



8300 FST Forward SpeedSweep Transmitter

OPERATION MANUAL



TRILITHIC
INNOVATIVE ENGINEERING

Trilithic Company Profile

Trilithic is a privately held manufacturer founded in 1986 as an engineering and assembly company that built and designed customer-directed products for telecommunications, military and industrial customers. From its modest beginnings as a two-man engineering team, Trilithic grew over the years and broadened its offerings of RF and microwave components by adding broadband solutions to its product line. This was accomplished with the acquisition of components manufacturer Cir-Q-Tel and instruments manufacturer Texscan.

Today, Trilithic is an industry leader providing telecommunications solutions for major broadband, RF and microwave markets around the world. As an ISO 9000:2001 certified company with over 40 years of collective expertise in engineering and custom assembly, Trilithic is dedicated to providing quality products, services and communications solutions that exceed customer expectations.

Trilithic is comprised of three major divisions:

- **Broadband Instruments & Systems**
Offers test, analysis and quality management solutions for the major cable television systems worldwide.
- **RF Microwave Components**
Provides components and custom subsystems for companies specializing in cellular, military and other wireless applications.
- **Emergency Alert Systems**
Leading supplier of government-mandated emergency alert systems used by HFC service providers.

Table of Contents

1. General Information	5
Helpful Website	5
Where to Get Technical Support	5
How this Manual is Organized	6
Conventions Used in this Manual	6
Precautions	7
2. Introduction	8
What is the 8300 FST?	8
What does the SpeedSweep Solution do?	8
Application of the 8300 FST	8
Overview of the 8300 FST	9
Front Panel View	9
Rear Panel View	10
3. Installation	11
Prerequisites	11
Installing the 8300 FST	11
4. Initial Configuration	13
Before Beginning	13
Initial Configuration Using a Terminal Emulator	13
Initial Connection Using a Serial Port	13
Changing Network Settings	16
Adjusting the RF Output Level Settings	17
Verifying Network Settings	18
5. WorkBench Setup	19
Creating a New Connection to the 8300 FST	19
Connecting to Device on a Local Serial Port	20
Connecting to a Device on the Network	21
Connecting to a Detected Device	22
Assigning Device and Hub Names	23
Changing Network Settings	24
Setting Up the 8300 FST Channel Plan	25
Creating an Empty Channel Plan	26
Creating a Pre-Defined Channel Plan	26
Modifying Channel Plan Information	27
Saving Channel Plans	28
Transferring Channel Plans to the 8300 FST	28

Selecting the Active Channel Plan	30
Enabling and Disabling the Sweep Mode	31
Setting the Date & Time of the 8300 FST	32
Rebooting the 8300 FST	32
Applying Firmware Upgrades to the 8300 FST	33
6. Internet Homepage	34
Connecting to the 8300 FST Internet Homepage	34
Selecting the Active Channel Plan	35
Enabling and Disabling the Sweep Mode	36
Rebooting the 8300 FST	36
7. Specifications	37
Warranty Information	38

General Information



Helpful Website

The following website contains general information which may be of interest to you:

<http://www.trilithic.com>

Trilithic's website contains product specifications and information, tips, release information, marketing information, Frequently Asked Questions (FAQs), bulletins and other technical information. You can also check this website for product updates.

Where to Get Technical Support

Trilithic technical support is available Monday through Friday from 8:00AM to 5:00PM EST. Callers in North America can dial 1-317-895-3600 or 1-800-344-2412 (toll free). International callers should dial 1-317-895-3600 or fax questions to 1-317-895-3613. You can also e-mail technical support at techsupport@trilithic.com.

For quicker support response when calling or sending e-mail, please provide the following information:

- Your name and your company name
- The technical point of contact (name, phone number, e-mail)
- The 8300 FST serial number and firmware version number
- A detailed description of the problem you are having, including any error or information messages

How this Manual is Organized

This manual is divided into the following chapters:

- Chapter 1, “General Information” provides Trilithic contact information and describes how this Operation Manual is structured.
- Chapter 2, “Introduction” introduces what the 8300 FST is and what the 8300 FST does. This chapter discusses the practical application of the 8300 FST. Finally, this chapter will also explain the connections and controls of the 8300 FST.
- Chapter 3, “Installation” describes the steps needed to install the 8300 FST.
- Chapter 4, “Initial Configuration” describes the steps needed to perform the initial configuration of the 8300 FST.
- Chapter 5, “WorkBench Setup” describes the steps needed to perform the setup of the 8300 FST using Trilithic WorkBench software.
- Chapter 6, “Internet Homepage” describes how to use an internet web browser to view and change how the 8300 FST operates.
- Chapter 7, “Specifications” shows the technical specifications of the 8300 FST.

Conventions Used in this Manual

This manual has several standard conventions for presenting information.

- Connections, Menus, menu options, and user entered text and commands appear in **bold**.
- Section names, Web and email addresses appear in *italics*.



Note: A note is information that will be of assistance to you related to the current step or procedure.



CAUTION: A caution alerts you to any condition that could cause a mechanical failure or potential loss of data.



WARNING: A warning alerts you to any condition that could cause personal injury.

Precautions



CAUTION: Do not use the 8300 FST in any manner not recommended by the manufacturer.

This Chapter:

- Describes 8300 FST's purpose
- Gives an overview of 8300 FST's features and operation modes
- Gives a guided tour of the 8300 FST

What is the 8300 FST?

The 8300 FST Forward SpeedSweep Transmitter is an essential part of the system for comprehensive sweep capability in the 860 DSP Field Analyzer family. The instrument is rack-mounted in the headend, and generates a sweep that steps around system carriers to avoid interference, filling in vacant spectrum areas for a complete view of the network frequency response. An 860 DSP (with FR-1 option) receives the sweep and based on the measured sweep and system carrier levels plots the frequency response. This response is typically compared to a stored reference to provide a difference display. With the goal of the network design being unity gain from amplifier output to amplifier output, the ideal response will be as flat as possible. The sweep test provides a measure of the RF transmission characteristics of the network between the transmitter and the receiver, and is used as a day-to-day maintenance tool for the RF portion of the HFC network.

What does the SpeedSweep Solution do?

Trilithic's SpeedSweep solution includes the 8300 FST that generates a sweep stimulus for the downstream measurement, and 860 DSP with a sweep option (FR-1) that receives the forward sweep and transmits reverse sweep signals for upstream measurements, and the 9581 RSA (a 9581 SST with a narrowed sweep/alignment application orientation) to receive the upstream sweep signal generated by the 860 DSP or RSVP² field unit, and then relay the measurement results back to the field unit generating the signal.

Application of the 8300 FST

The 8300 FST generates a sweep that is received by an 860 DSP (with FR-1 option). This option enables the technician to test both forward and return frequency response. The transmitter is part of the "distribution" products category and is considered an essential tool for plant maintenance. The transmitter will be located in the headend, and combined with other network signals. The technician will establish a test normalization reference response at the node or at a sweep test point in the headend after the combining network, designed to match levels at amplifier/node output test points.

Overview of the 8300 FST

Front Panel View



A. Power Indicator LED (Red)

This LED will blink if there is a problem with the unit. The blink sequence is ON for 1 second with the corresponding number of blinks during the next second as follows.

- 0 Blinks: No problems needing attention.
- 1 Blink: Check for user configuration connection; WorkBench or HyperTerminal is talking or a serial cable is connected to the RS-232 port.
- 2 Blinks: Check for user configuration problem; no channel plan or no network configuration.
- 3 Blinks: Check for hardware malfunction; tuner not responding.
- 4 Blinks: Should only be seen at factory.
- 5 Blinks: Should only be seen at factory.

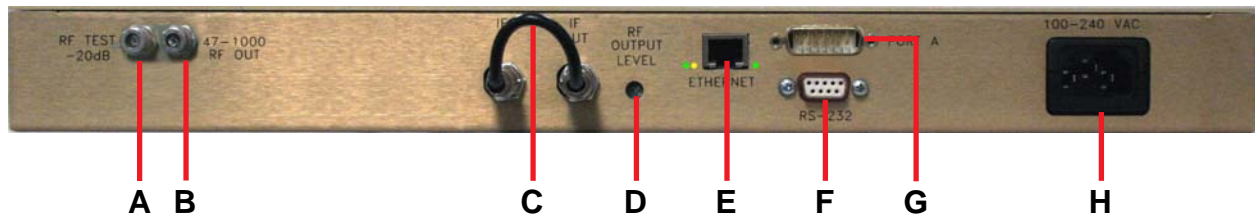
B. RF On Indicator LED (Green)

This LED will flash when the unit is transmitting.

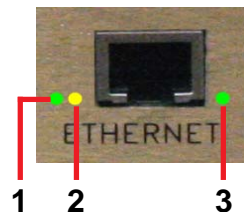
C. Reset Button

This button is used to reset the unit power when needed.

Rear Panel View



- A. **RF TEST -20dB** - Test Connection
- B. **47-1000 RF OUT** - RF Signal Output Connection
- C. **IF OUT** to **IF IN** - Jumper Connection
- D. **RF OUTPUT LEVEL** - RF Output Adjustment Control
- E. **ETHERNET** - Network Communications Connection (RJ-45)
This ethernet connection has three LEDs that show the following states.



- 1. Link LED (Green) - The LED will be ON when a communication link is established.
 - 2. Activity LED (Yellow) - The LED will blink when network communication is taking place.
 - 3. Speed LED (Green) - The LED will be OFF when communication speed is 10 Mbit/s. The LED will be ON when communication speed is 100 Mbit/s.
- F. **RS-232** - Serial Cable Communications Connection (Initial Configuration)
 - G. **PORT A** - Expansion (For Future Use)
 - H. **100-240 VAC** - AC Power Input Connection

Installation 3

This chapter:

- Installation of the 8300 FST

Prerequisites

Equipment and Software Required to Install the 8300 FST:

- Laptop or PC with one available serial port.
- 9 pin to 9 pin straight through serial cable (included with the 8300 FST, part number = 2071100000)

Installing the 8300 FST

The following section explains the procedure used to physically install the 8300 FST. In order to properly setup the 8300 FST the following steps must be completed in this order. Do not skip any steps.



Note: DO NOT plug in the 8300 FST's power cord until instructed below.

1. Mount the 8300 FST in a standard rack using four retaining screws.



CAUTION: Make sure the fan intake holes on the right of the 8300 FST and the fan exhaust holes on the left of the 8300 FST remain unblocked.



Fan Exhaust Holes



Fan Intake Holes

2. Connect the **ETHERNET** Connection of the 8300 FST to the ethernet connection of a laptop or PC. This is a standard 10/100 Base-T connection.
3. Connect a serial cable (9 pin to 9 pin straight through) from the **RS-232** connection of the 8300 FST to the serial port of a laptop or PC. (This port will be used for initial configuration.)
4. Plug the 8300 FST's power cord into the **100-240 VAC** Power Connection and then into an AC power source. When power is supplied to 8300 FST, the red LED on the front of the 8300 FST is illuminated.



Note: If the red LED is not illuminated upon connecting power to the 8300 FST, call Trilithic Application Support at 1-800-344-2412 for assistance.

Initial Configuration

This Chapter:

- Perform initial configuration and testing of the 8300 FST's network settings

Before Beginning

The following information will be needed before the 8300 FST can be configured:

- 8300 FST IP Address (default = 192.168.0.100) _____
- 8300 FST Subnet Mask (default = 255.255.0.0) _____
- 8300 FST Gateway (default = 192.168.0.1) _____

Initial Configuration Using a Terminal Emulator

The RF Output Level of the 8300 FST can only be set using a terminal emulator. So, a terminal emulator such as HyperTerminal should be used to perform the initial configuration of the 8300 FST.

After initial configuration is complete, WorkBench can be used to connect to the 8300 FST using a serial port or to change the network settings, see *WorkBench Setup* on Page 19.



Note: This part of the configuration **MUST** be done onsite with the 8300 FST connected to a laptop or PC via the serial port connection.



Note: HyperTerminal is used for illustration purposes only, any terminal emulator will work with this setup procedure.

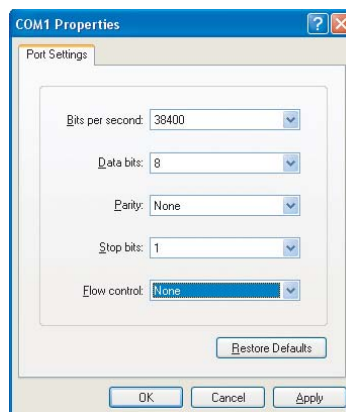
Initial Connection Using a Serial Port

1. Start a HyperTerminal session for the serial port (COM 1) that the 8300 FST has been connected to on a laptop or PC.

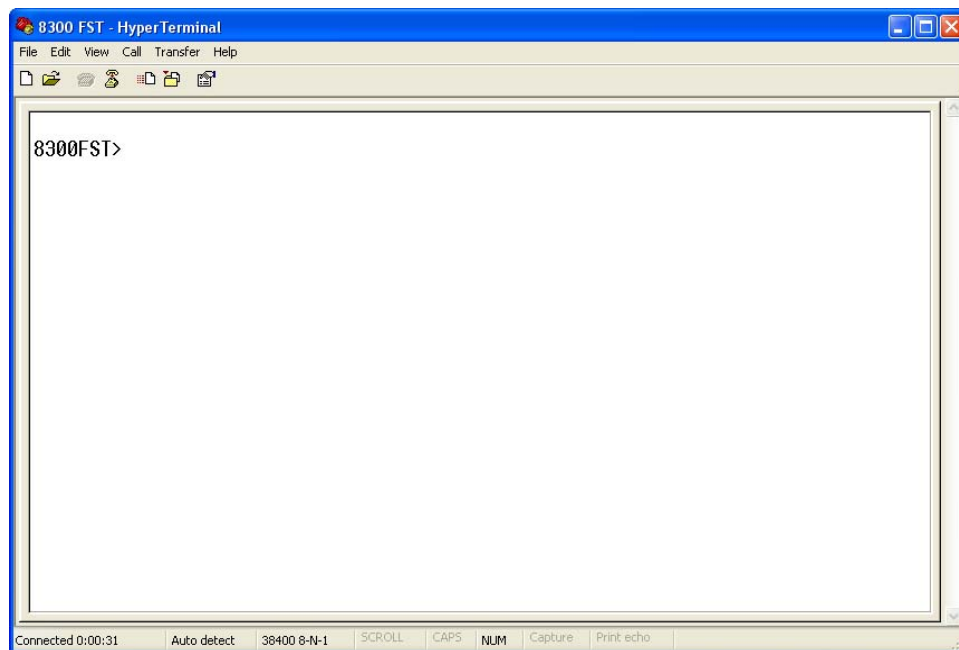


2. Configure the port setting properties for the HyperTerminal session as follows;

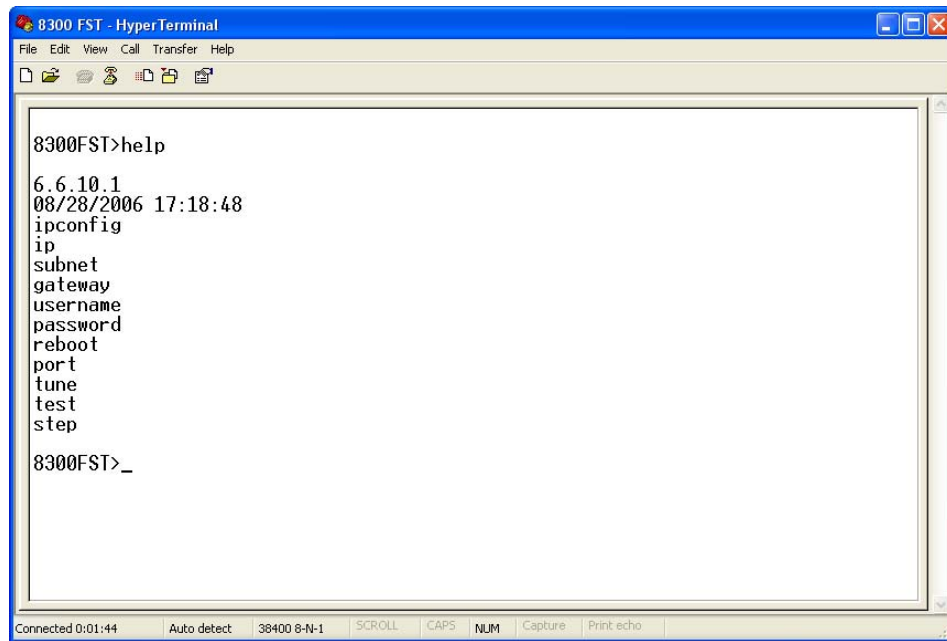
- **Bits per second:** 38400
- **Data bits:** 8
- **Parity:** None
- **Stop bits:** 1
- **Flow control:** None



3. Connect to the 8300 FST by selecting **OK** and then press **ENTER** twice. The 8300 FST prompt will be displayed as follows;



4. For a list of supported commands type **help** at the prompt. A list of the supported commands will be displayed as follows;



```
8300FST>help
6.6.10.1
08/28/2006 17:18:48
ipconfig
ip
subnet
gateway
username
password
reboot
port
tune
test
step
8300FST>_
```



Note: The **test** and **step** commands are for factory use only. The **port** command is for future use.



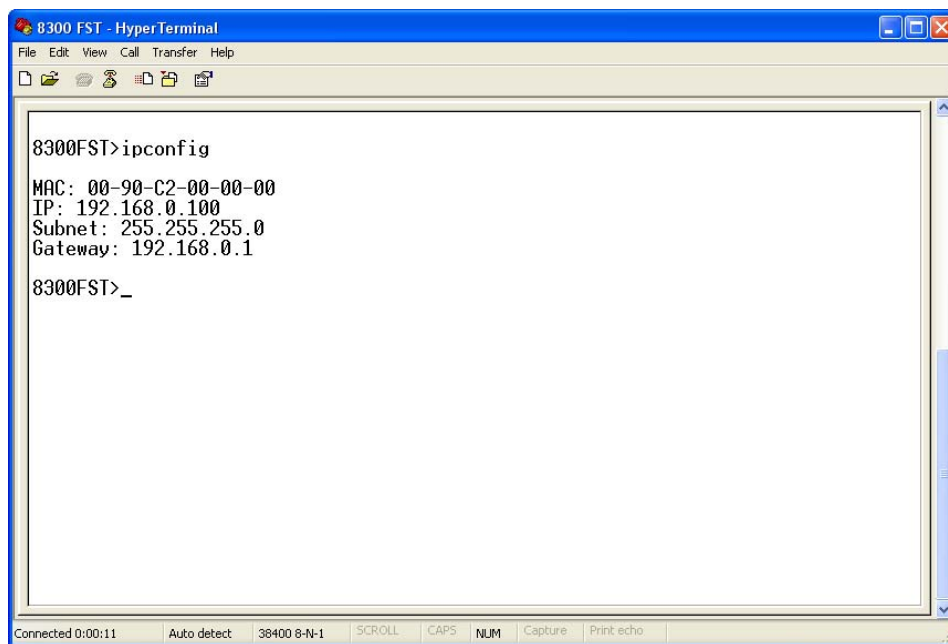
Note: The default **username** is “admin” and the default **password** is “admin”. These can be changed by typing the appropriate command followed by the username or password.



CAUTION: When using the **tune** command be very careful not to enter a frequency that may cause interference with active channels.

Changing Network Settings

1. To view the 8300 FST's network configuration information, type **ipconfig** and then press **ENTER**. The network configuration information will be displayed as follows;



```
8300FST>ipconfig
MAC: 00-90-C2-00-00-00
IP: 192.168.0.100
Subnet: 255.255.255.0
Gateway: 192.168.0.1
8300FST>_
```

2. Setup the connectivity parameters by entering the IP address, Subnet address, and Gateway address as follows;
 - Type in your IP address at the prompt using the format **ip #.#.#.#** and then press **ENTER**. Entering an IP address of 0.0.0.0 will allow the use of the DHCP protocol to permit the 8300 FST to request and obtain an IP address from your server which has a list of addresses available for assignment.
 - Type in your Subnet address at the prompt using the format **subnet #.#.#.#** and then press **ENTER**.
 - Type in your Gateway address at the prompt using the format **gateway #.#.#.#** and then press **ENTER**.
3. When done changing the network configuration of the 8300 FST, type **reboot** and then press **ENTER**.



Note: Changes to the Connectivity Parameters will not take affect until the 8300 FST is rebooted.

Adjusting the RF Output Level Settings



WARNING: This unit simulates QAM / Digital channels. The level should be set to match the level of other digital modulators in the system. To prevent the overpowering of adjacent channels, only qualified personnel should set the level as it will be an active channel on the cable system.



Note: The use of Pads may be needed to rough tune the output level of the 8300 FST.

1. Record the known value of the Analog/Digital Combiner Input Level or measure the test point output level of a digital modulator.
 - Analog/Digital Combiner Input Level: _____
2. Connect a coax cable from the **RF TEST -20dB** Connection of the 8300 FST to the input of the 860 DSP. Type in your channel frequency at the HyperTerminal prompt using the format **tune XXX.XXXX** and then press **ENTER**.



Note: Remember to have the 860 DSP test point compensation turned on and set to 20 dB.

3. Use the **RF OUTPUT LEVEL** Control of the 8300 FST to fine tune the RF output level to the desired input level of the analog/digital combiner, using the 860 DSP to view the RF output level of the 8300 FST.
4. Once the RF output level of the 8300 FST matches the output level recorded above, type **tune 0** or **reboot** and then press **ENTER**.
5. Disconnect the coax cable from the 860 DSP and connect the **47-1000 RF OUT** to the specified forward combiner of the cable plant.
6. Disconnect the serial cable from the **RS-232** connection of the 8300 FST and from the laptop or PC. The remainder of the 8300 FST configuration will take place over the network. To verify the initial configuration of the 8300 FST, see *Verifying Network Settings* on Page 18.

Verifying Network Settings



Note: If the 8300 FST homepage cannot be connected to via an internet web browser that means the network settings **ARE NOT** correct.

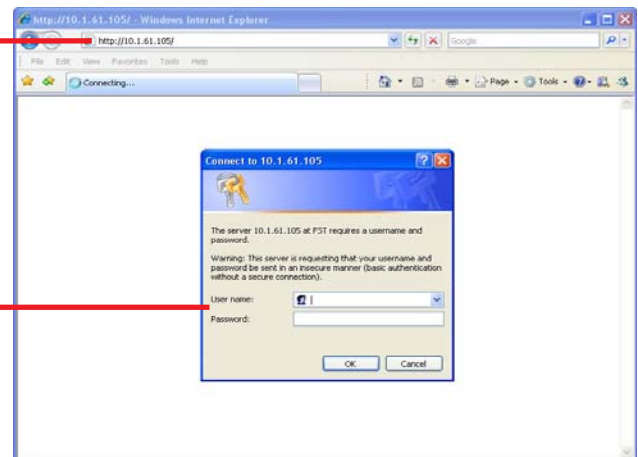


Note: Microsoft Internet Explorer is used for illustration purposes only, any internet web browser will work with the 8300 FST.

1. Type the URL of the 8300 FST into the address line of the internet web browser. This URL will be in the following format: **http://#.#.#.#:port#**.

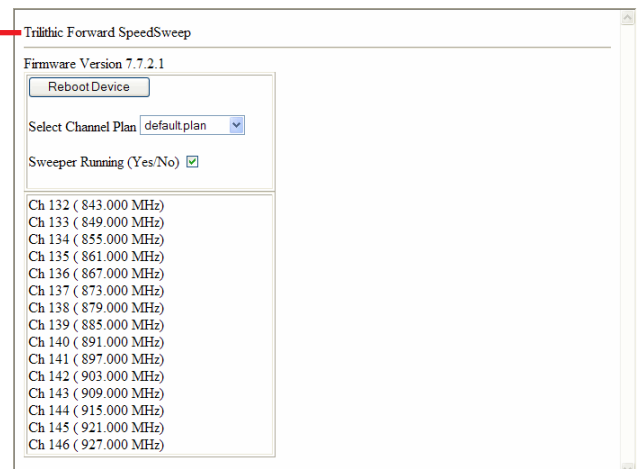
- **#.#.#.#** is the 8300 FST's IP address
- **port #** is only used if the port is anything other than 80

2. Enter a **User Name:** and **Password:** and select **OK**.



Note: The default **username** is “admin” and the default **password** is “admin”. These can be changed during setup using the terminal emulator or WorkBench.

3. If the network settings are correct, the 8300 FST homepage will load.



WorkBench Setup

This Chapter:

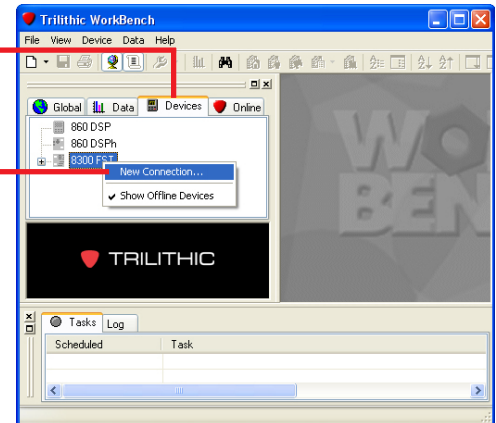
- Use WorkBench to connect to the 8300 FST
- Use WorkBench to change the device and hub names of the 8300 FST
- Use WorkBench to change the network settings of the 8300 FST.
- Use WorkBench to create a channel plan and transfer it to the 8300 FST
- Use WorkBench to select the active channel plan of the 8300 FST
- Use WorkBench to enable and disable the sweep mode of the 8300 FST
- Use WorkBench to set the date/time of the 83000 FST.
- Use WorkBench to reboot the 8300 FST after configuration changes have been made
- Use WorkBench to apply firmware upgrades to the 8300 FST.



Note: The WorkBench setup of the 8300 FST must be completed after the initial configuration of the device is completed.

Creating a New Connection to the 8300 FST

1. Start the Trilithic WorkBench software and choose the **Devices** tab.
2. Right-click on the 8300 FST icon and select **New Connection**.



3. Proceed to the appropriate section as follows:
 - If the 8300 FST is connected to the WorkBench computer using a serial port, see *Connecting to a Device on a Local Serial Port* on Page 20.
 - If the 8300 FST has never been connected to WorkBench or is not automatically detected by WorkBench, see *Connecting to a Device on the Network* on Page 21.
 - If the 8300 FST has been connected to WorkBench and is automatically detected by WorkBench, see *Connecting to a Detected Device* on Page 22.

Connecting to Device on a Local Serial Port



Note: This connection **MUST** be made while onsite with the 8300 FST connected to a laptop or PC via the serial port connection.

1. Choose **Connect to a device on a local serial port** by selecting its radio button.
2. Select the correct **Serial Port:** from the dropdown list.

Connect To A Device

☒ Connect to a device on a local serial port
Serial Port: COM1

☐ Connect to a device on the network
Network Address: 10.1.61.210

☒ Poll this address in the future to automatically detect connection

☐ Connect to a detected device Refresh...

Devices:

Device	Network Address
Apps Test	10.1.72.15
Device Name	10.1.61.104
DSPH Demo	10.1.33.8
GPCx	10.1.31.71
Larry	10.1.33.55

☐ Automatically connect to this device when detected

Status:

Connect... Cancel

3. Select **Connect...** and proceed to Step 3 of *Assigning Device and Hub Names* on Page 23.



Note: Once WorkBench has connected to a device on a serial port, it will add the serial port name to the list of polled serial ports. For more information, see the [WorkBench Software Operation Manual](#).

Connecting to a Device on the Network



Note: This connection **MUST** be made with the 8300 FST connected to a laptop or PC via the ethernet connection.

1. If the name of the appropriate 8300 FST **DOES NOT** appear when the **Connect to a detected device** radio button is selected, Choose **Connect to a device on the network** by selecting its radio button.
2. Enter the 8300 FST's IP address in the **Network Address:** field.

If **NOT** using the default WorkBench network port (24007), enter the port number after the IP address (10.1.61.210:XXXXX).

3. Select **Connect...** and proceed to Step 3 of *Assigning Device and Hub Names* on Page 23.

Connect To A Device

☐ Connect to a device on a local serial port

Serial Port: COM1

☒ Connect to a device on the network

Network Address: 10.1.61.210

☒ Poll this address in the future to automatically detect connection

☐ Connect to a detected device Refresh...

Devices:

Device	Network Address
8300 FST	10.1.61.210
Apps Test	10.1.72.15
Device Name	10.1.61.104
GPCx	10.1.31.71
Larry	10.1.33.55

☒ Automatically connect to this device when detected

Status:

Connect... Cancel



Note: To tell the WorkBench software to automatically poll the selected network address, select the checkbox next to **Poll this address in the future to automatically detect connection**.



Note: Once **Poll this address in the future to automatically detect connection**, has been selected, the WorkBench software will add the network address to the list of polled network address. For more information, see the *WorkBench Software Operation Manual*.

Connecting to a Detected Device



Note: This connection **MUST** be made with the 8300 FST connected to a laptop or PC via the ethernet connection.

1. If the name and network address of the configured 8300 FST appears, choose **Connect to a detected device** by selecting its radio button and select the name of the appropriate 8300 FST.

2. Select **Connect...** and proceed to Step 3 of *Assigning Device and Hub Names* on Page 23.

Connect To A Device

☐ Connect to a device on a local serial port
Serial Port: COM1

☐ Connect to a device on the network
Network Address: 10.1.61.210
☒ Poll this address in the future to automatically detect connection

☒ Connect to a detected device Refresh...

Device	Network Address
8300 FST	10.1.61.210
Apps Test	10.1.72.15
Device Name	10.1.61.104
GPCx	10.1.31.71
Larry	10.1.33.55

☒ Automatically connect to this device when detected

Status:

Connect... Cancel



Note: To tell the WorkBench software to automatically connect to the selected device, select the checkbox next to **Automatically connect to this device when detected**.



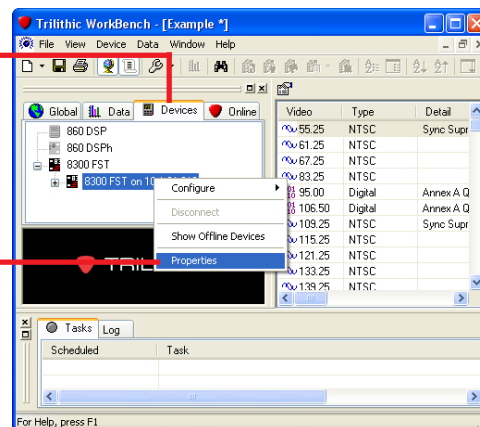
Note: Once **Automatically connect to this device when detected**, has been selected, the WorkBench software will add the device to the list of known devices to automatically connect to. For more information, see the *WorkBench Software Operation Manual*.

Assigning Device and Hub Names

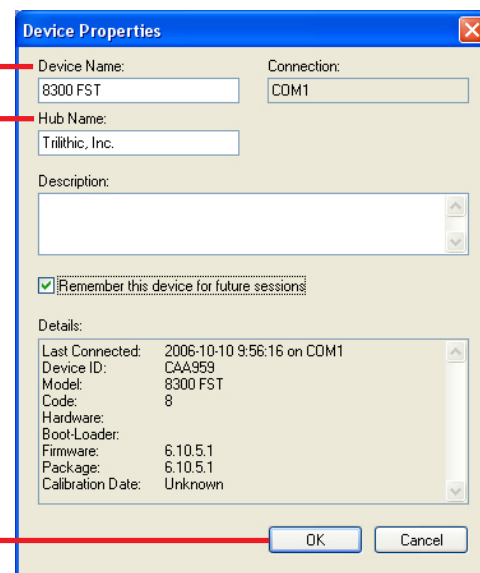


Note: The device and hub names can be assigned manually by performing Steps 1 and 2, or the **Device Properties** window will appear as part of creating a new connection.

1. To setup the 8300 FST's Device and Hub Names, choose the **Devices** tab.
2. Right-click on the 8300 FST that is connected and select **Properties**.



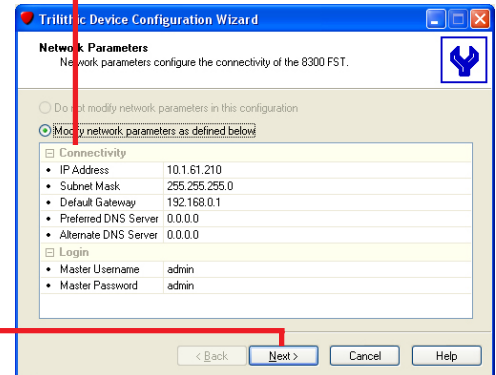
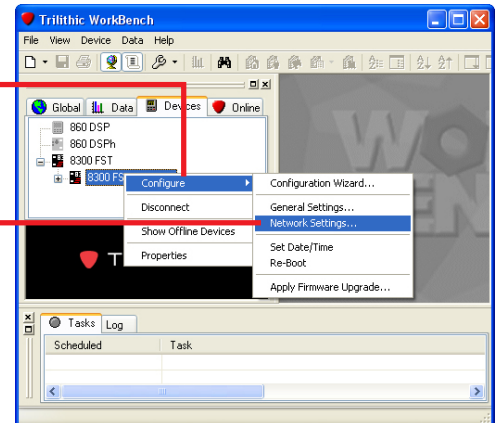
3. Type in the 8300 FST's **Device Name**..
4. Type in the 8300 FST's **Hub Name**..



5. Select **OK**.

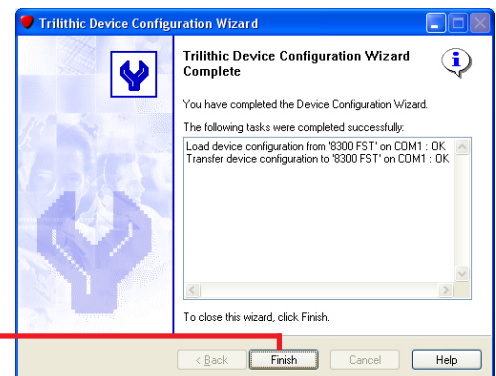
Changing Network Settings

1. Right-click on the name of the 8300 FST that is connected and hover over **Configure**.
2. Then select **Network Settings....**
3. Change or set the connectivity parameters, username, and/or password as necessary by selecting the appropriate field and typing the new value. Entering an IP address of 0.0.0.0 will allow the use of the DHCP protocol to permit the 8300 FST to request and obtain an IP address from your server which has a list of addresses available for assignment.
4. Select **Next>**.



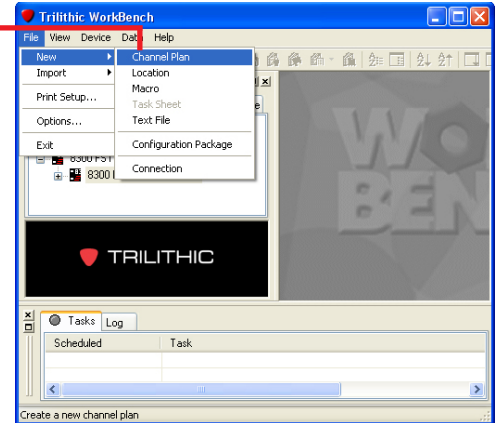
Note: Changes to the Connectivity Parameters will not take affect until the 8300 FST is rebooted, see *Rebooting the 8300 FST* on Page 32.

5. A progress screen will appear momentarily, then select **Finish** on the screen that follows.



Setting Up the 8300 FST Channel Plan

1. Select **File**, hover over **New** and then select **Channel Plan**.
2. Proceed to the appropriate section as follows:
 - To create an empty channel plan, see *Creating an Empty Channel Plan* on Page 26.
 - To copy an existing channel plan or create a channel plan based on an existing channel plan, see *Creating a Pre-Defined Channel Plan* on Page 26.



Note: For more information about how to use channel plans in WorkBench, see the *WorkBench Software Operation Manual*.



Note: If the 8300 FST is factory set to NTSC signals, the inserted channels will be 6 MHz wide. If the 8300 FST is factory set to PAL signals, the inserted channels will be 8 MHz wide. The channel plan must be setup correctly so that the 860 DSPi in the field measures the correct channel power.



Note: Each channel plan is allowed up to 189 channels with a maximum of 160 active channels and 29 disabled channels.

Creating an Empty Channel Plan

1. Type in the channel plan's **Name**: It can be up to 9 alphanumeric characters including spaces.
2. Type in a **Description**: of the channel plan.
3. Choose **Create a new empty channel plan**: by selecting its radio button.

4. Select **Create**.

The 'New Channel Plan' dialog box has a blue title bar with a close button. It contains the following fields and controls:

- Name:** A text box containing 'Example'.
- Description:** A text box containing 'Operation Manual Example Plan'.
- Radio Buttons:** Two options are present: 'Create a new empty channel plan' (which is selected) and 'Start with an existing template or channel plan'.
- Template List:** A table with two columns: 'Template' and 'Description'. It lists several templates, including 'default' which is described as 'Imported from file: default.plan'.
- Buttons:** 'Create' and 'Cancel' buttons at the bottom right.

Creating a Pre-Defined Channel Plan

1. Type in the channel plan's **Name**: It can be up to 9 alphanumeric characters.
2. Type in a **Description**: of the channel plan.
3. Choose **Start with an existing template or channel plan** by selecting its radio button. Then select the channel plan that will be the basis of the new channel plan from the field below.

4. Select **Create**.

This screenshot shows the 'New Channel Plan' dialog box with the 'Start with an existing template or channel plan' radio button selected. The 'default' template in the list is highlighted with a blue selection bar.

Template	Description
BEL_PAL	(Template)
default	Imported from file: default.plan
HRC	(Template)
IRC	(Template)
JPN_NTSC	(Template)
NCTA	(Template)
PAL_BG_BH	(Template)
PAL_D_K	(Template)
PAL_I	(Template)
POL_PAL	(Template)

Modifying Channel Plan Information

Center	Type	Detail	Bandwidth	Smbd Rate	Channel	Label	Tilt	C/N	Hum	Mod	MER	FM Dev	BER	Pulse	Disabled
579.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	83										
585.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	84										
597.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	86										
609.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	88										
615.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	89										
621.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	90										
627.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	91										
633.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	92										
639.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	93										
645.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	94										
651.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	100										
657.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	101										
663.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	102										
669.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	103										
675.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	104										
681.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	105										
687.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	106										
693.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	107										
699.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	108										
705.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	109										
711.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	110										
717.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	111										
723.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	112										
729.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	113										
745.25	Custom		749.75		116										
757.25	NTSC		761.75		118										
763.25	NTSC		767.75		119										
769.25	NTSC		773.75		120										
775.25	NTSC		779.75		121										
789.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	123	Amis									
795.00	Digital	Annex B 256 QAM (DOCSIS)	6.00	5.360537	124	Dplnt									
802.00	Digital	Annex A 256 QAM (EURODOCSIS)	8.00	6.952	125	EUROCMTS									
813.00	Digital	Annex A QPSK (USER)	6.00	6	127	Fst1									
819.00	Digital	Annex A QPSK (USER)	6.00	6	128	Fst2									
825.00	Digital	Annex A QPSK (USER)	6.00	6	129	Fst3									
831.00	Digital	Annex A QPSK (USER)	6.00	6	130	Fst4									
837.00	Digital	Annex A QPSK (USER)	6.00	6	131	Fst5									
843.00	Digital	Annex A QPSK (USER)	6.00	6	132	Fst6									
849.00	Digital	Annex A QPSK (USER)	6.00	6	133	Fst7									
855.00	Digital	Annex A QPSK (USER)	6.00	6	134	Fst8									
861.00	Digital	Annex A QPSK (USER)	6.00	6	135	Fst9									
867.00	Digital	Annex A QPSK (USER)	6.00	6	136	Fst10									

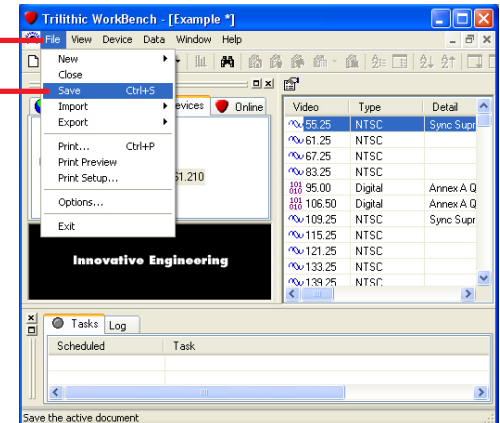
Depending on whether a new channel plan is created based on an empty channel plan or a new channel plan is created based on an existing channel plan, either a blank channel plan or template will appear.

Some columns require information to be typed in, some have options to select from a dropdown list and others need a check mark inserted.

- To activate a sweep pulse on a channel within a channel plan, place a check mark in the **Pulse** column.
- To disable a channel within a channel plan, place a check mark in the **Disabled** column.
- The **Tilt**, **C/N**, **Hum**, **Mod**, **MER**, **FM Dev**, and **BER** columns are not used by the 8300 FST, but are used by the 860 DSP so that the same channel plan can be loaded into both devices.

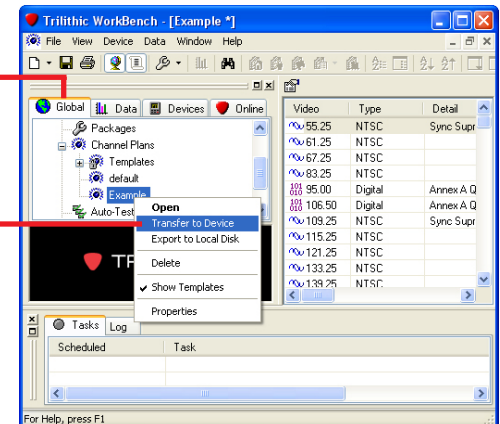
Saving Channel Plans

1. To save the channel plan select the **File** menu.
2. Select **Save**.



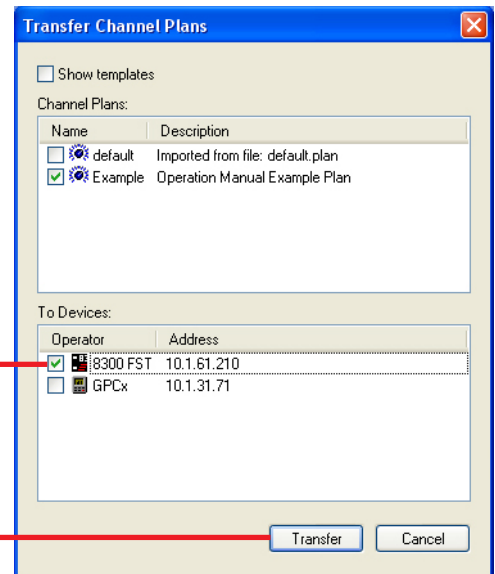
Transferring Channel Plans to the 8300 FST

1. Now transfer the channel plan to the 8300 FST, choose the **Global** tab.
2. Select the plus (+) sign next to **Channel Plans** to show the channel plans, then right-click on the name of the appropriate channel plan and select **Transfer to Device**.



3. If there is more than one device connected, select the name of the appropriate 8300 FST.

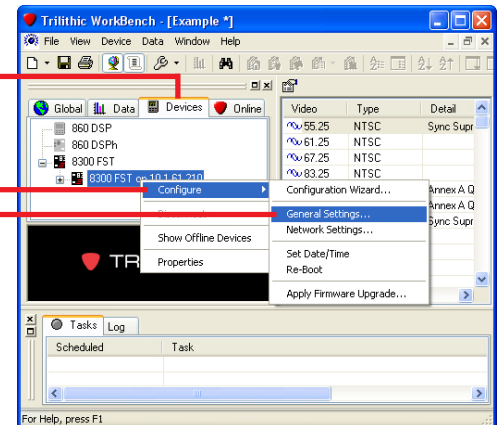
4. Select **Transfer**.



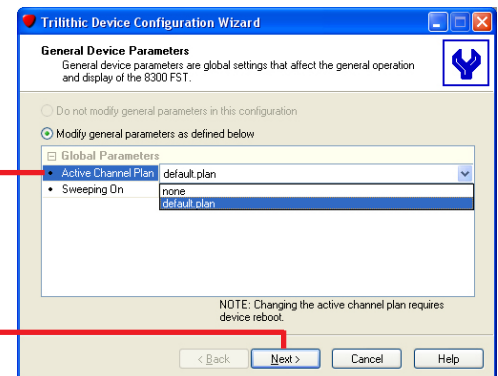
Note: The channel plan that is transferred to the 8300 FST will need to be transferred to the 860 DSP to ensure proper synchronization.

Selecting the Active Channel Plan

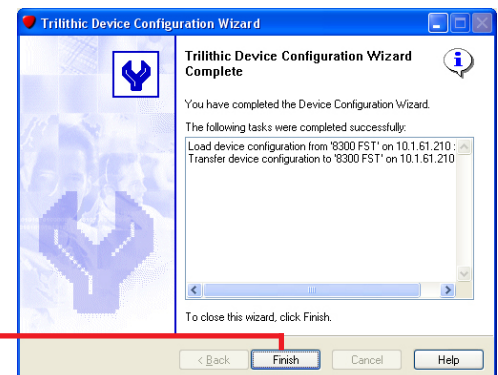
1. To select the 8300 FST's active channel plan, choose the **Devices** tab.
2. Right-click on the name of the appropriate 8300 FST and hover over **Configure**.
3. Then select **General Settings....**



4. To select the active channel plan of the 8300 FST, select the correct channel plan from the dropdown list.



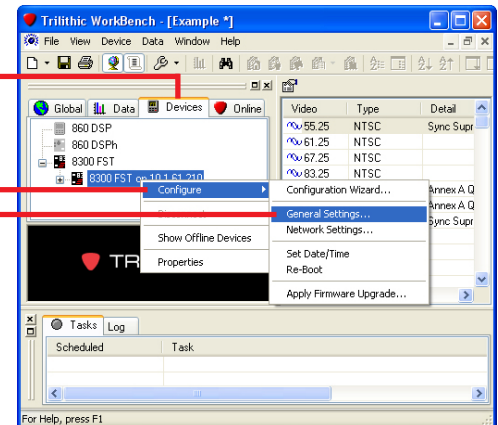
5. Select **Next>**.



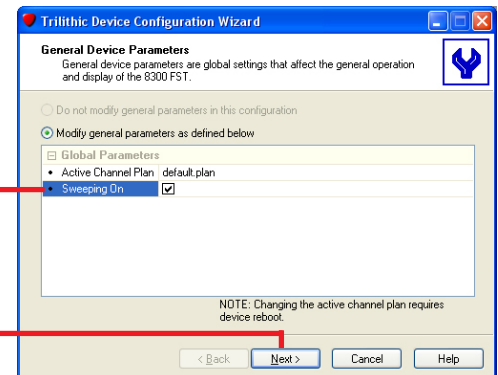
6. A progress screen will appear momentarily, then select **Finish** on the screen that follows.

Enabling and Disabling the Sweep Mode

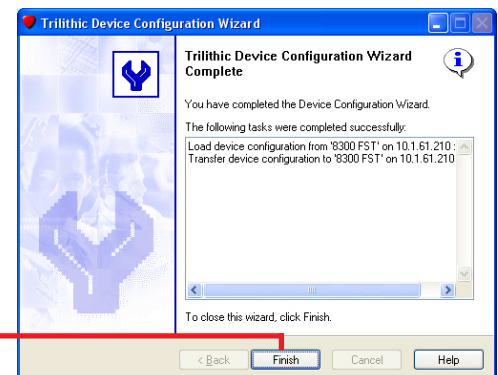
1. To enable the 8300 FST's Sweep Mode, choose the **Devices** tab.
2. Right-click on the name of the appropriate 8300 FST and hover over **Configure**.
3. Then select **General Settings....**



4. To enable the sweeping mode of the 8300 FST, select the checkbox next to **Sweeping On**.
5. Select **Next>**.

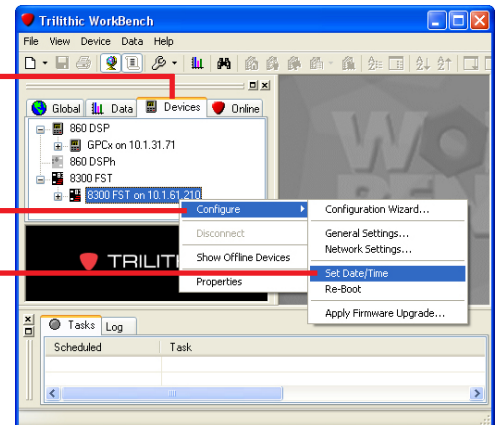


6. A progress screen will appear momentarily, then select **Finish** on the screen that follows.



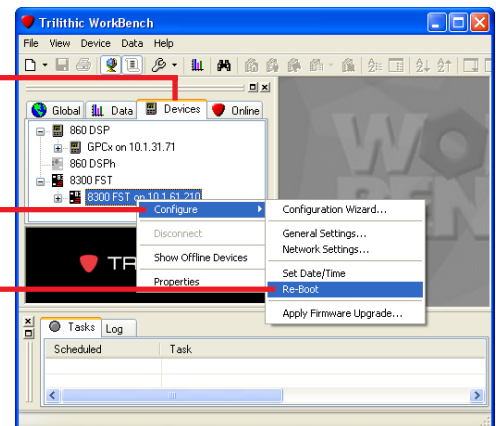
Setting the Date & Time of the 8300 FST

1. To set the system time of the 8300 FST to match the system that is running WorkBench, choose the **Devices** tab.
2. Right-click on the name of the appropriate 8300 FST and hover over **Configure**.
3. Then select **Set Date/Time**.



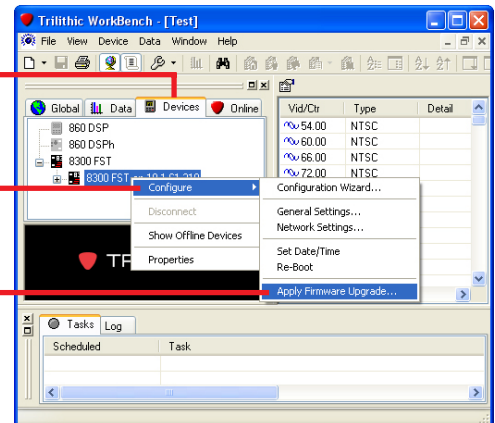
Rebooting the 8300 FST

1. To reboot the 8300 FST, choose the **Devices** tab.
2. Right-click on the name of the appropriate 8300 FST and hover over **Configure**.
3. Then select **Re-Boot**.

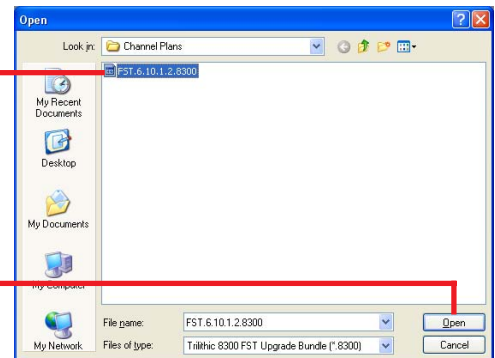


Applying Firmware Upgrades to the 8300 FST

1. To apply a firmware upgrade to the 8300 FST, choose the **Devices** tab.
2. Right-click on the name of the appropriate 8300 FST and hover over **Configure**.
3. Then select **Apply Firmware Upgrade....**



4. Select the appropriate folder and file name.
5. Then select **Open**.



Internet Homepage

This Chapter:

- Use an internet browser to view the internet homepage of the 8300 FST
- Use an internet browser to change the channel plan that the 8300 FST is using
- Use an internet browser to enable and disable the sweep function of the 8300 FST

The advantage of using the 8300 FST's internet homepage is that the sweep function can be enabled and disabled and that channel plans can be changed without using WorkBench.

Connecting to the 8300 FST Internet Homepage

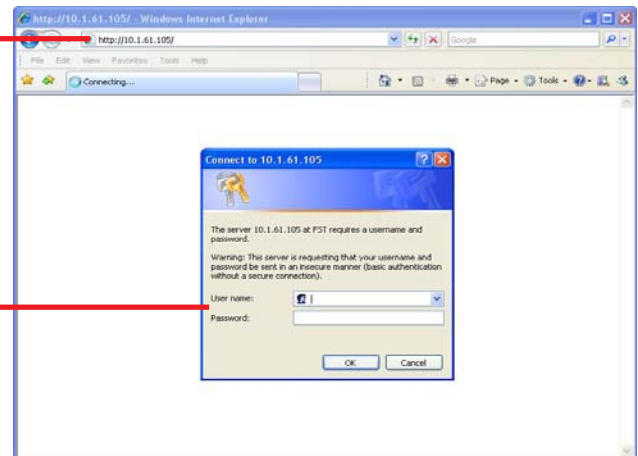


Note: If the 8300 FST homepage cannot be accessed via an internet web browser that means that the network settings **ARE NOT** correct.



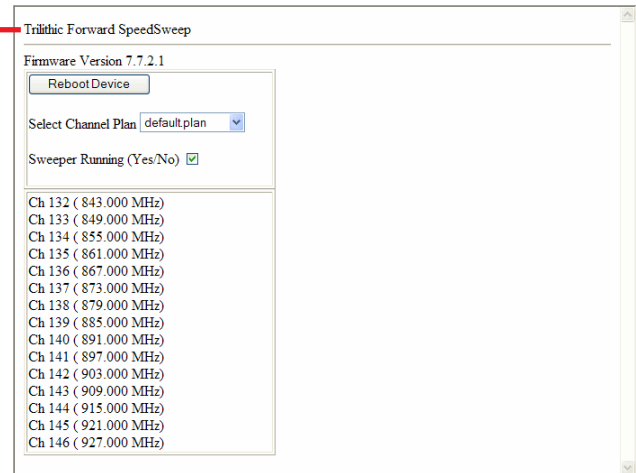
Note: Microsoft Internet Explorer is used for illustration purposes only, any internet web browser will work with 8300 FST.

1. Type the URL of the 8300 FST into the address line of an internet web browser. This URL will be in the following format: **http://#.#.#.#:port#**.
 - **#.#.#.#** is the 8300 FST's IP address
 - **port #** is only used if the port is anything other than 80
2. Enter a **User Name:** and **Password:** and click on **OK**.



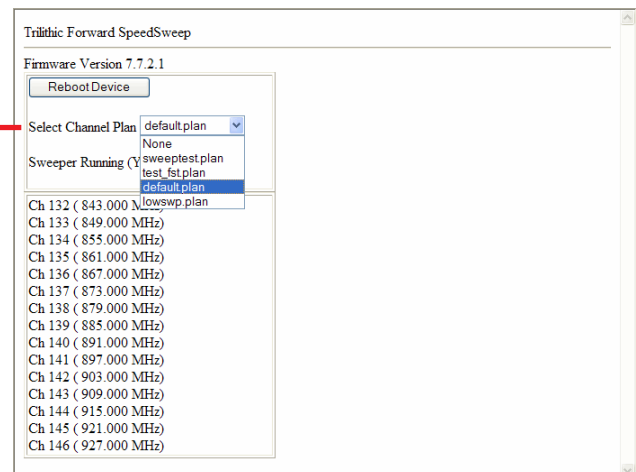
Note: The default **username** is “admin” and the default **password** is “admin”. These can be changed during setup using the terminal emulator or WorkBench.

3. The 8300 FST homepage will load.



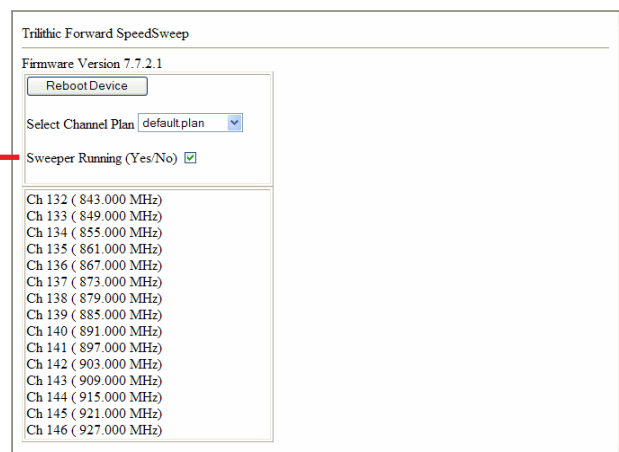
Selecting the Active Channel Plan

The active channel plan for the 8300 FST can be chosen by selecting a channel plan from the drop-down menu.



Enabling and Disabling the Sweep Mode

The 8300 FST's Sweep Mode can be enabled by selecting the check box next to **Sweeper Running (Yes/No)**. The Sweep Mode can be disabled by deselecting the check box.



Trilithic Forward SpeedSweep

Firmware Version 7.7.2.1

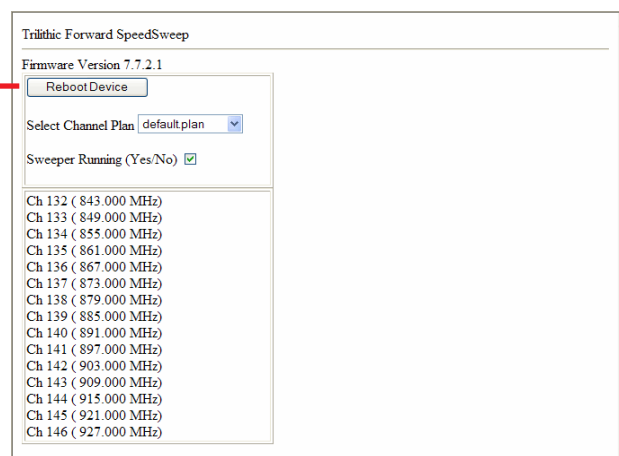
Select Channel Plan default.plan

Sweeper Running (Yes/No) ☒

Ch 132 (843.000 MHz)
Ch 133 (849.000 MHz)
Ch 134 (855.000 MHz)
Ch 135 (861.000 MHz)
Ch 136 (867.000 MHz)
Ch 137 (873.000 MHz)
Ch 138 (879.000 MHz)
Ch 139 (885.000 MHz)
Ch 140 (891.000 MHz)
Ch 141 (897.000 MHz)
Ch 142 (903.000 MHz)
Ch 143 (909.000 MHz)
Ch 144 (915.000 MHz)
Ch 145 (921.000 MHz)
Ch 146 (927.000 MHz)

Rebooting the 8300 FST

The 8300 FST can be rebooted by selecting the **Reboot Device** Button. Reboot the device after you make any changes to the configuration.



Trilithic Forward SpeedSweep

Firmware Version 7.7.2.1

Select Channel Plan default.plan

Sweeper Running (Yes/No) ☒

Ch 132 (843.000 MHz)
Ch 133 (849.000 MHz)
Ch 134 (855.000 MHz)
Ch 135 (861.000 MHz)
Ch 136 (867.000 MHz)
Ch 137 (873.000 MHz)
Ch 138 (879.000 MHz)
Ch 139 (885.000 MHz)
Ch 140 (891.000 MHz)
Ch 141 (897.000 MHz)
Ch 142 (903.000 MHz)
Ch 143 (909.000 MHz)
Ch 144 (915.000 MHz)
Ch 145 (921.000 MHz)
Ch 146 (927.000 MHz)

Specifications



RF Specifications

- **Frequency Range:** 47 to 1,000 MHz; 250 kHz resolution
- **RF Output Level:** Rear panel adjustment, +46 dBmV to +58 dBmV (typical)
- **Accuracy/Stability:** ± 5 kHz
- **Spurious Output:** > 60 dBc (typical)
- **Out-of-Band C/N Ratio:** > 80 dB

External Features

- **Front Panel Controls:** Reset Button
- **Front Panel LED's:** RF on; Power/Error
- **Rear Panel Connectors, Controls:** Type "F" connectors for RF output, RF test point; Serial data connector for set up; RJ-45 Ethernet connector; RF output level control

General

- **Power Supply:** Universal 90 VAC to 240 VAC, 50 to 60 Hz with IEC 320 power connector
- **Power Consumption:** < 30 Watts
- **Physical Size:** 1.75" H x 19" W x 12" D; rack mount, 1U
- **Weight:** Approximately 10 lbs

Warranty Information

Trilithic, Inc. warrants that each part of this product will be free from defects in materials and workmanship, under normal use, operating conditions and service for a period of two (2) years from date of delivery. Trilithic, Inc.'s obligation under this Warranty shall be limited, at Trilithic, Inc.'s sole option, to replacing the product, or to replacing or reporting any defective part, F.O.B. Indianapolis, Indiana; provided that the Buyer shall give Trilithic, Inc. written notice.

Batteries are not included or covered by this Warranty.

The remedy set forth herein shall be the only remedy available to the Buyer under this Warranty and in no event shall Trilithic, Inc. be liable for incidental or consequential damages for any alleged breach of this Warranty. This Warranty shall not apply to any part of the product which, without fault of Trilithic, Inc., has been subject to alteration, failure caused by a part not supplied by Trilithic, Inc., accident, fire or other casualty, negligence or misuse, or to any cause whatsoever other than as a result of a defect.

Except for the warranty and exclusions set forth above, and the warranties, if any, available to the Buyer from those who supply Trilithic, Inc., there are no warranties, expressed or implied (including without limitation, any implied warranties of merchantability of fitness), with respect to the



TRILITHIC
INNOVATIVE ENGINEERING

Trilithic, Inc.
9710 Park Davis Drive
Indianapolis, IN 46235
(317) 895-3600
(800) 344-2412