Field Tools 3.3 Quick Start Guide
Application Safety Considerations

Protecting Operating Processes
A failure of this application – for whatever reason -- may leave an operating process without appropriate protection and could result in possible damage to property or injury to persons. To protect against this, you should review the need for additional backup equipment or provide alternate means of protection (such as alarm devices, output limiting, fail-safe valves, relief valves, emergency shutoffs, emergency switches, etc.)

System Training

A well-trained workforce is critical to the success of your operation. Knowing how to correctly install, configure, program, calibrate, and trouble-shoot your Emerson equipment provides your engineers and technicians with the skills and confidence to optimize your investment. Remote Automation Solutions offers a variety of ways for your personnel to acquire essential system expertise. Our full-time professional instructors can conduct classroom training at several of our corporate offices, at your site, or even at your regional Emerson office. You can also receive the same quality training via our live, interactive Emerson Virtual Classroom and save on travel costs. For our complete schedule and further information, contact the Remote Automation Solutions Training Department at 800-338-8158 or email us at education@emerson.com.
Contents

Section 1: Introduction .......................................................... 1
  1.1 What is Emerson Field Tools? .......................................................... 1

Section 2: Installation ............................................................ 3
  2.1 Minimum System Requirements .......................................................... 3
     2.1.1 Notes on USB to Serial Converters .................................................. 3
  2.2 Before You Begin ................................................................................. 3
     2.2.1 Disabling User Account Control (UAC) in Windows ......................... 4
     2.2.2 Special Notes for BSI_Config/TechView Users .................................... 5
     2.2.3 Special Notes for OpenBSI users ......................................................... 6
     2.2.4 Special Notes for ROCLINK Users ....................................................... 6
  2.3 Installing Field Tools ....................................................................... 6

Section 3: Communication Setup ......................................... 11
  3.1 Using Field Tools to Establish a Connection ............................................... 11
     3.1.1 Before You Begin ............................................................................ 11
     3.1.2 Starting Field Tools and Logging In ..................................................... 12
     3.1.3 Changing the Password .................................................................... 13
     3.1.4 Defining Users ............................................................................... 14
     3.1.5 Connections List ............................................................................ 16
     3.1.6 Starting an Existing Connection ......................................................... 18
     3.1.7 Creating a New Connection to a Device (Controller/Flow Computer) ....... 19
     3.1.8 Making a Direct Connection .............................................................. 27
     3.1.9 Active Connection pane .................................................................... 28
     3.1.10 Saving Connections / Importing Connections ...................................... 29
     3.1.11 Settings .................................................................................... 30
  3.2 Offline Configurations/Solutions Menu .................................................. 31

Appendix A – Troubleshooting Tips ........................................... 33
  Message: Failed to connect to Comm Manager ............................................ 33
  Communication Problem Causing Truncated Messages ................................ 33
  USB to RS-232 Serial Connection Problems .............................................. 36
  Eltima Message: FAILURE: Access is denied ........................................... 36
VPN Causes Certain Features to Fail ................................................................. 36
Overlapping or Truncated Screen Items ........................................................ 37
Cannot Communicate with Device After Configuration Download or Cold/Warm Start .............................................................................................................. 37
Incorrect Timestamp in FBxConnect Logs ......................................................... 37
Wi-Fi connections Incompatible with FIPS ....................................................... 38
FBxConnect USB Driver Installation Issues ..................................................... 38
Number of Supported ROCLINK Connections ............................................. 39
Message: Comm Manager Connection Lost ................................................... 39
Section 1: Introduction

CAUTION

When implementing control using this product, observe best industry practices as suggested by applicable and appropriate environmental, health, and safety organizations. While this product can be used as a safety component in a system, it is not intended or designed to be the only safety mechanism in that system.

This manual provides a brief introduction to Emerson Field Tools and covers software installation and initial communications setup.

For full details on using the Field Tools software, please refer to the online help included in each component application.

1.1 What is Emerson Field Tools?

Emerson Field Tools provides a single integrated package for connecting to and configuring ROC, FloBoss™, ControlWave™ flow computers and RTUs, FB1000/FB2000 Series Flow Computers, and FB3000 RTUs.

Field Tools supports either a direct serial connection or an IP connection to a controller or flow computer. You can also connect wirelessly with FB1000/FB2000 Series Flow Computers. In all these cases, you establish communications with the controller using Field Tools’ Connection wizard.

In addition, if you install configuration tools for the controller (ROCLINK, TechView, and/or FBxConnect) Field Tools automatically launches the appropriate tool when you open a connection to a ROC, FloBoss, ControlWave device, an FB1000/FB2000 Series Flow Computer, or an FB3000 RTU.
Section 2: Installation

This chapter covers installation of Field Tools software.

2.1 Minimum System Requirements

For optimal performance, we recommend that your laptop PC meet the following minimum requirements:

- Intel® Core™2 Duo T7100 or similar specification Intel CPU (minimum)
- 2.5 GB available hard disk space to install the full software package
- 8 GB RAM
- 1366 x 768 or better resolution display (OS compatible)
- Windows 7 Professional for either 32-bit or 64-bit (Service Pack 1) or Windows 10 Professional
- Network port can be either:
  - RS-232 Serial port or USB to RS-232 converter (See Section 2.1.1)
  - Ethernet port

**Important**
Not all components of Field Tools run on all three operating systems.
For details on compatibility of Field Tools with particular hardware, software, and firmware, please refer to the Field Tools Product Data Sheet (D301735X012).

2.1.1 Notes on USB to Serial Converters

USB to RS-232 serial converters vary widely in quality and performance. Users report good results with the following converters:

- BlackBox IC199A
- IOGear® GUC232A
- CHIPI-X10

If you experience problems with your converter, see Appendix A – Troubleshooting Tips.

2.2 Before You Begin

Before you install Field Tools, there are several things you need to know:

**Important**
- Field Tools cannot reside on a computer running any components of OpenEnterprise 2.x, OpenEnterprise 3.x, OpenEnterprise Client/Server software, or ObjectServer.
• Field Tools 3.3 includes components of BSI_Config (such as TechView) which are from OpenBSI version 5.9 Service Pack 3.

• Field Tools can co-exist on a computer running OpenBSI Network Edition 5.9 Service Pack 2 (or newer). It cannot be installed on a computer running OpenBSI versions older than 5.9 Service Pack 2.

• You must have administrative privileges to install Field Tools.

• If installing TechView, close all other programs down before you begin installation. In particular Office 365 components must be closed because they can interfere with the Field Tools installer.

• If you are using an Enterprise version of the Windows operating system and your administrative privileges do not include read/write access to \ProgramData\Emerson and its sub-folders, these privileges must be set manually by your system administrator.

• You must disable User Account Control (UAC) prior to the installation (you can re-enable it after a successful installation). See Section 2.2.1.

• If you are using an Enterprise version of a Windows operating system with an application blocker, set any EXE files in \Program Files\Emerson to “trusted source.”

• As part of the installation, Eltima device software is installed automatically. Depending upon your permissions, Windows may require you to confirm this installation before the installation can proceed.

• For best results on a PC or laptop, set your Windows Control Panel display settings for smaller fonts (100% default). Larger fonts may cause some screen items to overlap or be cut off.

• For best results on a tablet, set your Windows Control Panel display settings for either smaller fonts (100%) or medium fonts (125% default). DPI should be 100.

### 2.2.1 Disabling User Account Control (UAC) in Windows

You must disable UAC prior to installing Field Tools. You can re-enable it after successful installation.

1. Click **Start > Control Panel** to open the Windows Control Panel.
2. Click **Action Center**.
3. Click **Change User Account Control** settings.
4. Drag the sliding control down to **Never notify** and click **OK**.
2.2.2 Special Notes for BSI_Config/TechView Users

If you have BSI_Config 5.9 (which includes TechView) installed prior to installing Field Tools 3.3 and it is a version older than 5.9 Patch A, the Field Tools installer automatically updates BSI_Config components on your PC to version 5.9 Service Pack 3 (which includes Patch A). If you subsequently reinstall BSI_Config 5.9, you'll need to manually copy the Field Tools installer version of TechView.exe to the proper installation path on your PC. If you used the default installation paths, you can use the following examples, assuming your PC hard disk is the C drive:

For 64-bit OpenBSI Users:

Copy `C:\program files (x86)\emerson\openenterprise\bin\TechView.exe` to `C:\program files (x86)\bristol\openbsi\`
For 32-bit OpenBSI Users:
Copy `C:\program files\emerson\openenterprise\bin\TechView.exe` to `C:\program files\bristol\openbsi`.

### 2.2.3 Special Notes for OpenBSI users

Field Tools 3.3 includes components of OpenBSI’s BSI_Config Version 5.9 Service Pack 3. OpenBSI Network edition version 5.9 Service Pack 2 (or newer) can co-exist with Field Tools 3.3. The Field Tools installer does not affect OpenBSI Network Edition. The two programs, however, are not linked together; you cannot for example, launch NetView from Field Tools.

### 2.2.4 Special Notes for ROCLINK Users

- If you have a version of ROCLINK already installed that is older than the version included in the Field Tools installer, Field Tools upgrades it to the version included with the installer. If you have a newer version of ROCLINK already installed when you install Field Tools, Field Tools leaves that as is.

- To preserve your existing files, always backup the device directory (which includes the ROC_USER.MDB file) before you install ROCLINK, and then copy it back after the installation completes. The device directory is the folder `|Program Files|ROCLINK800`.

- You can only have three simultaneous ROCLINK connections to devices through Field Tools.

### 2.3 Installing Field Tools

Field Tools is available as a free download for registered SupportNet users. The installer file follows the format `FieldTools\buildnum.exe` where `buildnum` is the software version build number.

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**Important**

- If you are not a registered SupportNet user, activating a new SupportNet account to obtain Field Tools software may take up to 24 hours to process.

- If you are installing the Field Tools executable from a network drive, there may be a long delay while the installer extracts and uncompresses files onto the local PC.

---

1. Right-click on the Field Tools (.EXE) installation file and choose **Run as administrator** from the pop-up menu.

2. The installation process starts and checks whether certain necessary software components exist on the laptop, and if they are not present, the installation process prompts you to install them. Click **Install. This process may take several minutes.**
Once installation of the required components finishes, the Field Tools installation wizard starts:

**Figure 2-2. InstallShield Wizard**

**Figure 2-3. InstallShield Wizard**
3. Click **Next**.

**Figure 2-4. Installer Welcome screen**

![Installer Welcome screen]

4. To proceed with the installation, click **I accept the terms of the license agreement** and then click **Next**.

**Figure 2-5. License Agreement screen**

![License Agreement screen]
5. Select the optional configuration packages you want to install then click **Next**.

**Figure 2-6. Optional Package Selection**

![Optional Package Selection](image)

**Note**
You must purchase a license to use FBxDesigner; see the *FBxDesigner Quick Start Guide* (D301860X012) for instructions on licensing that product.

FB3000 users can purchase various features and applications. You can license these from within FBxConnect, or through the Emerson Customer Portal. See the FBxConnect online help and the *Emerson Customer Portal Quick Start Guide* (D301878X012) for details.

You can access licensing tools through the **Help > Licensing** menu item in Field Tools.

**Note**
If you are installing over an existing version of Field Tools, you have the option to preserve any saved connections by checking **Retain Previous Connections**, and to preserve the password for Field Tools software by checking **Retain Administrator Password**.

6. The installation proceeds. The installer program periodically reports which components are being installed. This may take several minutes:
7. The software prompts you whether you want the installer to create a Field Tools desktop icon; click **Yes** if you want to start Field Tools from the desktop.

8. Click **Finish** to exit the installer.
Section 3: Communication Setup

This chapter covers initial communication setup with Field Tools.

3.1 Using Field Tools to Establish a Connection

Field Tools can communicate with a controller or flow computer using either a direct serial connection or through an IP network. FB1000/FB2000 Series Flow Computers also support wireless connections through FBxConnect.

⚠️ CAUTION ⚠️

When making multiple FBxConnect connections to the same device (as with a remote and a local connection), be aware that the changes one connection makes to the device may not be immediately visible to other connections, and may even require the other connections to restart FBxConnect before changes become visible. For example, simple changes (such as changes to setpoints) may be immediately visible to all connections, but changing the number of meters, configuring I/O, adding/deleting menu items, or other major configuration changes may require re-establishing the connection using FBxConnect.

3.1.1 Before You Begin

- For serial connections, you would typically connect a serial cable between the laptop computer and a serial port on the controller or flow computer. Other options for serial connections could include a radio or modem.
- For IP connections, connect the laptop to the same IP network which includes the controller or flow computer.
- If you have an FBx-series device with the FBxWifi option, you can use a wireless IP connection. This option requires you know the connection key for the wireless network.
- For details on cabling/wiring, consult the hardware manual for your controller or flow computer.

⚠️ Important ⚠️

When using Field Tools for serial communication, you must plug into the Local Port. For ControlWave-series units, this is a port for which you’ve set the _Pn_LOCAL_PORT system variable TRUE in the ControlWave project running in the unit. Local ports answer to requests sent to a BSAP local address of 1 which is what Field Tools requests. For Network 3000, this is a BSAP slave or pseudo-slave port. For a ROC or FloBoss, the Local Port is a specific port (the LOI port) which answers to the address of 240 and a group number of 240.
For ControlWave/Network 3000 devices only, you need to know which TechView session (*.TVS) file is appropriate for your device so you can specify it when you establish your connection. If you installed TechView, a set of default TVS files resides on your hard disk in your \openbsi installation path. The Connection wizard opens that folder first when you specify your TVS file. For example, there is a CWaveEFM.TVS file to support the ControlWave EFM, a CWaveGFC.TVS file to support the ControlWave GFC, and so on. If you have a customized application with a customized TVS file, you should place it in that folder.

3.1.2 Starting Field Tools and Logging In

1. Start Field Tools either from the desktop icon or click: Start > Programs > Emerson Field Tools > Field Tools.

   In the Log In dialog box, enter your **User name** and **Password** and click **Log in**.

   ![Log In dialog](image)

   **Important**

   The very first time you log in, use **admin** for the **User name** and leave the **Password** field blank. Once you've logged in with these defaults, Field Tools prompts you to change your password.

   ![Password change dialog](image)
2. The Field Tools main screen opens. Use it to establish a connection with the controller / flow computer.

Figure 3-2. Field Tools Main Screen

3.1.3 Changing the Password

You can change the password for the currently logged on user at any time.

1. Click Security > Change password from the menu bar. The Change Password dialog box opens.

   **Note**
   The very first time you start Field Tools, the default password for the ADMIN account is blank, and Field Tools forces you to define a new password; click **OK** to open the Change Password dialog box. Passwords are case sensitive.

   Figure 3-3. Change Password dialog box

2. In the Change Password dialog box, enter the current password in the Old password field, then enter the new password in both the New password and Confirmation fields, then click **OK**. Your password is now changed.
3.1.4 Defining Users

The User Management dialog box lets you define Field Tools users, and also configure RTU login credentials for them.

To define the Field Tools users on this PC click **Security > User management** from the menu bar. This opens the User Management dialog box.

**Figure 3-4. User Management Dialog**

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**Adding a User**

1. If the User Management dialog box is not already open, click **Security > User management** to open it.
2. Click **Add User**. Optionally choose a **Role** for the user. (Particular roles can have particular privileges associated with them.)
3. Enter a **User name** for the user.

**Notes**

- Usernames are case-insensitive and are stored in the database as lowercase.
- Do not create a user named **Operator**. This word is reserved for use internally by Field Tools.
4. Enter a password in the **Password** and **Confirm Password** fields.
5. Click OK.

**Figure 3-5. Add New User Dialog**

Setting a Minimum Password Length

You can enforce a minimum password length to increase the level of protection of your Field Tools passwords. Passwords can range from 1 to 20 characters. The longer the password length, the harder it is for an intruder to gain access to your system.

1. Click Security > Security configuration to open the Security configuration dialog box.

**Figure 3-6. Security configuration Dialog**

2. Enter the minimum number of characters required for a valid password and click OK.

From this point on, all users you define must have a password of this length or longer. Existing users created previously with passwords shorter than this number are unaffected.

Deleting a User

1. If the User Management dialog box is not already open, click Security > User management to open it.
2. Click the name of the user you want to delete.
3. Click Delete User.
4. Click Yes when prompted to confirm the deletion.
Assigning RTU Login Credentials

1. If the User Management dialog box is not already open, click Security > User management to open it.
2. Click the name of the user for which you want to define RTU login credentials then click Credentials mapping. The Credentials mapping dialog box opens.

   **Figure 3-7. Device credentials Dialog**

3. Enter a Username and Password for accessing the particular RTU type(s).

   **Note**
   For the ROC/FloBoss, usernames for RTU access cannot exceed 3 characters.

4. Click OK.

3.1.5 Connections List

The left pane of the Field Tools main screen displays the Connections list tree. This shows connections you've previously saved or used, and also lets you create new connections.
Communications Setup 17

Figure 3-8. Connections List

Table 3-1. Connections List Pane and Context Menus Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="device_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to an FB1100 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="flow_computer_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to an FB1200 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="flow_computer_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to an FB2100 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="flow_computer_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to an FB2200 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="rtu_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to an FB3000 RTU. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="roc_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to a ROC, DL8000, or FloBoss. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="controller_icon.png" alt="Icon" /></td>
<td>Identifies a previously configured connection to a ControlWave or Network 3000 (33xx) controller. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td><img src="site_icon.png" alt="Icon" /></td>
<td>Shows on top of a controller/flow computer icon when its connection is active. Beginning with Field Tools 2.0, you can have multiple simultaneous active connections.</td>
</tr>
</tbody>
</table>
| ![Icon](site_icon.png) | Site - A site is just a name underneath which you can group one or more connections. It could represent a geographical area, a department, or any other logical grouping you need. The Connections list comes with a default site name called “All Connections” which you can rename and/or add additional sites underneath. Although you can rename it, you cannot delete the “All

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Emerson Field Tools Quick Start Guide
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### Icon Description

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections’ site; you can delete other sites if they have no devices underneath.</td>
<td></td>
</tr>
<tr>
<td>Add Connection. Click to launch the Connection wizard. You can find this icon in the Connections list toolbar and in the context menu when you right click on a site.</td>
<td></td>
</tr>
<tr>
<td>Edit Connection. Click to change the connection parameters for the selected connection. You cannot edit an active connection.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** If you change the connection name, when you save, Field Tools prompts you to decide whether you want to save the connection as a new connection under the new name *(Add new connection)*, or to just rename the existing connection *(Replace connection)*.

![Save local connection](image)

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect</td>
<td>Click to activate the selected connection.</td>
</tr>
<tr>
<td>Delete</td>
<td>Click to delete the selected connection or site.</td>
</tr>
<tr>
<td>Add Site</td>
<td>Click this context menu item to add a site underneath the currently selected site.</td>
</tr>
<tr>
<td>Rename Site</td>
<td>Click this context menu item to call up the Modify Site dialog box and rename the currently selected site.</td>
</tr>
<tr>
<td>Expand branch</td>
<td>Click to expand this branch of the Connections tree.</td>
</tr>
<tr>
<td>Hide branch</td>
<td>Click to hide the portion of the Connections tree underneath.</td>
</tr>
<tr>
<td>Apply Pin</td>
<td>Click to display only the portion of the tree below the current position of the cursor. This is useful if you have a large Connections list tree with many items and you only want to see a portion of it.</td>
</tr>
<tr>
<td>Remove Pin</td>
<td>Click to turn off the Apply Pin option and display the entire Connections list tree.</td>
</tr>
</tbody>
</table>

### 3.1.6 Starting an Existing Connection

1. If you have previously established connections from this laptop, Field Tools displays them in the Connections list pane (see Figure 3-8).
2. To activate a connection, double-click on its icon and Field Tools activates that connection and automatically launches the appropriate configuration tool (ROCLINK, TechView, or FBxConnect).
3.1.7 Creating a New Connection to a Device (Controller/Flow Computer)

1. If the connection for the controller/flow computer you want to communicate with already exists in the Connections list just double-click on it – you’re done. If no previous connection exists to this device, go to the next step.

2. If you want to associate the device with a particular site, first click the site name in the Connections list. (If you don’t want to choose a site at this time, you can skip that – the connection will automatically belong to the All Connections site.)

3. Click the **Add connection** icon in the Connections pane toolbar. If the icon is not visible (because no site is selected) click **Connections > Add connection** from the menu bar. Either way, the Connection wizard opens.

4. Select the type of device to which you want to connect in the **Device platform** field. The choices are: **FloBoss/ROC/DL8000**, **ControlWave/33xx**, or **FBx** (for the FB1000/FB2000 Series Flow Computers or FB3000 RTU).
5. Enter the name of the field device in the Specify name field. For FBx devices, click the Get name from device button and Field Tools obtains the device name from the device (if it exists). If no name exists in the device, Field Tools uses the name “Default.”

6. For a ROC/FloBoss or ControlWave, if you want to define a default username/password combination for this device click Device credentials in the Connection page to open the Device credentials dialog box, enter a valid Username and Password combination for access to this controller/flow computer, and re-enter the password in the Verify Password field; this username/password combination will be used for this controller/flow computer throughout this Field Tools session. If you want to use this username/password combination as the default for this RTU for all subsequent connection sessions check the Save as default box. Click OK to finish and close the dialog box.

Figure 3-10. Device Credentials dialog box

7. Choose a Connection type. Choices include either Serial, IP, or WiFi (if you have an FB1000/FB2000 Flow Computer). Proceed to Step 8 for serial communication; skip to Step 9 for IP communication; skip to Step 10 for Wi-Fi communication.
8. For serial communication:

**Figure 3-11. Serial Connection Settings – FB1000/FB2000 Series Flow Computers & FB3000 RTU**

- Select the PC communication port in the **Comm port** drop-down menu, otherwise leave it at the **Auto** default which causes the Connection wizard to cycle through the various ports until it finds the correct one. You can refresh the port selections by clicking the refresh (↻) button.
- The Wizard hides certain parameters to simplify configuration using default values; while this is useful in some situations, we recommend you enter the **Baud rate** and **Address** if you know them, rather than letting Field Tools attempt to auto-discover them. Most other parameters may be left at default values. Click **Show more parameters** to specify additional parameters as follows.
- If you know the baud rate for communicating with the field device, you can specify it in the **Baud rate** drop-down field. Otherwise use the **Auto** default which causes the Connection Wizard to cycle through the supported baud rates (9600, 19200, 38400, 57600, and 115200) until it finds the correct one.
- Optionally specify the **Link Timeout** for this connection. That value defines the period of time (in milliseconds) Field Tools waits for a response from the RTU or flow computer before declaring a communication failure. If you enter 0, Field Tools uses a default of 200.
milliseconds. Optionally, you can change the **Retries** parameter, which sets the total number of attempts to send a communication message before declaring an error.

- Specify the Address and the Group according to the following table:

  **Table 3-2: Specifying Address and Group for a Serial Connection**

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Address</th>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB1000/FB2000 Series Flow Computers, FB3000 RTU</td>
<td>Default: 1 Range: 0-254</td>
<td>Not applicable</td>
<td>If you don’t know the address, check the <strong>Discover address of device</strong> box.</td>
</tr>
<tr>
<td>ROC/FloBoss</td>
<td>Default: 240 Range: 0-255</td>
<td>Default: 240 Range: 0-255</td>
<td>Normally you should leave both of these at the default of 240 for local connections on the LOI port.</td>
</tr>
<tr>
<td>ControlWave</td>
<td>Default: Auto-detect Range: 1-127</td>
<td>Not applicable</td>
<td>If you are not connected to the local port or BSAP slave port (as specified in the ControlWave project or ACCOL load, respectively) but you know the BSAP local address for the field device, you can specify it in the Address drop-down field. Otherwise leave it at the Auto default which causes the Connection wizard to try each address in the range (1 to 127) until it finds the correct one.</td>
</tr>
</tbody>
</table>

- **For ROC/FloBoss only:** Under Extra Parameters use the […] button to specify the ROC/FloBoss **.800 Configuration file** to associate it with this connection when ROCLINK launches. The .800 file must reside on this laptop PC.

  **Figure 3-14. Specifying the ROC Configuration File**

- **For ControlWave/Network 3000 units only:** Under Extra Parameters use the […] button to specify the **TechView session file** you want to use with this connection when TechView launches. The TechView session file must reside on this laptop PC.

  **Figure 3-15. Specifying the TechView Session File**
Tip
The Auto options are useful if you do not know the communication port, baud rate, or (for ControlWave/33xx only) the local address. If you leave all of these fields at Auto, however, it could take considerable time to establish the connection since the system must successively try each port, each of the five supported baud rates, and for ControlWave/33xx each of 127 possible local addresses.

The maximum number of connection attempts if all fields are left at Auto for a ROC/FloBoss is (# of serial ports) * 5.

The maximum number of connection attempts if all fields are left at Auto for a ControlWave/33xx is (# of serial ports) * 635.

When you’ve completed this step, go to Step 11.

9. For IP communication:

Figure 3-16. IP Connection Settings – FB1000/FB2000 Series Flow Computers & FB3000 RTUs

Figure 3-17. IP Connection Settings – ROC/FloBoss

Figure 3-18. IP Connection Settings – ControlWave/33xx
Notes

- If you make an invalid entry in one of the Connection wizard fields, a warning icon blinks, and you must correct the invalid entry.
- To view/modify hidden parameters, click Show more parameters.
- Specify the IP address of the RTU or flow computer. Position your cursor in the leftmost digit position of the IP address field, enter the value for that position and use the tab key to move to the next position and so on until you enter the complete IP address. If you want to highlight the entire address to type over it, click the icon.
- Specify the port (IP socket number) used by this connection. The following table shows the default ports:

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Default Port (socket)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROC/FloBoss</td>
<td>4000</td>
</tr>
<tr>
<td>FBx</td>
<td>20000</td>
</tr>
<tr>
<td>ControlWave</td>
<td>1234</td>
</tr>
</tbody>
</table>

Note

Field Tools only supports a single active IP connection to one ControlWave device at a time on a given default port. If more than one ControlWave device shares the same default port, only one of those ControlWave devices can have an active IP connection at any one time. If you attempt to start a second connection, Field Tools posts the message “An IP connection to a Bristol device already exists. Only one such connection is allowed.” To make the new connection you must manually close down the existing active connection and then you can start the new connection.

- Optionally specify the Link Timeout for this connection. That is the period of time (in milliseconds) Field Tools waits for a response from the RTU or flow computer before declaring a communication failure. If you enter 0 Field Tools uses a default of 5000 milliseconds.
Specify the **Address** and **Group** according to the following table:

### Table 3-4: Specifying Address and Group for an IP Connection

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Address</th>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBx</td>
<td>Default: 1</td>
<td>Default: 0</td>
<td>If you don’t know the address, select the Discover address of device option.</td>
</tr>
<tr>
<td></td>
<td>Range: 0-254</td>
<td>Range: 0 to 254</td>
<td></td>
</tr>
<tr>
<td>ROC/FloBoss</td>
<td>Default: 240</td>
<td>Default: 240</td>
<td>Normally you should leave both of these at the default of 240 for local connections on the LOI port.</td>
</tr>
<tr>
<td></td>
<td>Range: 0-255</td>
<td>Range: 0-255</td>
<td></td>
</tr>
<tr>
<td>ControlWave</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

- If the connection is through a terminal server, select the **Terminal Server** checkbox and set the **IP address** and **Port** (socket) to be the IP address and port of the terminal server.

- For ROC/FloBoss only: Under Extra parameters use the [...] button to specify the ROC/FloBoss **.800 Configuration file** in order to associate it with this connection when ROCLINK launches. The .800 file must reside on this laptop PC.

**Figure 3-19. Specifying the ROC Configuration File**

- For ControlWave/Network 3000 units only: Under Extra parameters use the [...] button to specify the **TechView session file** you want to use with this connection. The TechView session file must reside on this laptop PC.

**Figure 3-20. Specifying the TechView Session File**

When finished, skip to Step 11.
10. For **Wi-Fi** communication (FB1000/FB2000 Flow Computers only):

**Figure 3-21. Wi-Fi Connection Parameters**

- Wi-Fi networks that your laptop detects are shown onscreen. For this type of connection to work, the laptop must first detect the **WiFi Network** to which the device belongs. The default WiFi Network follows the format FBxxxx_serialnumber.

- Specify the **IP address** of the RTU or flow computer. Position your cursor in the leftmost digit position of the IP address field, enter the value for that position and use the tab key to move to the next position and so on until you enter the complete IP address. If you want to highlight the entire address to type over it, click the icon. The default IP address for FB1000/FB2000 Flow Computers when they ship from the factory is **192.168.1.10**.

- Specify the **Port** (IP socket number) of the RTU or flow computer. The default port is 20000.

- Enter the **Security Key** for the wireless network. To see it as you type it, click the eyeball icon. The default security key for FB1000/FB2000 Flow Computers when they ship from the factory is **EmersonFBXX00**. Be sure to change it to something only your organization knows when you place the device in service.

- If the connection is through a terminal server, select the **Terminal Server** checkbox and set the **IP address** and **Port** (socket) to be the IP address and port of the terminal server.

- Specify the **Address** as described in Table 3-4. If you don’t know the address, check the **Discover address of device** box.

11. If you don’t want to activate the connection right now, but just want to save your configuration entries, you can click **Save**; this saves your entries in the Connection list, and exits the wizard. If you want to connect right now, click **Connect** and the wizard attempts to establish the connection.

12. Field Tools reports details of the connection progress in the Connection progress pane.
13. If the connection is successful, the **Active connection** pane of the Field Tools main screen shows an icon for the newly connected device and its toolbar populates with icons appropriate to the device type.

14. In addition, Field Tools automatically launches the configuration tool (ROCLINK, TechView, or FBxConnect) appropriate for the device platform.

---

**Figure 3-22. Connection in Progress**

![Connection progress](image)

**Figure 3-23. RTU Configuration Tools – FBxConnect, TechView, ROCLINK**

---

### 3.1.8 Making a Direct Connection

The term *direct connection* refers to a direct *serial* connection to a device.

Click **Connections > Direct Connect** and select the type of device from the options presented. Field Tools attempts to establish a local serial connection by sequentially trying each serial port using the default settings for that device type.
3.1.9 Active Connection pane

The Active Connection pane shows details for the currently active connection and allows you to launch certain other tools for use with the device(s).

The Active Connection pane includes a separate tab for each active connection. Click on the tab to see details about a particular connection.

To see information about a device (RTU, flow computer), move the cursor over that device and a small status box opens that shows details based on the type of device. This could include its address, or certain status information.

To disconnect an active connection, right click on the icon for the device and choose Disconnect. To disconnect all connections, click Connections > Close all connections.

Table 3-5. Icons Used in Active Connection Pane

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon 1]</td>
<td>Identifies a previously configured connection to an FB1100 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
<tr>
<td>![Icon 2]</td>
<td>Identifies a previously configured connection to an FB1200 Flow Computer. The name of the device appears next to the icon. Double-click the icon to re-start the connection.</td>
</tr>
</tbody>
</table>
### 3.1.10 Saving Connections / Importing Connections

If you have configured a group of connections, you can save the connection configuration details in an XML file. You can then transfer that XML file to another PC/laptop running Field Tools, so that you don’t need to re-create the connections on that PC, you can just click on them to start the connection.

**Exporting Connections**

1. Click **Connections > Export > Export to file**.
2. Specify a filename for the XML file.

**Importing Connections**

1. Click **Connections > Import > Import from file**.
2. Navigate to the XML file that contains the connection information and click **Open**. If a duplicate connection exists, Field Tools prompts you to confirm the update.
**Importing ROCLINK Connections**

If you had previously created connections within ROCLINK without Field Tools, you can import those connections into Field Tools.

1. Click **Connections > Import > Connections from ROCLINK**. The Import ROCLINK connections dialog box opens.

![Figure 3-26. Import ROCLINK connections Dialog](image)

2. In the Import ROCLINK Connections dialog box, choose the site name which contains the ROCLINK connections you want to import.

3. If you want to overwrite existing ROCLINK connections, select the **Overwrite Existing Connections Data** option.

4. Click **Start** to import the connections.

### 3.1.11 Settings

Click **Settings** in the menu bar to open the Settings dialog box. The Settings dialog box lets you pre-configure certain items for FBxConnect.

![Figure 3-27. Settings Dialog Box](image)

If you want the system to prompt operators whether to override the time zone of an FBx device when a time synchronization message comes in, select the **Show “Override device time zone” dialog box before synchronizing time of an FBx device**.
Select **Zero pad decimal places on floating point values** if you want floating point values shown on FBxConnect displays to be padded with zeros to fill the specified field size. For example, in a field specified to show 5 decimal places, a floating point value of 6.25 will be padded to show 6.25000. This does **not** show greater precision for the value, it only shows zeros to allow numbers to line up properly on the display.

Click **OK** to save your changes to the settings.

### 3.2 Offline Configurations/Solutions Menu

The Configurations menu bar item lets you create or view configuration files for FB1000/FB2000 Flow Computers and ROC/FloBoss/DL8000 devices. You can also create a solution file (*.ZSL) for the FB3000 RTU.

For an FB1000/FB2000 Series Flow Computer or FB3000 RTU, see the FBxConnect online help for more information.

For a ROC or FloBoss device, see the ROCLINK online help for more information.

**Figure 3-28. Offline Configurations**

![Offline Configurations](image)
Appendix A – Troubleshooting Tips

Following are some common problems that may occur and procedures for resolving them.

Message: *Failed to connect to Comm Manager*

You may see this message if something disrupts a communications connection. (Because they share some common code, Field Tools makes use of an OpenEnterprise session to communicate.) Stop and re-start the OpenEnterprise session using these steps:

1. In Windows Control Panel, double-click *Administrative Tools*.
2. Double-click *Services*.

![Figure A-1. OpenEnterprise Services](image)

3. Right-click on the OpenEnterprise Session and choose *Stop* from the menu.
4. Right-click on it again and choose *Start* from the menu.

Communication Problem Causing Truncated Messages

If you use RTS/CTS with radios and encounter a problem where Field Tools can transmit but RTUs are unable to respond, it could be related to PC port configuration in Windows which results in messages being truncated.

If this problem occurs, follow these steps:

1. Open the Windows Control Panel.
2. Click *Device Manager*. The Device Manager dialog opens.
3. Expand the **Ports (COM & LPT)** selection to display a list of ports.

4. Right-click once on the port used for Field Tools communications and choose **Properties** from the pop-up menu. The Communications Port (COM1) Properties dialog box opens.
5. Select the **Port Settings** tab, then click **Advanced** to display the Advanced Port Settings dialog box.

Figure A-4. Advanced Comm Port Settings Dialog

6. In the Advanced Port Settings dialog box, drag the Receive Buffer and Transmit Buffer slide bars to the low end of their ranges, and click **OK**.
7. Choose **OK** in the Communication Port Properties dialog box, and exit the Device Manager and Control Panel to save the settings.

8. Reboot your PC for the new settings to take effect.

**USB to RS-232 Serial Connection Problems**

USB to RS-232 serial converters vary widely in quality and performance. Other customers have reported good results with the following converters:

- BlackBox IC199A
- IOGear® GUC232A
- FDI's CHIPI-X10

If you experience problems with a particular USB to serial converter, there are a few things you can try:

- Make sure you installed the correct up-to-date software driver for your USB to serial converter. Sometimes a driver update can solve the problem.
- If the connection failure occurs after you unplug and plug back in, close the connections and unplug the USB from the PC. Then reconnect the USB and restart the connection.
- Some problems can occur from truncated messages. In Windows Device Manager, set FIFO transmit and receive buffers for the port to low as described above in *Communication Problem Causing Truncated Messages*. This may improve the USB connection.

**Eltima Message: ** **FAILURE: Access is denied**

You may see this message during installation if Eltima software had already been installed. You can ignore this message and click **OK** to allow the installation to continue.

**Figure A-5. Eltima Failure**

![Eltima Failure Message](image)

**VPN Causes Certain Features to Fail**

When connecting to a virtual private network (VPN) certain features in Field Tools may fail to operate correctly.

Connecting to a VPN shuts down certain Windows services that Field Tools uses. (Because they share some common code, Field Tools makes use of an OpenEnterprise service.) While some services can reconnect automatically, others may require you to restart the OpenEnterprise service. If you need to do this, follow these steps:

1. Launch Windows Task Manager.
2. Select the **Services** tab.

3. Right-click on the **OpenEnterprise** service and choose **Start Service**.

4. The OpenEnterprise service restarts; features should now operate correctly.

**Figure A-6. Start Services**

![Image showing the Start Services tab with the OpenEnterprise service selected and started.](image)

**Overlapping or Truncated Screen Items**

If display settings in Windows Control Panel are set for larger fonts, you may see certain text items truncated (cut off) on the screen, or there may be overlapping between text items.

To solve this, set display settings in Windows Control Panel to use smaller text sizes.

![Smaller - 100% (default)](image)

**Cannot Communicate with Device After Configuration Download or Cold/Warm Start**

In some cases, after you download a configuration or perform a cold/warm start, FBxConnect cannot communicate with the device because the device reboot takes longer than expected, resulting in a communications timeout. If these timeouts occur, you can increase the amount of time FBxConnect waits for communications to be established with the device following a reboot.

To do this, you need to edit the values for the `BootTimeAfterConfigApply` and `BootTimeAfterColdWarmStart` parameters. These parameters specify the amount of time (in minutes) FBxConnect waits after a device reboot before declaring a communications timeout failure.

These parameters are located in the `FieldToolsContainer.config` file located in the folder:

```
|ProgramData|Emerson|OpenEnterprise|Application Data|
```

In the example shown below, FBxConnect waits 5 minutes after a configuration download and waits 6 minutes after a cold or warm start before declaring a communication timeout.

```
<appSettings>
    <clear />
    <add key="BootTimeAfterConfigApply" value="5" />
    <add key="BootTimeAfterColdWarmStart" value="6" />
</appSettings>
```

**Incorrect Timestamp in FBxConnect Logs**

Once you install Field Tools software, the software begins using the configured time zone in Windows when generating time stamps for historical data/logs. If you subsequently change the
Windows time zone, you must **re-boot** your PC workstation for Field Tools to recognize the time zone change so it can be reflected in logs and historical data.

**Wi-Fi connections Incompatible with FIPS**

The encryption algorithm used for Wi-Fi passwords in Field Tools and FB1000/FB2000 Series Flow Computers is newer than the Federal Information Processing Standard (FIPS) standard and so is incompatible with it.

To prevent errors associated with this, you must disable (de-select) the **System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing** option for the Local Security Policy of your laptop/PC workstation.

**FBxConnect USB Driver Installation Issues**

Sometime the USB CDC driver does not install correctly. If that happens, follow these steps:

1. Launch the Windows Control Panel.
2. Click **Device Manager**.
3. Select **Ports**. Locate the CDC Serial Driver and right click on it, and choose **Update Driver**

   ![Figure A-7. Updating Driver](image)

4. A new screen opens. Click **Browse my computer for driver software**.
   
   ![Browse my computer for driver software](image)

5. From the next screen, choose **Let me pick from a list of available drivers on my computer**.
   
   ![Let me pick from a list of available drivers on my computer](image)

6. From the list presented, choose **Remote Automation Solutions** as the Manufacturer and **QNX Serial Converter** as the Model, then click **Next** and Windows reinstalls the driver.
Number of Supported ROCLINK Connections

Even though ROC devices support 6 active IP/TCP connections, launching ROCLINK from Field Tools limits the connections to 3. This is because one connection is made by Field Tools (to locally connect to the device and start ROCLINK) and the other connection is made by the ROCLINK application.

Message: Comm Manager Connection Lost

If the Connection Progress field on the Properties page for the connection reports this message, it may indicate a conflict between Field Tools and other software for the same TCP sockets. Edit the file c:|\Users|\Public|\Documents|Emerson|FieldTools|Application Data|CommManager.Config

```xml
<appSettings>
  <clear />
  <add key="CCListenPort" value="40000" />
  <add key="DriverBaseListenPort" value="40010" />
  <add key="VPCListenPort" value="40001" />
  <add key="AmsGatewayListenPort" value="40004" />
  <add key="HartIdListenPort" value="40005" />
  <add key="AmsComListenPort" value="20001" />
  <add key="RasAdminTaskListenPort" value="40002" />
  <add key="DBBuildServer" value="40006" />
</appSettings>
```

Change the CCListenPort value to 50000, the DriverBaseListenPort value to 50010, the VPCListenPort value to 50001, the RasAdminTaskListenPort value to 50002, and the DBBuildServer value to 50006.

To make the changes take effect, stop the OpenEnterprise Session, then re-start the OpenEnterprise Session. For information on how to do this, see the first troubleshooting tip in this appendix. Note: If you subsequently reinstall Field Tools you must redo these changes.
Index

Active Connection pane, 28
Adding RTU login credentials for a user, 16
Collections list, 16
Communications
  connecting to a device, 19
Connection
  before you establish a, 11
  closing, 28
  creating a, 19
  direct, 27
  exporting, 29
  importing, 29
  importing from ROCLINK, 30
  starting a, 18
Deleting a Field Tools user, 15
Direct connection, 27
Disabling UAC, 4
Field Tools
  logging in, 12
Figures
  2-1. Changing User Account Control, 5
  2-2. InstallShield Wizard, 7
  2-3. InstallShield Wizard, 7
  2-4. Installer Welcome screen, 8
  2-5. License Agreement screen, 8
  2-6. Optional Package Selection, 9
  2-7. Setup Status screen, 10
  2-8. InstallShield Wizard Finish page, 10
  3-1. Log-in dialog, 12
  3-2. Field Tools Main screen, 13
  3-3. Change Password dialog box, 13
  3-4. User Management Dialog, 14
  3-5. Add New User Dialog, 15
  3-6. Security configuration Dialog, 15
  3-7. Device credentials Dialog, 16
  3-8. Connections List, 17
  3-9. Connection Wizard, 19
  3-10. Device Credentials dialog, 20
  3-11. Serial Connection Settings-FBx, 21
  3-12. Serial Connection Settings-ROC/FloBoss, 21
  3-13. Serial Connection Settings-ControlWave/33xx, 21
  3-14. Specifying the ROC Configuration File, 22
  3-15. Specifying the TechView Session File, 22
  3-16. IP Connection Settings – FB1000/FB2000/FB3000, 23
  3-17. IP Connection Settings – ROC/FloBoss, 23
  3-18. IP Connection Settings – ControlWave/33xx, 23
  3-19. Specifying the ROC Configuration File, 25
  3-20. Specifying the TechView Session File, 25
  3-21. Wi-Fi Connection Parameters, 26
  3-22. Connection in Progress, 27
  3-23. RTU Configuration Tools, 27
  3-24. Direct Connection, 28
  3-25. Active Connection Pane, 28
  3-26. Import ROCLINK Connections Dialog, 30
  3-27. Settings Dialog Box, 30
  3-28. Offline Configurations, 31
A-1. OpenEnterprise Services, 33
A-2. Device Manager, 34
A-3. Device Manager, 35
A-4. Advanced Comm Port Settings Dialog, 35
A-5. Eltima Failure, 36
A-6. Start Services, 37
A-7. Update Driver, 38
A-8. Update Driver, 39
Installation
  before you begin, 3
  procedure, 6
  requirements, 3
  login credentials, 16
Passwords
  changing, 13
  setting the minimum length for, 15
RTU login credentials, 16
Security
  adding a user, 14
  changing the password, 13
  logging into Field Tools, 12
  setting the minimum length for, 15
System requirements
  minimum, 3
Tables
  3-1. Connections List Pane and Context Menus Icons, 17
  3-2. Specifying Address and Group for a Serial Connection, 22
3-3. Default Port (IP socket number) for connection, 24
3-4. Specifying Address and Group for an IP connection, 25
3-5. Icons Used in Active Connection Pane, 28
TechView
   special notes about, 5
Troubleshooting, 33
User Account Control (UAC)
   disabling, 4
Users
   adding, 14
   defining a Field Tools user, 14
   deleting a Field Tools user, 15