.
  - **Overwrite Existing Doc:** When this option is selected, the database is cleared, so the imported documentation is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

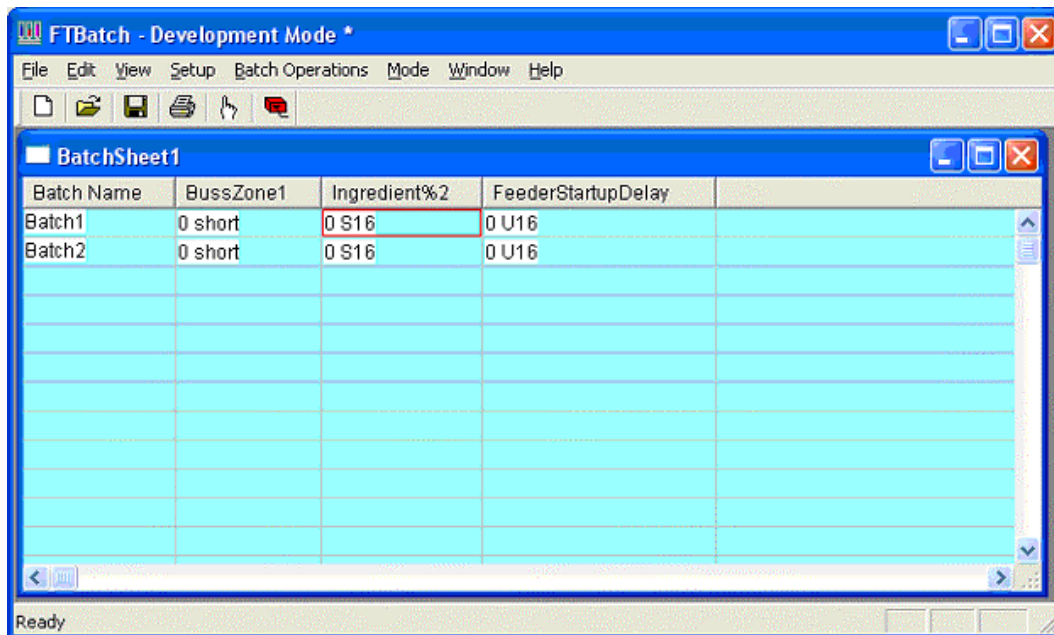


2. Select the destination file by typing in the **Text File (destination)** field or by clicking the **Browse** button.
3. Select the communication **Server** for the device. The list shows servers that are registered on the computer.
4. Select the **Device Name**. The list shows device configuration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

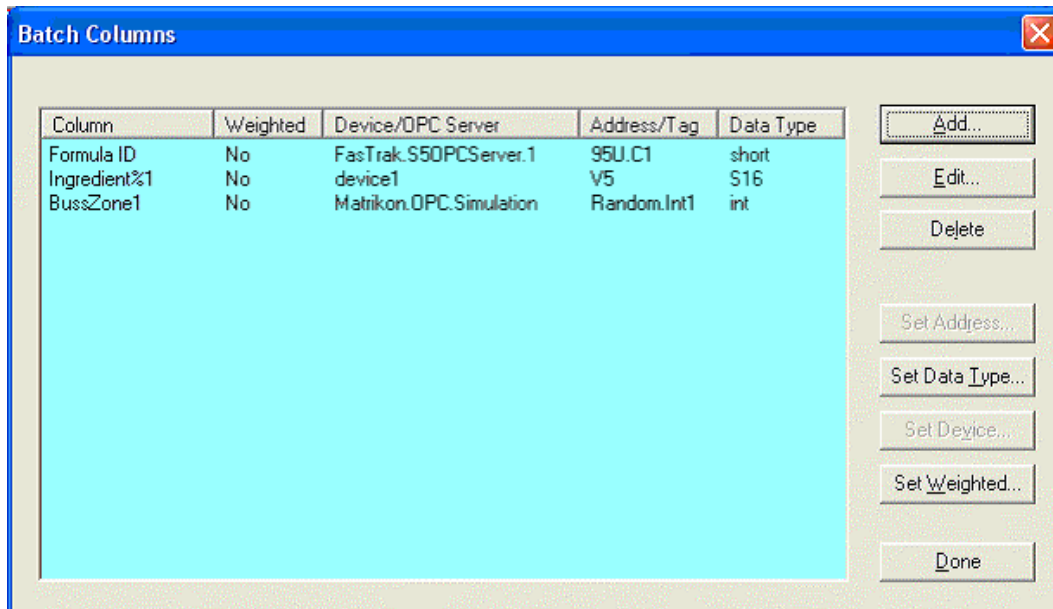


## Configuring Columns

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.

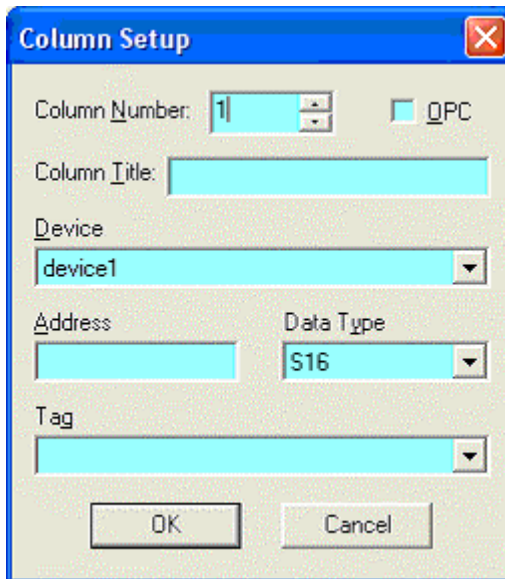
- **Device:** The **Device** combo box contains the list of all configured devices for all servers currently running. Select the desired device from the list.
- **Address:** Enter the device's address, which will be associated with this column. Any matching tag found within the shared documentation file (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:

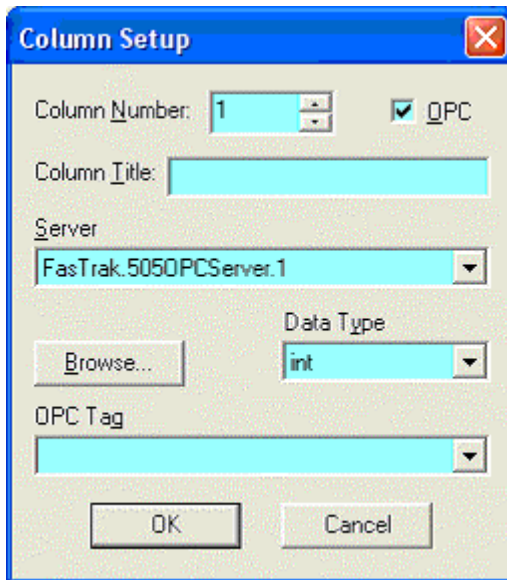
1. Access the **Batch Columns** dialog by selecting the **Setup / Columns** menu option.
2. To add a column to a Batch Sheet whose values are manually entered, click the **Add** button. To modify the settings of an existing column, select it in the list box and click the **Edit** button or double-click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



The screenshot shows the 'Column Setup' dialog box. It has a blue title bar with the text 'Column Setup' and a close button (X). The dialog contains the following fields and controls:

- Column Number:** A dropdown menu with '1' selected.
- OPC:** A checkbox that is currently unchecked.
- Column Title:** An empty text input field.
- Device:** A dropdown menu with 'device1' selected.
- Address:** An empty text input field.
- Data Type:** A dropdown menu with 'S16' selected.
- Tag:** An empty dropdown menu.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

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



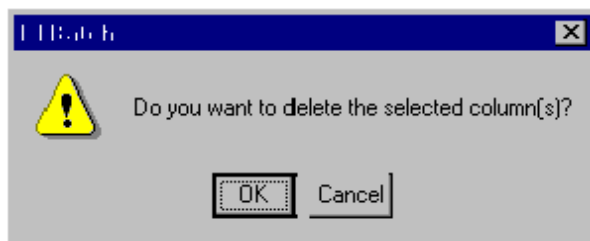
4. Configure the column and click **OK**.
  - **Column Number:** The **Column Number** is initially set to the next unused column number in the Batch Sheet. This number can be accepted or changed to a lower number. If a lower number is selected, this new column will be inserted into that position. All 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.

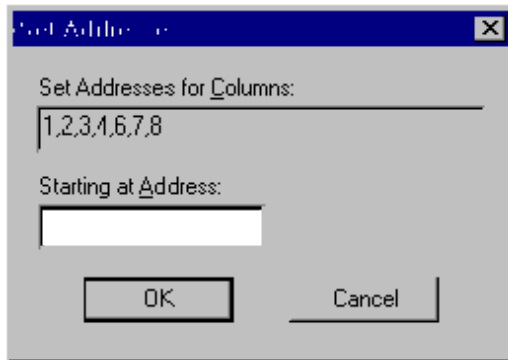
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## Setting Addresses

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.



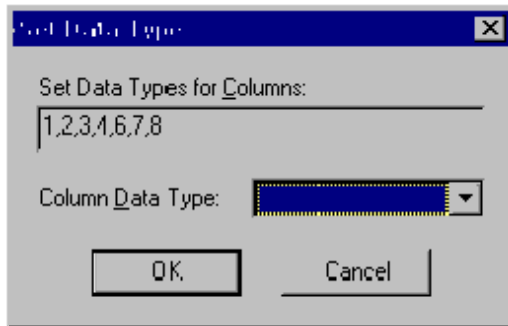
3. Enter the address for the first column in the **Set Addresses for Columns** list and click **OK**.
  - **Set Addresses for Columns:** The numbers of the first few items highlighted in the previous dialog appear in this edit box. These column numbers are displayed here for information purposes only 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.



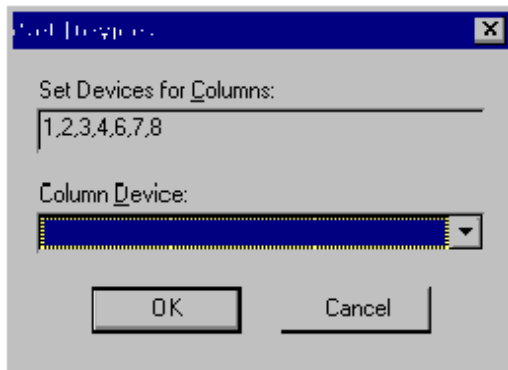
3. Select the **Column Data Type** and click **OK**.
  - **Set Data Types for Columns:** The numbers of the first few items highlighted in the **Batch Columns** dialog appear in this edit box. These column numbers are displayed here for information purposes only and cannot be edited.
  - **Column Data 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.

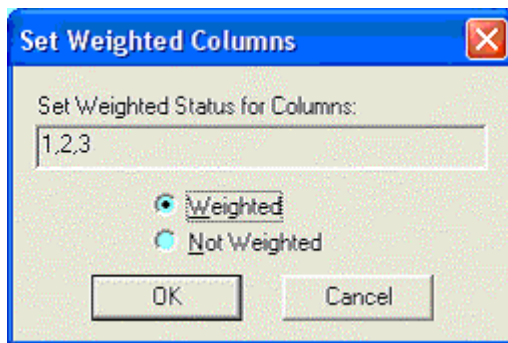


## Setting Weighted Columns

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%.

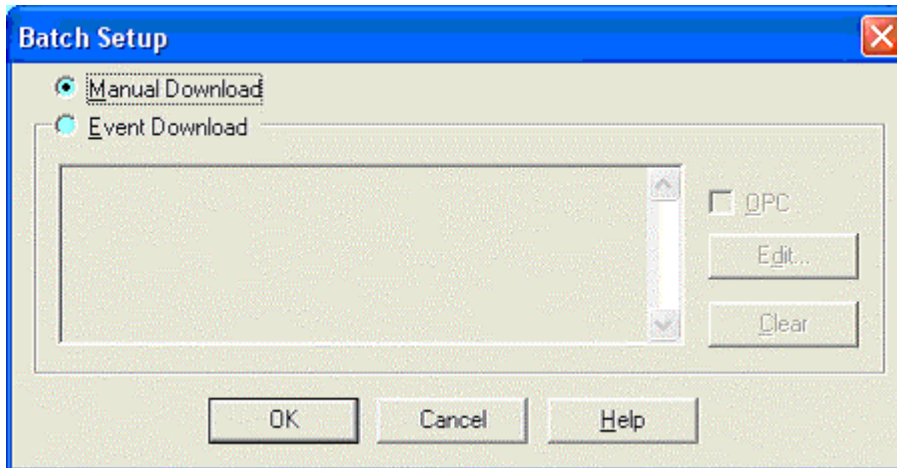


## Setting Up a Batch Download

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.

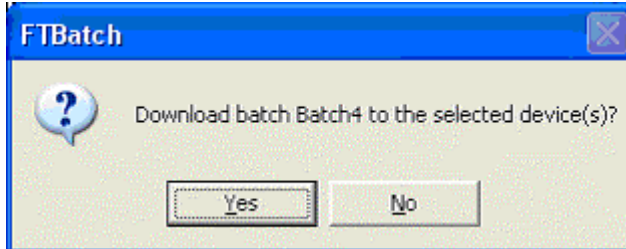


2. Configure the batch download and click **OK**.
  - **Manual Download:** Select the **Manual Download** option button if the batch will be manually downloaded. (See **Downloading a Batch Manually**.)
  - **Event Download:** Select the **Event Download** option button if the batch will be automatically 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

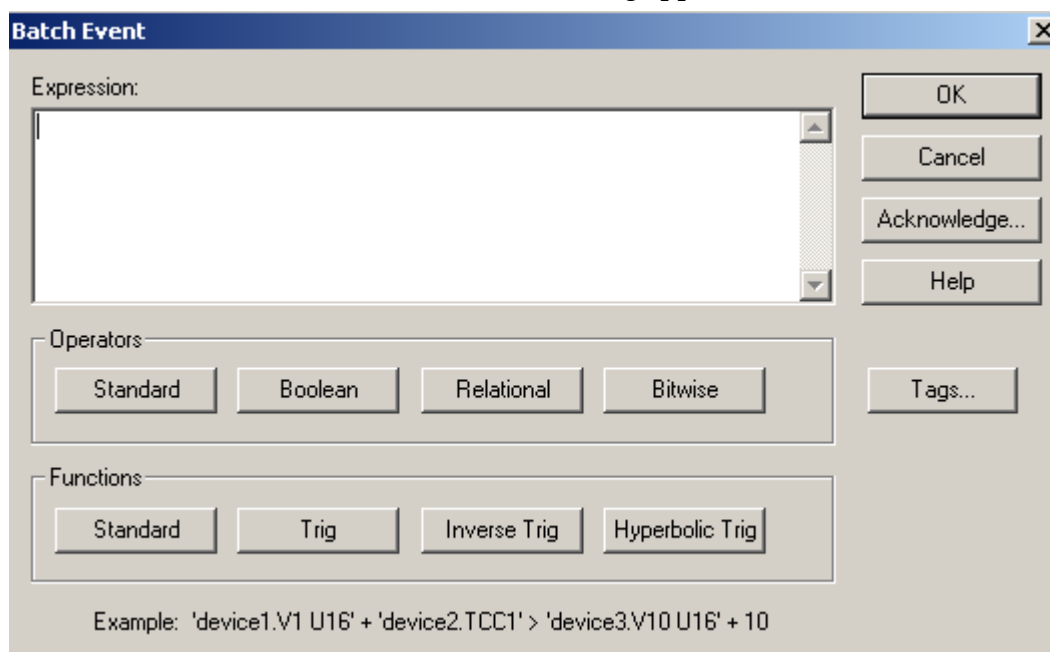
Automatic downloads occur when a pre-configured event expression (one for each batch) evaluates to **TRUE**. (See **Setting an Event**.) Select the **Mode / Online** menu option to monitor the event expression. When the expression is **TRUE**, the corresponding batch will be downloaded.

## 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

(	
)	



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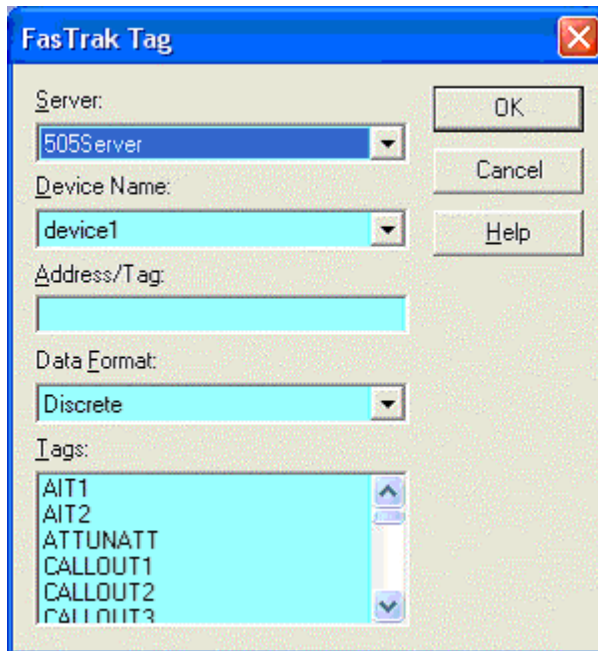
<b>Boolean Operators</b>	<b>Description</b>
!	Not
&&	And
	Or
<b>Relational Operators</b>	<b>Description</b>
==	Equal To
!=	Not Equal To
<=	Less Than Or Equal To
>=	Greater Than Or Equal To
>	Greater Than
<	Less Than
?:	If (condition1) return(condition2) else return(condition3)
<b>Bitwise Operators</b>	<b>Description</b>
&	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.



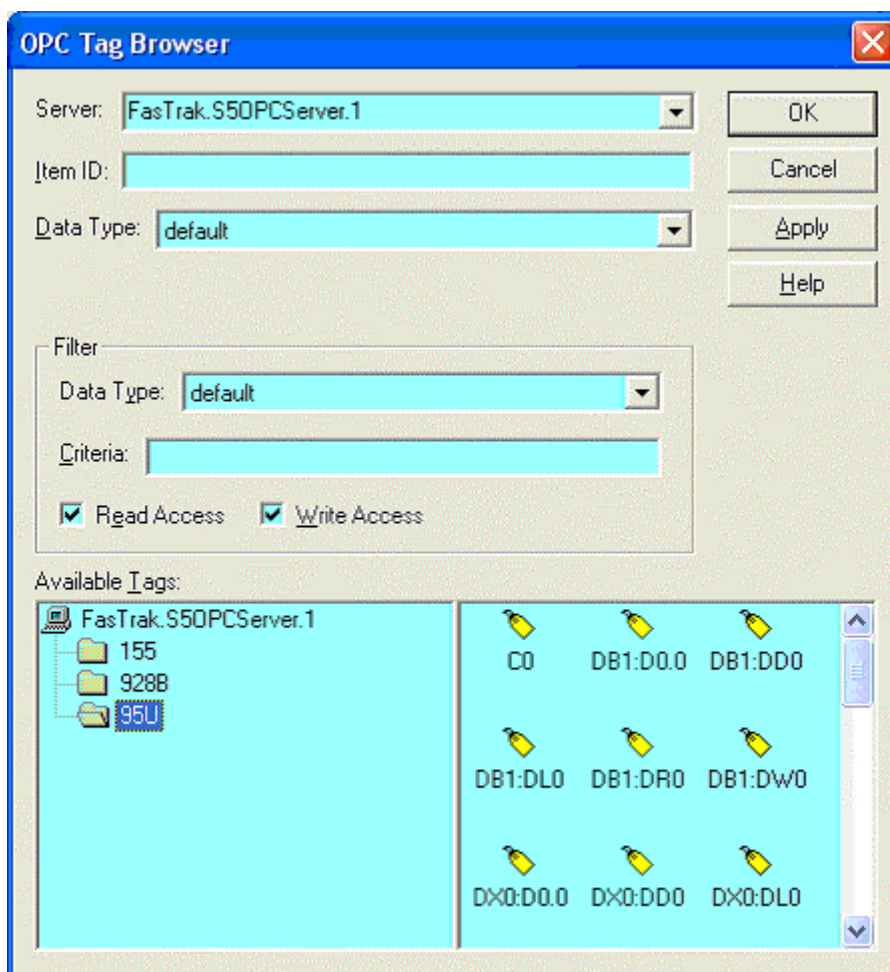
3. Configure the tag and click **OK**.
  - **Server:** Select a server from the registered servers list.
  - **Device Name:** Choose from the list of devices that the Batch Sheet will download values to.
  - **Address/Tag:** Manually enter an address or tag from a selected device or click on an item 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.

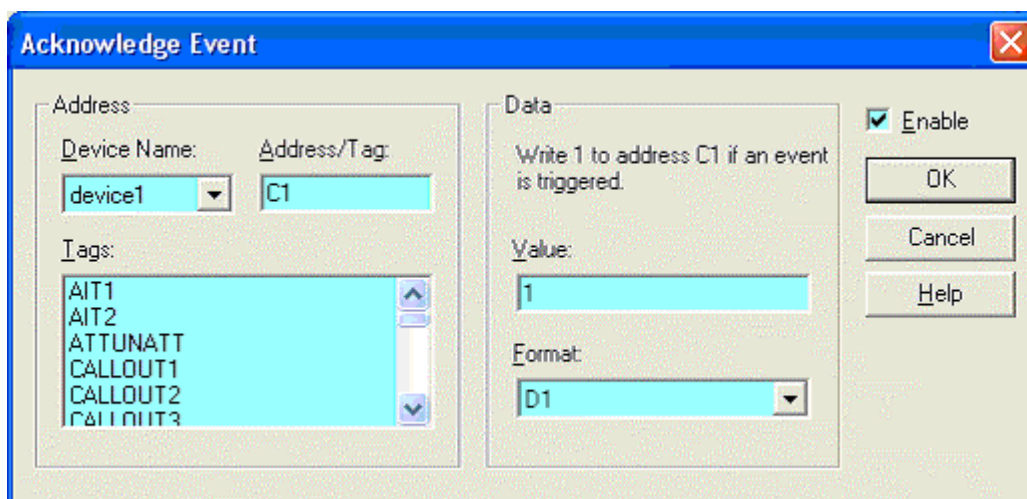
- **Item ID:** Identifies the tag. Manually enter or modify a tag, or select a tag from the **Available Tags** pane.
- **Data Type:** There are 13 different data types to choose from, which will affect how the value is displayed in the Batch Sheet. The default will display the canonical (native) data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



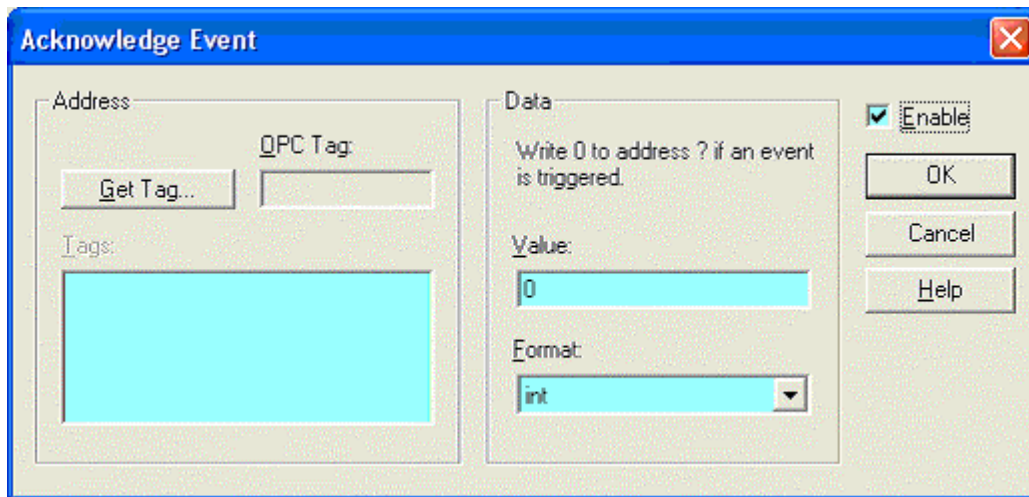
3. Select on the **Enable** check box to enter data.
4. Specify the **Address** to be written to.
  - **Device Name:** Select the device to which the PLC value is to be written.
  - **Address/Tag:** Enter the PLC address or the tag for that address. Or select a tag from the **Tags** list.
5. Specify 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.

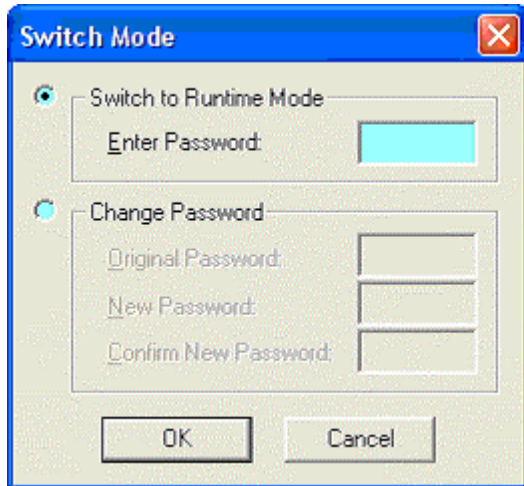


3. Select the **Enable** check box to enter data.
4. Specify the **OPC Tag** to be written to. Select a tag using the **Get Tag** button. (See **Selecting an OPC Tag**.)
5. Specify the **Data** to be sent. Set the **Value** field and select the data's **Format** from the drop-down box.
6. Click **OK**.

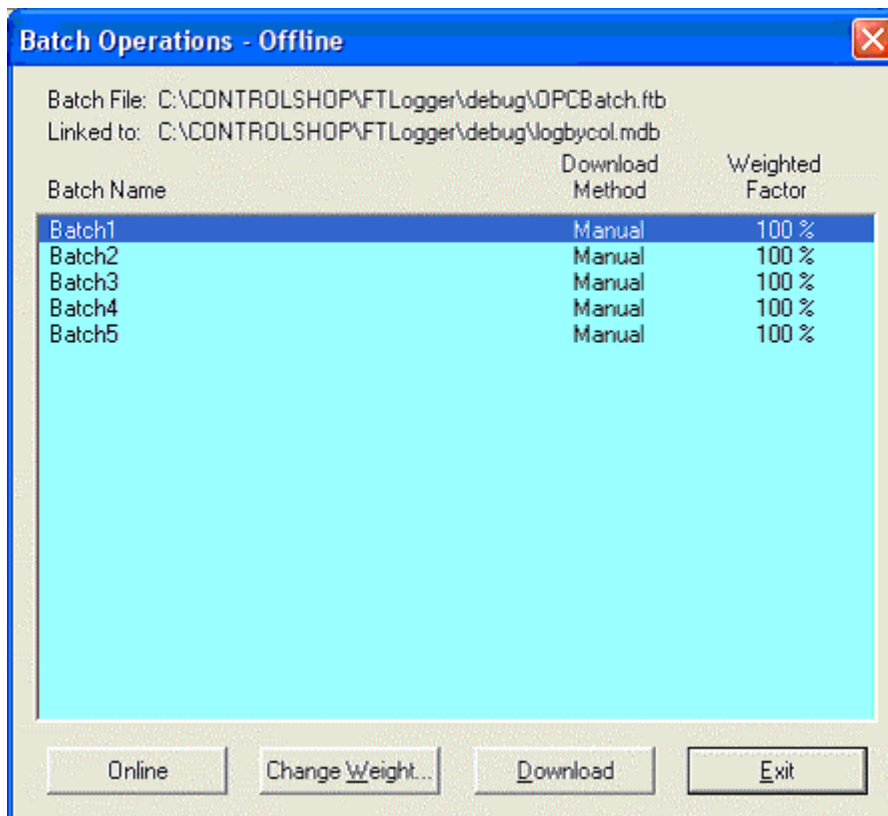
## Switching Modes

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**.

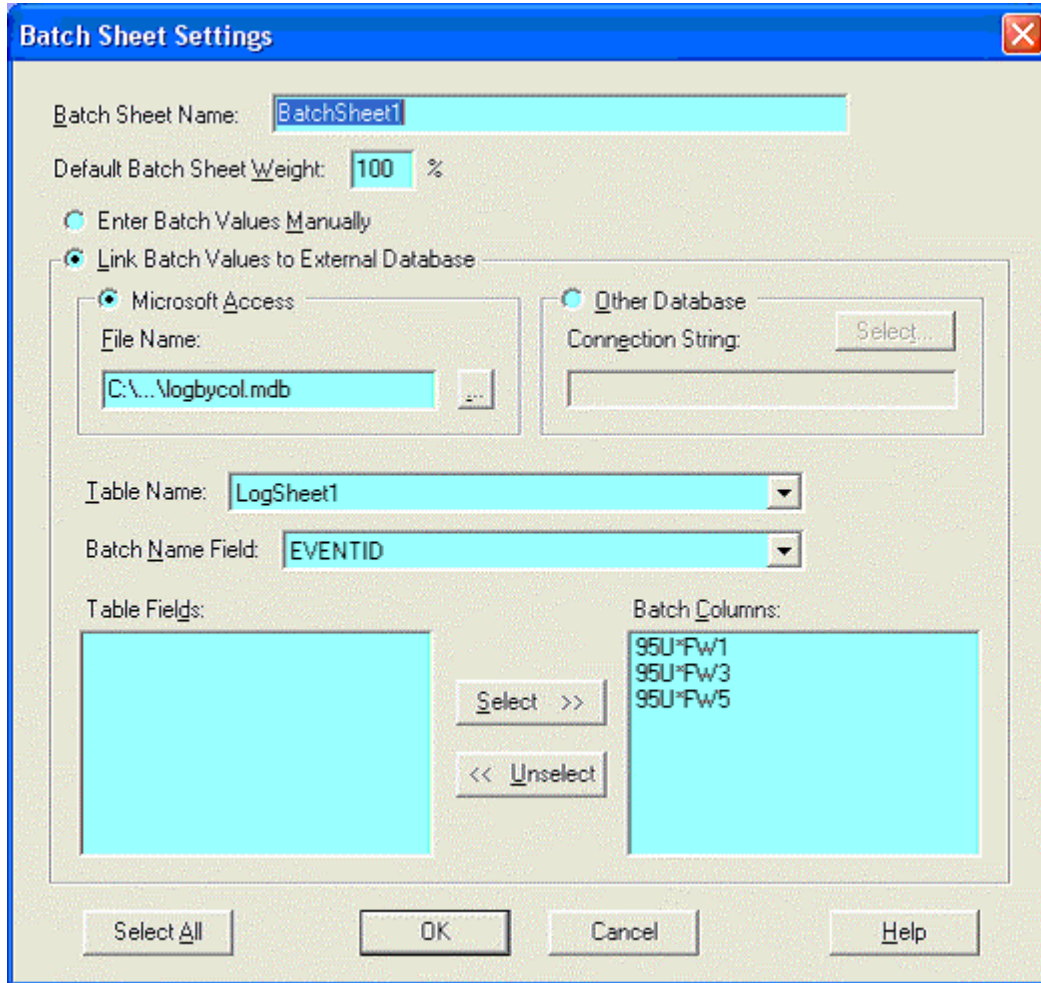


## Changing Batch Sheet Settings

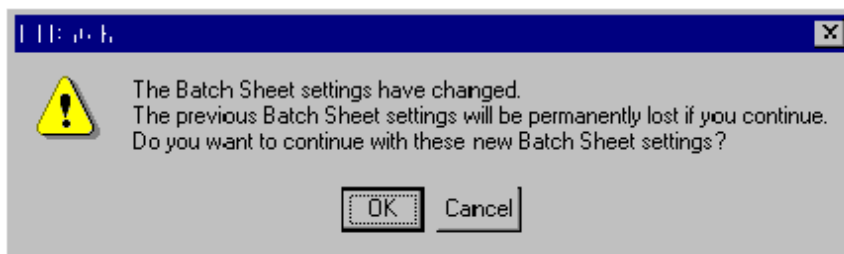
After a Batch Sheet has been created, its settings can be viewed and modified.

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.

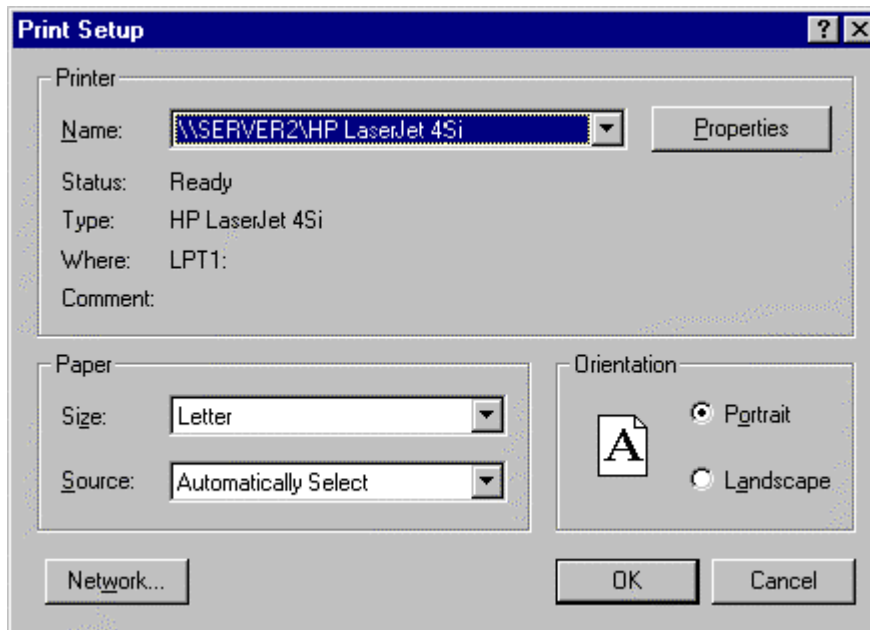


## Printing

The settings and values of Batch Sheets can be printed.


To set up print options:

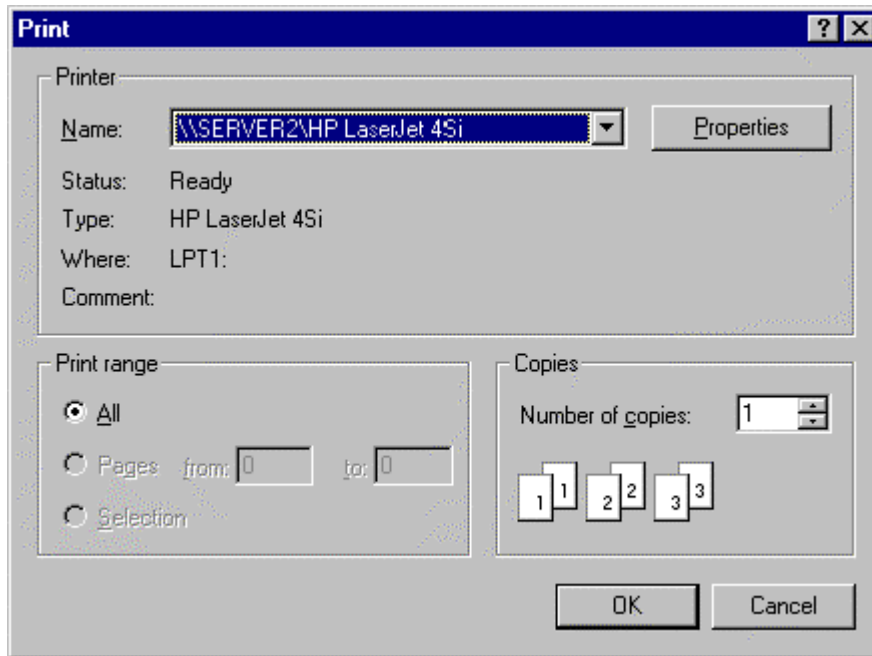
1. Select the **File / Print Setup** menu option. The **Print Setup** dialog appears.



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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