OptiView™

T1/E1 and DS3/E3 WAN Analyzers

Getting Started Guide

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Table of Contents

	Title	Page

OptiView T1/E1 and DS3/E3 WAN Analyzers

Using This Guide

This *Getting Started Guide* is supplied with the OptiView™ T1/E1 WAN Analyzer and the OptiView DS3/E3 WAN Analyzer to help you get started learning to use your new analyzer quickly and more efficiently. The guide introduces you to the key features and operation of these analyzers and describes the steps to follow to set up and operate them remotely from a PC.

This guide provides a quick overview of the OptiView T1/E1 and DS3/E3 WAN Analyzers' main features and functions. After you install the remote control software from the OptiView Resource CD, you will find the online Help system the best source for answering questions you may have about using your analyzer to monitor the performance of WAN links.

Introduction

The OptiView T1/E1 and DS3/E3 WAN Analyzers are distributed Wide Area Network analyzers that can be used to monitor the performance of T1/E1 and DS3/E3 networks, respectively.

Both WAN analyzers are automated tools that provide meaningful information about your WAN immediately—with virtually no need for configuration. Measured parameters are analyzed and important information is "rolled up" into a comprehensive "front-page" view, giving you the ability to remotely view the health status of any of your WAN links from the physical layer to the application layer. You can even perform packet captures when necessary.

Overview of Features

The OptiView T1/E1 and DS3/E3 WAN Analyzers are designed for testing Frame Relay or Point-to-Point networks. The T1/E1 model features full-duplex interfaces for T1, E1, and Serial WAN link access points while the DS3/E3 WAN Analyzer features full-duplex interfaces for DS3, E3, and HSSI WAN link access points.

Both models offer the following features:

- Allow non-intrusive monitoring of full-duplex links
- Provide multi-user, simultaneous remote access through a 10/100MB Ethernet **MANAGEMENT** port
- SNMP-enabled, providing MIB II, RMON, and RMON2 traffic analysis
- Perform passive and active network discovery with address-to-name resolution

- Track latency and availability of key network devices

- Provide bandwidth utilization statistics, including top applications, conversations, and protocols

- Provide instant HTML reports for all seven layers of statistics and problem tracking

- Feature a dedicated packet capture engine with protocol decoding available through Fluke Networks Protocol Expert software or other third-party packet decoder applications.

Available Models

The OptiView T1/E1 and DS3/E3 WAN Analyzers are available in the following models:

- OptiView T1/E1 WAN Analyzer: WAN link analyzer for Frame Relay or Point-to-Point networks. Features full-duplex interfaces for T1, E1, and Serial WAN link access points.

- OptiView DS3/E3 WAN Analyzer: WAN link analyzer for Frame Relay or Point-to-Point networks. Features full-duplex interfaces for DS3, E3, and HSSI WAN link access points.

- OptiView T1/E1 WAN Distributed Vision Suite: a bundle that includes the OPV-WAN/T1E1, OptiView Console, and OptiView Protocol Expert.

- OptiView DS3/E3 WAN Distributed Suite: a bundle that includes OPV-WAN/DS3E3, OptiView Console, and OptiView Protocol Expert.

Contact your nearest Fluke Networks Distributor or Service Center for purchasing information (see "Contacting Fluke Networks").

Care and Maintenance

The OptiView WAN Analyzer is designed to be maintenance free. Treat it with care to ensure the best performance. The suggestions below will help you fulfill the obligations of the warranty and enjoy your analyzer for many years.

- Avoid rough handling
  Although the analyzer can absorb shock and vibration, avoid dropping it. If you must ship the analyzer, use the original packaging or the ruggedized transit case (see "Optional Accessories").

- Clean carefully
  To clean the analyzer, use a soft, slightly damp cloth. To remove any stains, use a mild soap. Never use detergents, solvents, or abrasive cleaners on the analyzer.

- Provide adequate ventilation
  Always place the analyzer in an area where there is sufficient space in front and behind the unit to provide adequate ventilation.

Safety Information

To avoid possible electric shock or personal injury, the following general safety precautions must be observed during all phases of operation, service, or repair of the analyzer. Failure to comply with these precautions or with specific warnings in this guide violates the safety standards of design, manufacture, and intended use of the analyzer. Fluke Networks assumes no liability for the customer's failure to comply with these requirements.

⚠ Warnings

If this product is used in a manner not specified by the manufacturer, the protections provided by the product may be impaired.

The chassis is expected to be connected to earth ground through the power cord as required for a CLASS 1 instrument. Verify that the instrument chassis is connected to earth to ground.

Insure that the power cord remains accessible for disconnection from the power source.

Do not use the analyzer if it is damaged. Before using, inspect the case. Look for cracked or missing case parts. Pay particular attention to the insulation surrounding the connectors.

Do not operate the analyzer around explosive gas, vapor, or dust.

When servicing the analyzer, use specified replacement parts only.

Do not connect a telephone line to the analyzer.

Provide adequate ventilation in front of and behind the analyzer.

Table 1 describes the international electrical symbols used on the analyzer or in the accompanying documentation.

Table 1. International Electrical Symbols

Symbol	Meaning
⚠	Warning or Caution: Risk of damage or destruction to equipment or software.
⊗	Do *not* connect the analyzer's network interfaces to public telephone systems.
CAT II	OVERVOLTAGE (Installation) CATEGORY II, Pollution Degree 2 per IEC1010-1 refers to the level of Impulse Withstand Voltage protection provided. Equipment of OVERVOLTAGE CATEGORY II is energy-consuming equipment to be supplied from the fixed installation. Examples include household, office, and laboratory appliances.

Service and Adjustment

Service and adjustment of the analyzer should be performed by trained Fluke Networks service personnel only. If you experience a problem with the analyzer, visit the Fluke Networks website at http:/www.flukenetworks.com, send email to support@flukenetworks.com, or contact your nearest Fluke Networks Service Center to report the problem (see "Contacting Fluke Networks" for a list of telephone numbers).

If the analyzer requires repair, service center personnel will provide you with shipping information and repair prices. If the analyzer is covered under warranty, it will be promptly repaired or replaced (at Fluke Networks' option) and returned to you, postage paid, at no charge. See the registration card for warranty terms. If the warranty has lapsed, Fluke Networks will repair the analyzer for a fixed fee and return it, postage paid, to you.

Contacting Fluke Networks

To contact Fluke Networks, visit our website at http://www.flukenetworks.com or send email to support@flukenetworks.com.

For operating assistance in the USA, call 1-800-283-5853.

To order accessories or to find out the location of the nearest Fluke Networks distributor or service center, call:

- Australia: 61 (2) 8850-3333 or 61 3 9329 0244
- Beijing: 86 (10) 6512-3435
- Brazil: 11 3044 1277
- Canada: 1-800-363-5853
- Europe: +44 1923 281 300
- Hong Kong: 852 2721-3228
- Japan: +81-3-3434-0181
- Korea: 82 2 539-6311
- Singapore: +65-6738-5655
- Taiwan: (886) 2-227-83199
- USA: 1-800-283-5853
- Anywhere in the world: +1-425-446-4519

Visit our website for the latest list of phone numbers.

Standard Accessories

Take a moment to check the shipping container to make sure that the contents match the supplied items listed below. Match each item with those shown in Figure 1. If any item is damaged or missing, contact your place of purchase.

- OptiView T1/E1 WAN Analyzer or OptiView DS3/E3 WAN Analyzer
- This *Getting Started Guide*
- OptiView Resource CD
- AC Power Cord
- RS-232 Console Cable
- CAT5 Patch Cable
- Two Coax Patch Cables (DS3/E3 analyzer only)
- Bantam-to-RJ48 Adapter Cable (T1/E1 analyzer only)
- Registration card.

You can order additional software and accessories for the analyzer. See Table 4 for the list of optional accessories.
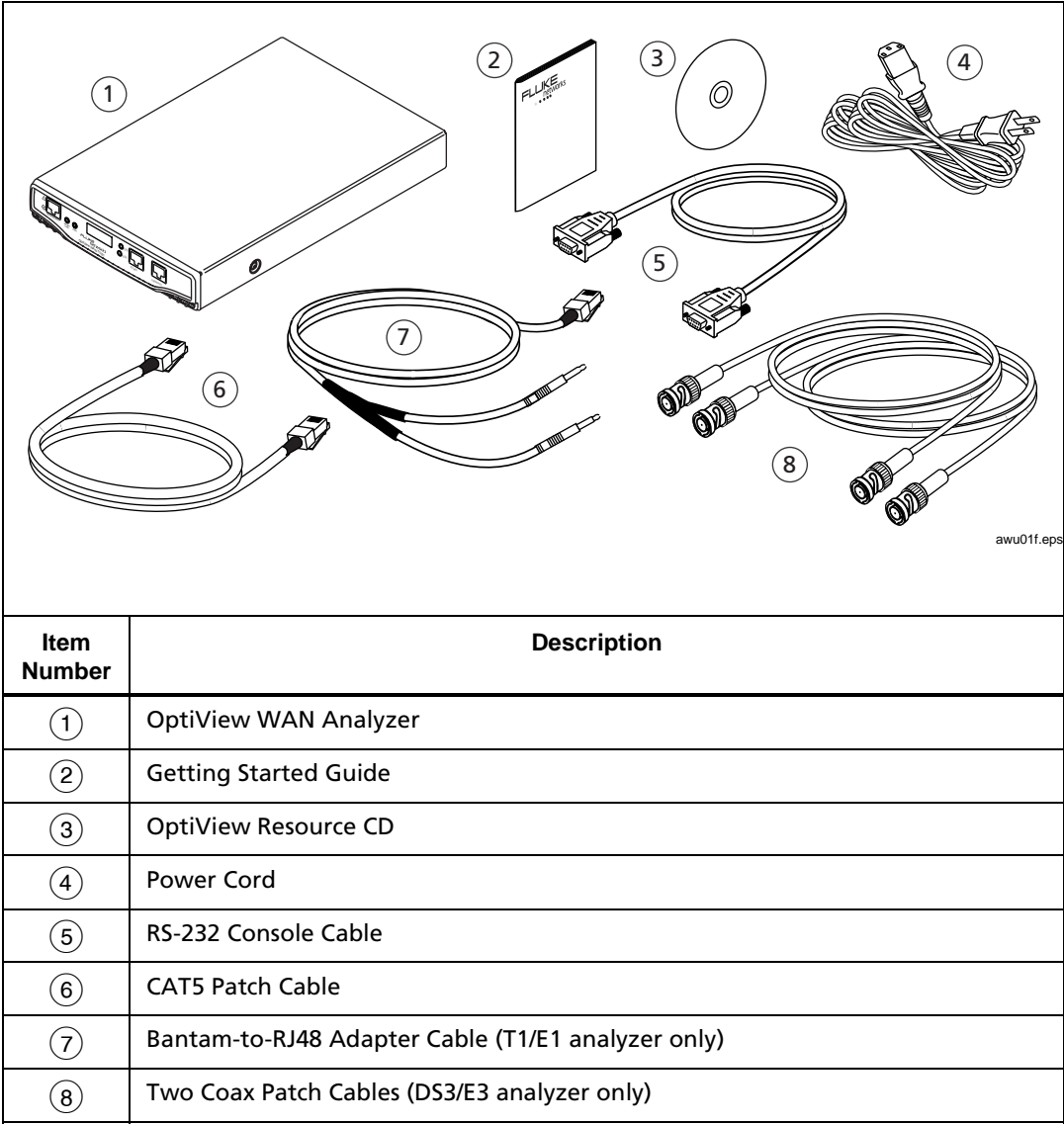
Item Number	Description
①	OptiView WAN Analyzer
②	Getting Started Guide
③	OptiView Resource CD
④	Power Cord
⑤	RS-232 Console Cable
⑥	CAT5 Patch Cable
⑦	Bantam-to-RJ48 Adapter Cable (T1/E1 analyzer only)
⑧	Two Coax Patch Cables (DS3/E3 analyzer only)

Figure 1. Standard Accessories

Registering the OptiView WAN Analyzer

Please take the time to register your OptiView WAN Analyzer. Either fill out and mail the registration card that is inside of the shipping box or go to the Fluke Networks website https://myvision.flukenetworks.com to register online.

As a registered user, you are entitled to entry-level product support, including the following:

- Access to our entry-level, online Knowledge Base library of product operation and application information

- Web-based trouble ticketing.

We will also send you Fluke Networks company and product information updates.

Front Panel

The OptiView T1/E1 WAN Analyzer's front panel is shown in Figure 2. The OptiView DS3/E3 WAN Analyzer's front panel is shown in Figure 3. Following the figures are descriptions of the elements on these front panels.
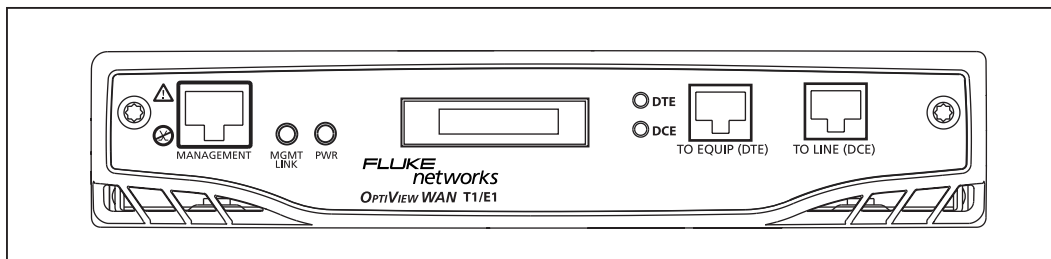

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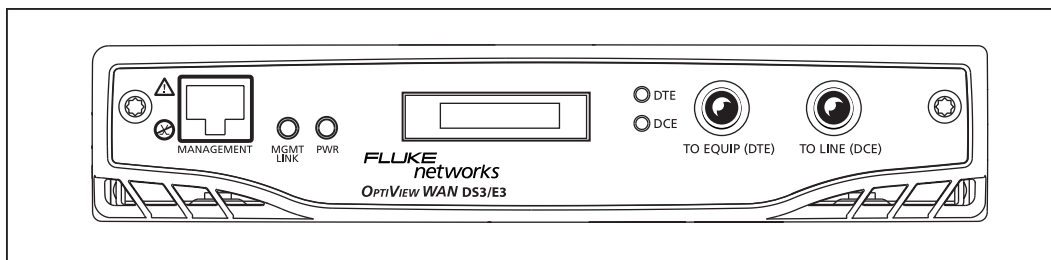**Figure 2. OptiView T1/E1 WAN Analyzer's Front Panel**

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Figure 3. OptiView DS3/E3 WAN Analyzer's Front Panel

MANAGEMENT Port

The **MANAGEMENT** port is the analyzer's remote control interface. This port, which is located on the analyzer's front panel, is an Ethernet RJ-45 connector that accepts 10BASE-T/100BASE-TX twisted-pair copper cable.

LEDs

The OptiView WAN Analyzer has four LEDs. These LEDs indicate the following conditions:

- **MGMT LINK** (**MANAGEMENT** port link)
  Indicates that a link has been established (lights solid green) on the Ethernet **MANAGEMENT** port. If there is activity on the link, the LED flashes green.

- **PWR** (Power)
  Indicates whether the analyzer is off or on (lights blue).

- **DTE** and **DCE** (one for each signal: outbound and inbound)
  Indicate the status of the signal detected by each receiver:

  - Green indicates that both a proper signal level and framing are being detected at the input.

  - Red indicates that no signal is being detected at the input.

  - Yellow indicates that a proper signal level is being detected, but no framing is being detected at the input.

Note

"Yellow" status does not apply to a Serial or HSSI interface. In addition, the signal LEDs do not indicate signal status until the interface is configured. To configure the interface type, see "Specifying the WAN Interface and Physical Layer Parameters", later in this guide.

WAN Interfaces

⚠ **Warning**

Do *not* connect the analyzer's network interfaces to public telephone systems.

The T1/E1 WAN Analyzer (Figure 2) has a serial interface and two RJ48 interfaces: **TO EQUIP (DTE)** and **TO LINE (DCE)**. The RJ48 interface accepts standard straight-through CAT5 patch cables while connection to a V-series or RS-series Serial interface is made with a Y-Cable (see "Optional Accessories").

The DS3/E3 WAN Analyzer (Figure 3) has two BNC connectors: **TO EQUIP (DTE)** and **TO LINE (DCE)**. Connection to a HSSI serial interface is made with a Y-Cable (see "Optional Accessories").

Back Panel

On the analyzer's back panel are the AC power cord receptacle, ground connection, serial configuration port (DB-9 male connector), and the **On/Off** switch.

Turning on the Analyzer

To turn on the analyzer, do the following:

1. Plug the supplied AC power cord into the power receptacle on the analyzer's back panel.

2. Move the power switch to the **On** position.

Note

The power switch is located on the back panel above the power cord receptacle.

The **PWR** LED on the front panel lights blue to indicate that the analyzer is turned on.

When the analyzer powers on, it performs a sequence of operations, which includes initializing the processor and memory. If a link is established on the **MANAGEMENT** connection, the **MGMT LINK** LED on the front panel (see Figure 2 or 3) lights solid green. If there is activity on the link, this LED flashes green. If there is a valid signal on the **DTE** and **DCE**, these LEDs light solid green.

Setting Up the Analyzer

Note

The analyzer's MANAGEMENT port IP address is, by default, DHCP-enabled. We suggest that you statically assign the IP address instead of using the default DHCP setting. If you choose to use DHCP, start at Step 2 in the following procedure.

The overall process for setting up the analyzer is outlined below. Follow the steps in the order given. If you need detailed instructions for a particular step, go to the referenced section. Then, return to complete this procedure.

1. Statically assign the IP address of the analyzer's MANAGEMENT port (see "Statically Assigning the MANAGEMENT Port's IP Address")

2. Deploy the analyzer to the location where the WAN link is to be monitored.

3. Install a Tap on the WAN link and connect the analyzer to the Tap (see "Installing a Tap on the WAN Link").

4. Connect the analyzer to the LAN (see "Connecting the Analyzer's Ethernet MANAGEMENT Port to the LAN").

5. Turn on the analyzer (see "Turning on the Analyzer").

6. Connect the PC that will remotely control the analyzer to the network (see "Connecting the PC to the Network").

7. On the remote controlling PC, install the remote user interface software (see "Installing the Remote User Interface").

8. Start the remote user interface software (see "Starting the Remote User Interface").

The analyzer is properly connected if you can connect to it through the **OptiView Browser** (Figure 12) and display the **Front Page** (Figure 13)**.**

Configuring the analyzer is probably the first task that you will want to perform. Initially, you may want to do the following:

- Configure additional **MANAGEMENT** port parameters
- Specify the WAN interface type and configure physical layer parameters
- Set password controls
- Set encryption controls.

Procedures for these tasks are documented under "Configuring the Analyzer", later in this guide. For information on other configuration tasks, consult the online Help.

Statically Assigning the MANAGEMENT Port's IP Address

To statically assign the **MANAGEMENT** port's IP address, complete the following:

1. Connect one end of the supplied RS-232 Console Cable to the 9-pin serial configuration port on the back of the analyzer and the other end to an RS-232 serial port on a PC or terminal.

2. Turn on the analyzer.

3. On the PC, run a terminal emulation application (such as HyperTerminal) to access the serial configuration port command-line interface.

Note

The analyzer's serial configuration port communication parameters are fixed at Baud rate=9600, Data bits=8, Parity=none, and Stop bits=1. Software flow control should be set to Xon/Xoff or none.

4. Press **Enter**.

   A prompt is displayed that includes the SNMP name of the analyzer.

5. At the prompt, type **management** and then press **Enter**.

   The text **/Management**> is appended to the SNMP name to indicate that you are in Management Port configuration mode.

6. Type **ipaddr** *A.B.C.D E.F.G.H*, where *A.B.C.D* is the MANAGEMENT port's IP address and *E.F.G.H* is the subnet mask. Press **Enter**.

7. Type **iprouter** *A.B.C.D,* where *A.B.C.D* is the IP address of the default router. Press **Enter**.

8. Type **ippridns** *A.B.C.D,* where *A.B.C.D* is the IP address of the primary DNS server. Press **Enter**.

9. (Optional) Type **ipsecdns** *A.B.C.D,* where *A.B.C.D* is the IP address of the secondary DNS server. Press **Enter**.

10. Type **apply** and then press **Enter** to apply the MANAGEMENT port IP settings.

11. Type **show** and then press **Enter**. Verify that the IP address settings for the MANAGEMENT port are correct.

12. Type **exit** to leave Management Port configuration mode.

Connecting the Analyzer

To ensure that the analyzer operates correctly, you need to make the following connections:

- Install a Tap on the WAN link

- Connect the analyzer's Ethernet MANAGEMENT port to the LAN

- Connect the PC to the Network

This section shows you how to make these connections.

Installing a Tap on the WAN Link

You have to connect the analyzer's measurement interface to the WAN link that you want to monitor. To do this, you need to install a WAN Tap or Y-Cable on that link. A WAN Tap is a passive wiring device that provides a method of directly viewing traffic on the link

A WAN Tap or a Y-Cable is required to connect the analyzer to the WAN. You can use another vendor's Tap or a Fluke Networks WAN Tap, which you can purchase separately from Fluke Networks. To obtain a Y-Cable, contact Fluke Networks (see "Optional Accessories").

T1/E1 Tap Connections

There are four types of T1/E1 Tap connections illustrated in this section. The instructions for installing a T1/E1 Tap vary depending on the model and type of equipment you are using. Refer to the connection diagrams that fit your particular testing environment.

Connecting to an In-line T1/E1 Tap

To connect the analyzer to a Fluke Networks T1/E1 in-line Tap, refer to the diagram in Figure 4.

Item Number	Description
①	You can connect to either RJ48 interface (Line or Equipment).
②	Straight-through CAT5 patch cable (one cable is supplied)
③	Rackmount Single-Port T1/E1 In-line Tap
④	Connect to service provider's line.
⑤	Connect to router equipment.
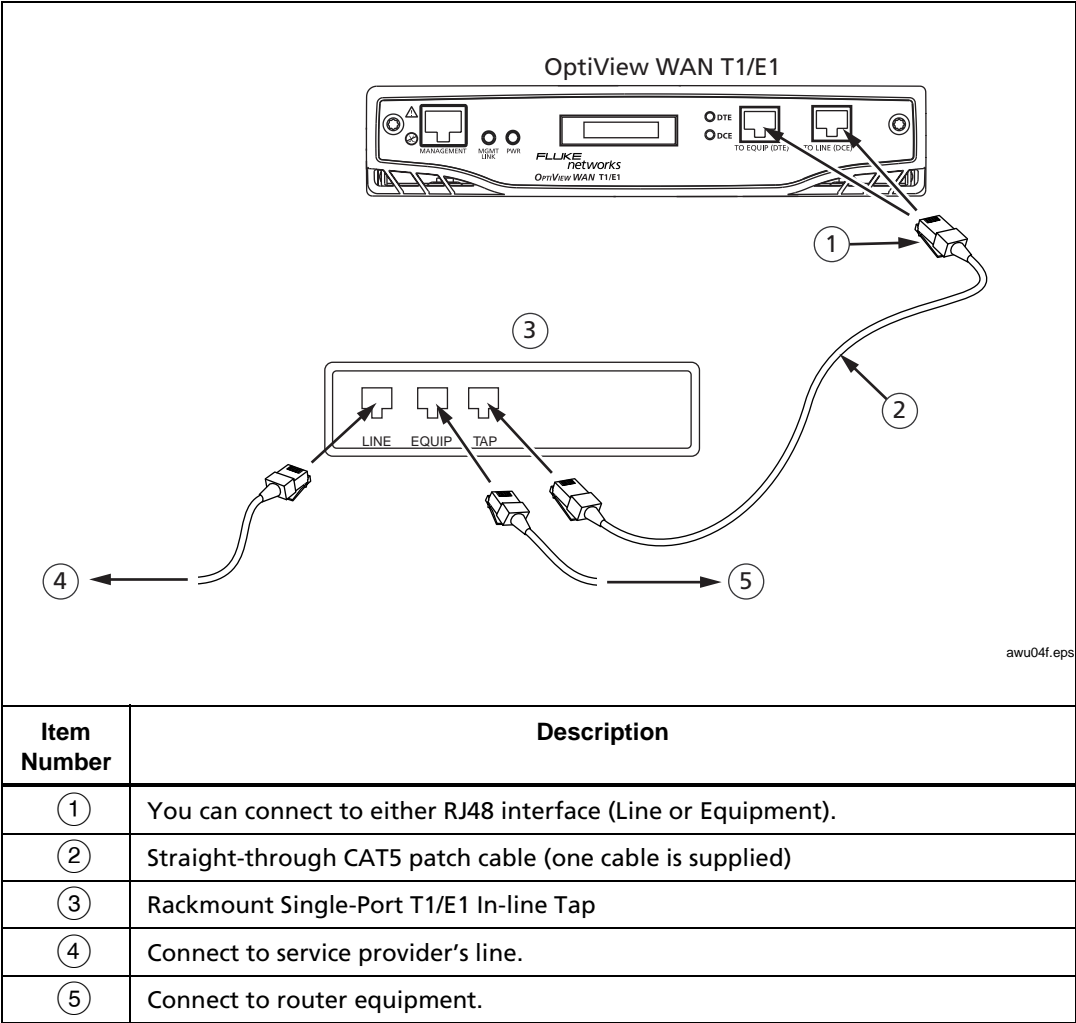
Figure 4. Connecting to a Rackmount Single Port T1/E1 In-Line Tap

Connecting to a Router

To connect the analyzer to a router with a built-in CSU/DSU, refer to the diagram in Figure 5.
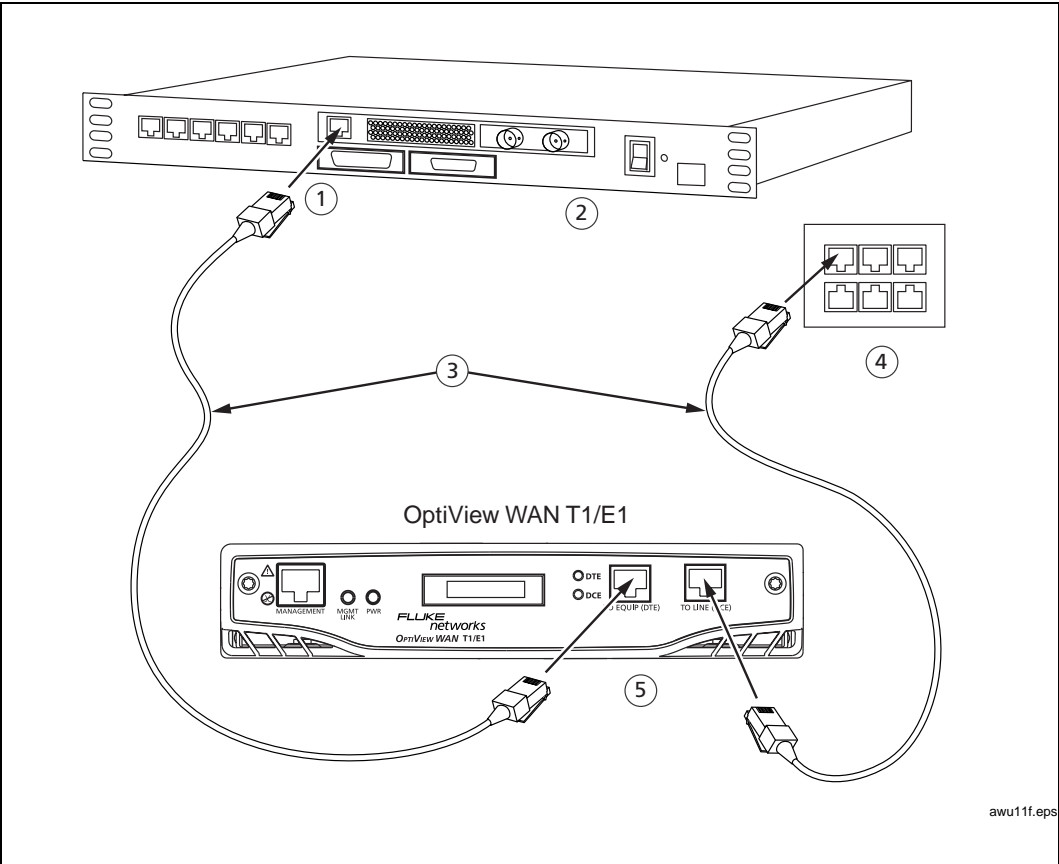
Item Number	Description
1	T1/E1 trunk port (RJ-48 shown)
2	Router with built-in CSU/DSU
3	Standard straight-through CAT5 patch cables (one cable is supplied)
4	Network demarcation (RJ-48 shown)
5	T1/E1 interface (built-in passive tap)

Figure 5. Connecting to the Network Using the Built-In Tap

If your CSU/DSU is external to the router, you can access the link from the T1/E1 side (similar to Figure 5) or you can use a Y-Cable (see "Optional Accessories") to tap into the serial cable between the CSU/DSU and the router, as shown in Figure 6.

Item Number	Description
1	Existing serial cable from router to CSU/DSU
2	Router with external CSU/DSU
3	Serial Y-Cable
4	CSU/DSU
5	Serial Extension Cable
6	Serial interface
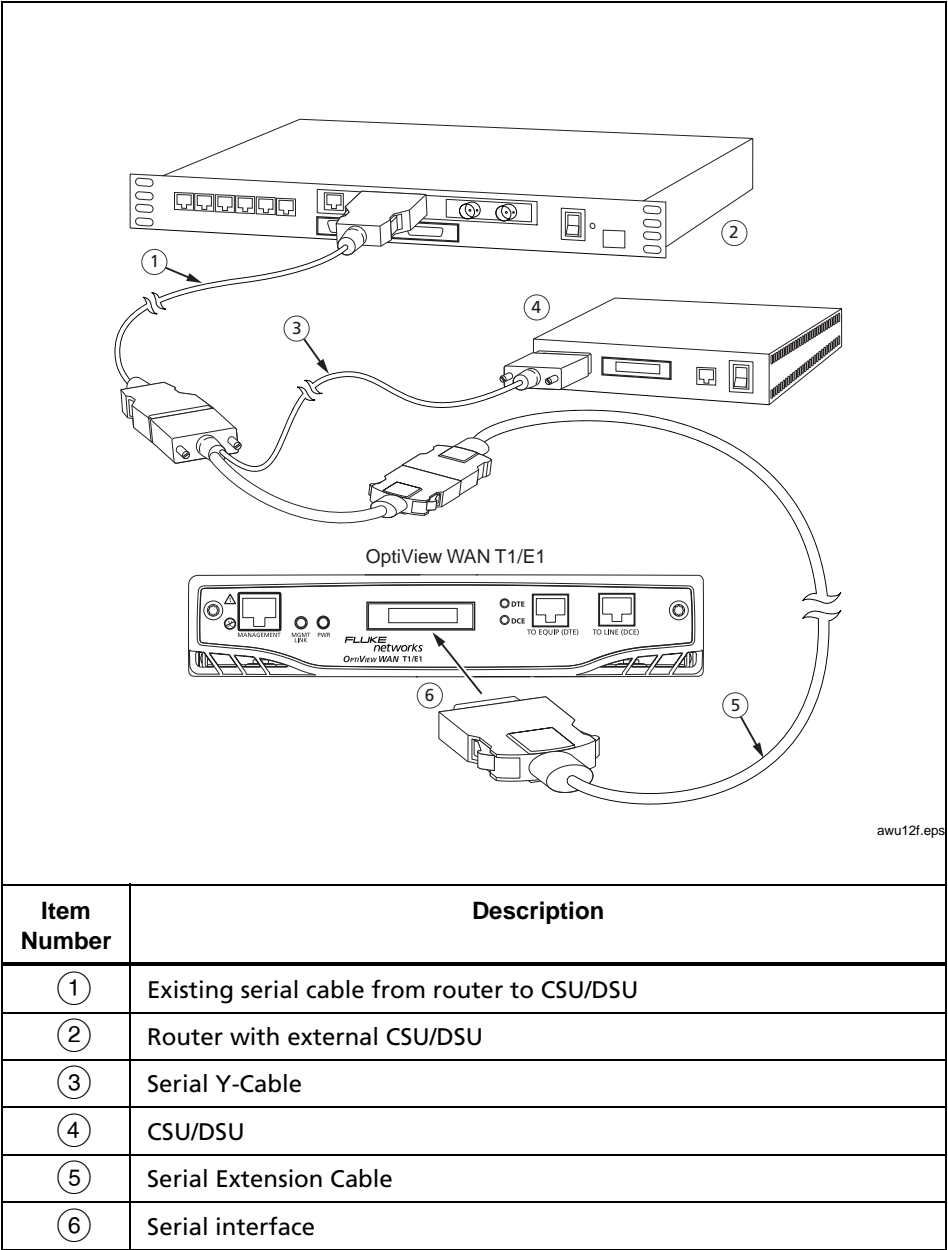
Figure 6. T1/E1 Tap with Serial Y-Cable Access

Connecting to T1/E1 Monitor Jacks

To connect to a DSX patch panel, refer to the diagram in Figure 7.

Item Number	Description
①	DSX Patch Panel
②	Bantam-to-RJ48 Adapter Cable (supplied)
③	You can connect to either RJ48 interface (Line or Equipment).
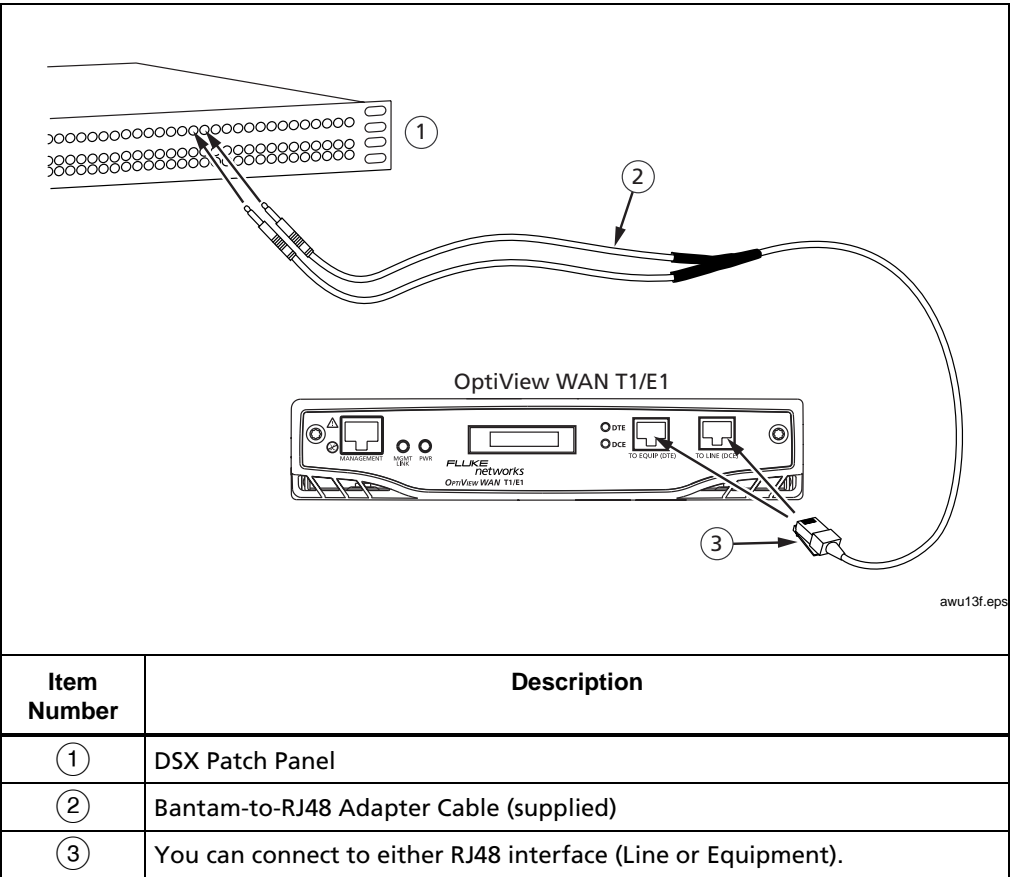
Figure 7. Connecting to the T1/E1 Monitor Jacks on a DSX Patch Panel

DS3/E3 Tap Connections

There are two types of DS3/E3 tap connections illustrated in this section. Refer to the connection diagram that fits your particular testing environment.

Connecting to a Router with a Built-in CSU/DSU (BNC Interface)

Figure 8 shows a connection to a router with a built-in CSU/DSU.

Item Number	Description
①	DS3/E3 port
②	Router with a built-in CSU/DSU
③	Connect to service provider's line.
④	Rackmount Single-Port DS3/E3 In-line Tap (see "Optional Accessories")
⑤	Coax Patch Cables (two supplied)
⑥	DS3/E3 interface (BNC)
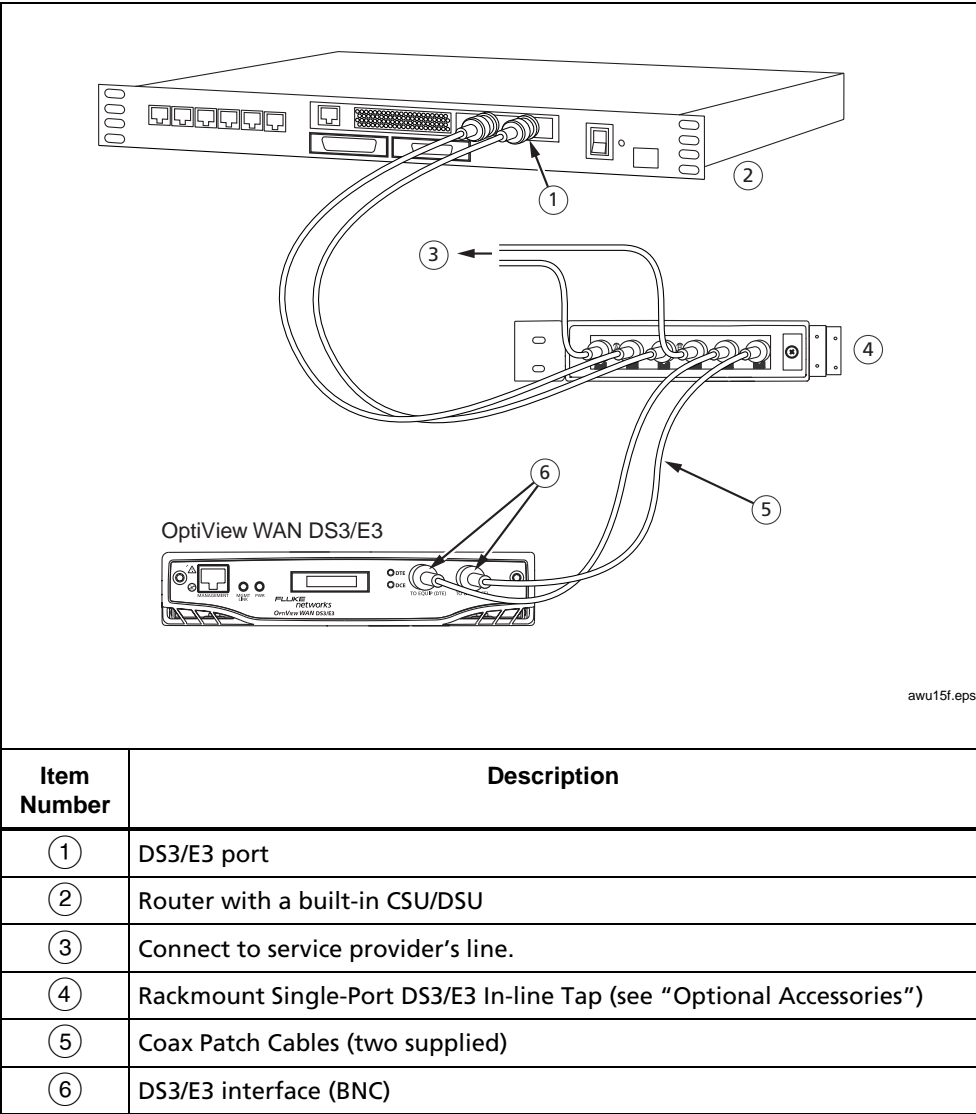
Figure 8. Connecting to a Rackmount Single-Port DS3/E3 In-Line Tap

Connecting to a Router with an External CSU/DSU (HSSI Interface)

To connect a HSSI interface to a router with an external CSU/DSU, refer to the diagram in Figure 9.

Item Number	Description
①	HSSI interface
②	CSU/DSU
③	HSSI Y-Cable (See "Optional Accessories")
④	HSSI port
⑤	Router with external CSU/DSU
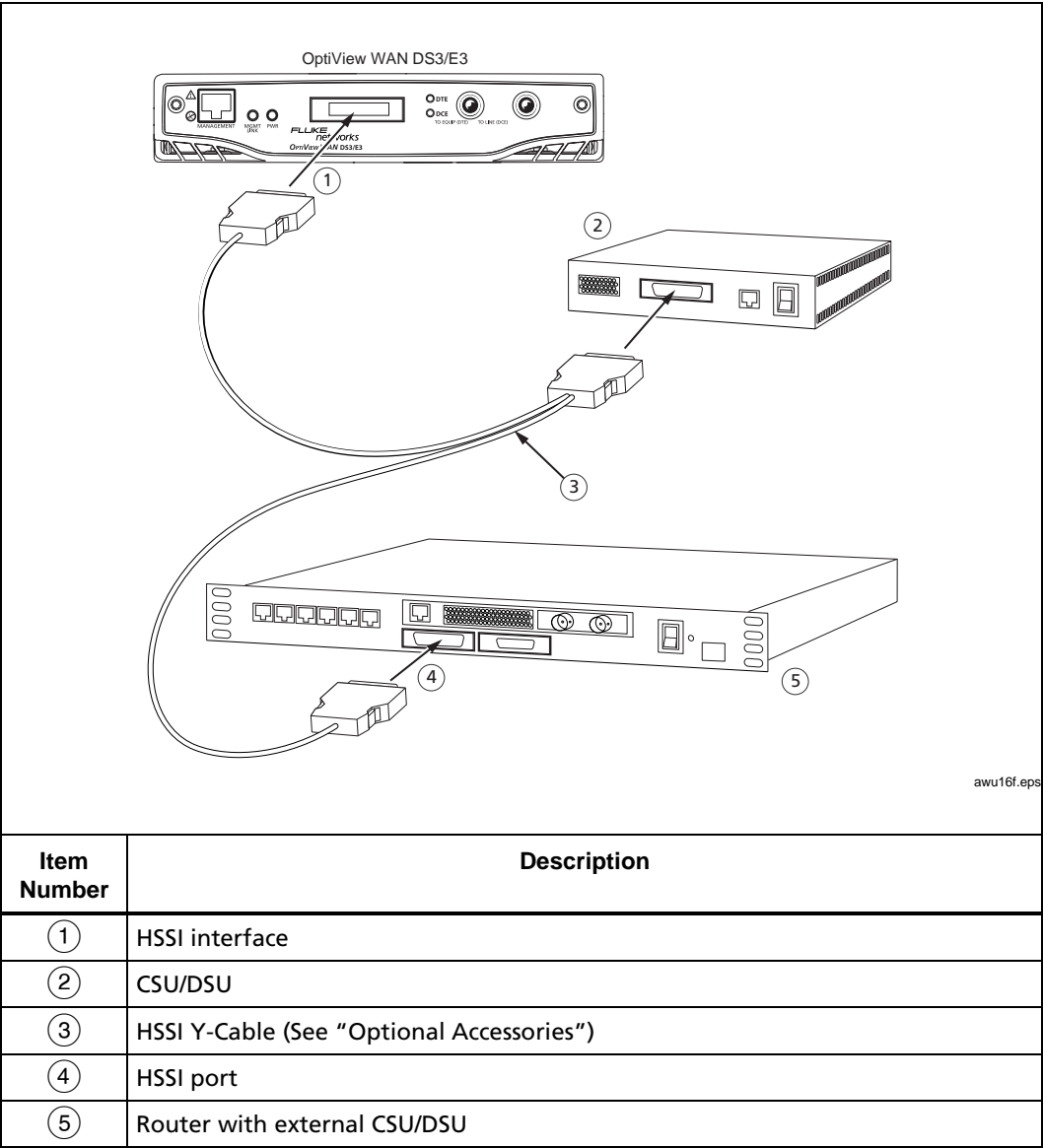
Figure 9. DS3/E3 Tap with HSSI Y-Cable Access

Connecting the Analyzer's Ethernet MANAGEMENT Port to the LAN
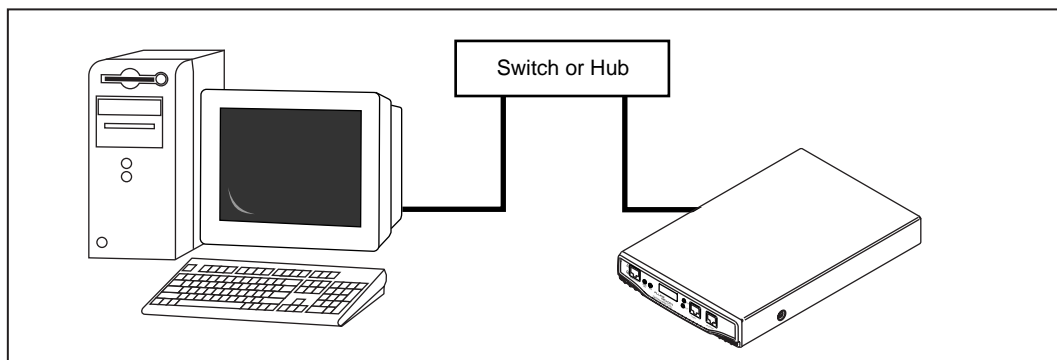
You need to connect the analyzer's Ethernet **MANAGEMENT** port to the LAN. Complete the following:

1. Using the supplied (or your own) CAT5 patch cable, connect one end to the **MANAGEMENT** port, which is located on the analyzer's front panel (Figure 2 or 3).

2. Connect the other end of the cable to the 10/100 Ethernet network that matches the IP subnet that you statically configured for the analyzer.

Connecting the PC to the Network

The PC that remotely controls the analyzer must be connected to the network. The connection diagrams in Figures 10 and 11 illustrate the two ways a PC can be connected.
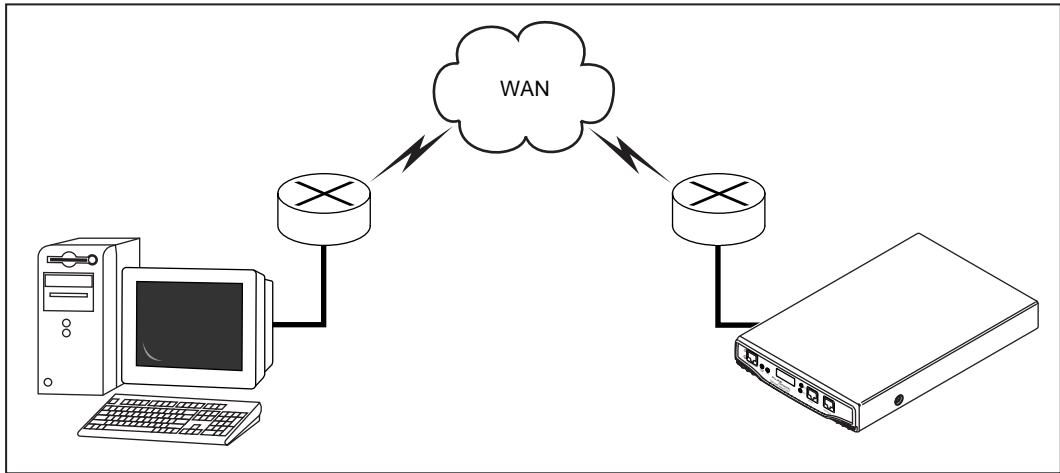
In Figure 10, the PC with the remote user interface software installed is connected to the same Ethernet network (broadcast domain) that the analyzer's **MANAGEMENT** port is connected to.

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Figure 10. MANAGEMENT Port to LAN Connection

Figure 11 shows a remote connection from the analyzer's Ethernet **MANAGEMENT** port through a WAN to the remote controlling PC.

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Figure 11. Remote MANAGEMENT Port Connection through a WAN

The Remote User Interface

The remote user interface software enables your PC to remotely connect to and control any OptiView analyzer within the network that has a path back to the PC. This section shows you how to install the software on a PC, start the program, and access analyzers through the **OptiView Browser**.

System Requirements

To run the remote user interface software, your system must meet the following requirements:

- Windows NT 4.0 with Service Pack 5 or greater (with Administrative privileges), Windows 2000, or Windows XP
- A minimum of 65 MB of temporary hard disk space (for installation)
- Microsoft TCP/IP stack
- Winsock 2.0
- 200 MHz Pentium processor
- 128 MB system RAM (running multiple instances of the software requires more memory; typically 16 MB per session)
- 800 x 600 video SVGA display
- 120 MB disk drive space
- CD-ROM drive.

Installing the Remote User Interface

To install the remote user interface software, do one of the following:

- Insert the *OptiView Resource* CD in the CD-ROM drive of the remote controlling PC. Click the **Install Remote User Interface** button. Then follow the on-screen instructions to complete the installation.

    OR

- Double-click the file **Launch.exe**, which is located in the root directory of the supplied *OptiView Resource* CD. Click the **Install Remote User Interface** button. Then, follow the on-screen instructions to complete the installation.

After you install the program, an icon appears on the desktop of the remote controlling PC.

Starting the Remote User Interface

To start the remote user interface:

1. On the remote controlling PC, double-click the desktop icon for the OptiView Analyzer remote user interface or select the program from the **Start** menu.

    The **OptiView Browser** (Figure 12) is displayed.

2. To connect to an analyzer, do the following:

    - In the IP address list, select or enter the IP address of the analyzer you want to connect to.

        OR

    - Select the analyzer from the list of analyzers at the bottom of the screen. Then, click the Start User Interface button (Figure 12).

You are connected to the analyzer when the **Front Page** screen (Figure 13) is displayed. See "The Front Page" for details.

The OptiView Browser

The **OptiView Browser** (Figure 12) is the first screen that you see after you start the remote user interface software on the remote controlling PC. From this screen, you can access any OptiView analyzer within the network that has a path to the remote controlling PC.

Item Number	Description
1	Refresh analyzer list button
2	Start user interface button
3	Start web browser button
4	Update firmware button
5	IP address list
6	List of analyzers
7	Encryption: 🔒 (on) 🔓 (off)
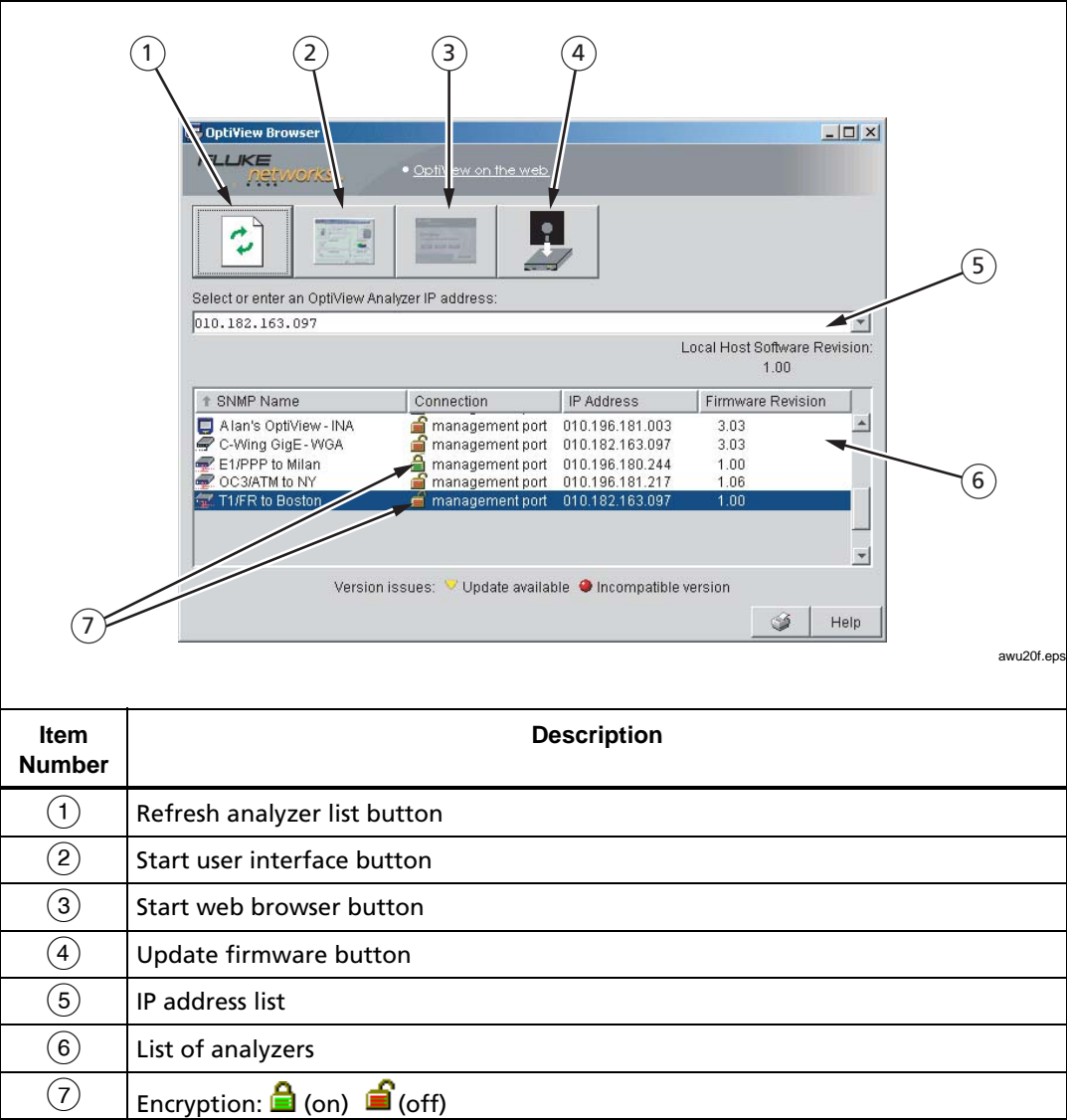
Figure 12. The OptiView Browser

The **OptiView Browser** has five main areas:

- Task buttons
  Click the buttons (located at the top of the screen) to perform these tasks:

 Re-displays the list of OptiView analyzers. Any analyzer that is in the same local network appears in this list.

 Starts the remote user interface for the selected analyzer.

 Starts the Web Browser. (Applies to OptiView Integrated Network Analyzers only. This button is not available if an OptiView Workgroup Analyzer or OptiView WAN Analyzer is selected.)

 Updates the selected analyzer's firmware. (Does not apply to OptiView Integrated Network Analyzers.)

- IP address list
  Provides an entry field for you to type the IP address of the OptiView analyzer that you want to connect to. Previously entered IP addresses are retained in the list so that, alternatively, you can click the drop-down arrow and select an address.

- Local Host Software Revision
  Displays the revision of the remote user interface software installed on the PC. If ▼ appears next to the Local Host Software Revision, you need to update the remote user interface software.

- List of analyzers
  Any OptiView analyzer that is in the same local network as your PC appears in this list. If an analyzer is not in the same local network, its name appears in the list if you added the PC's IP address to the analyzer's **Remote Consoles** list. It also appears if you recently connected to the analyzer.

  The following information is provided for each analyzer:

  - **SNMP Name**: the user-specified name of the analyzer.

  - **Connection**: the type of connection (**MANAGEMENT** port for WAN analyzers). To the left of connection type, you may see one of the following symbols:

    🔓 Indicates that encryption is disabled on the analyzer (see "Protecting the Privacy of Your Data").

    🔒 Indicates that encryption is enabled on the analyzer (see "Protecting the Privacy of Your Data").

  - **IP Address**: the analyzer's IP address.
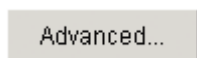
- **Firmware Revision**: displays the firmware version of the analyzer. To the right of the firmware version, you may see one of the following symbols:

    ▽ **Update available** indicates that the analyzer's firmware is older than the user interface software on your PC and that a software update is available. If this symbol is displayed, you should update the analyzer's firmware (see "Updating the Software").

    🔴 **Incompatible version** indicates that the analyzer's firmware is not compatible with the user interface software on your PC. If this symbol is displayed, you must update the analyzer's firmware (see "Updating the Software").

- Utility Buttons
  Three utility buttons are located in the lower right corner:

Advanced...	This button does not apply to OptiView WAN Analyzers. It is used if a software update for a remote OptiView Workgroup Analyzer fails during the update process.
🖨	Click to print the contents of the currently displayed screen on the default printer.
Help	Click to display OptiView Browser Help (see "The Online Help").
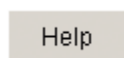
The Online Help

The remote user interface software has a built-in Help system. As you operate the analyzer, you can obtain immediate assistance and information about any screen that you are currently viewing by clicking the **Help** button. This button is located in the lower right corner of every screen.

Finding a Help Topic

To search the Help for a particular topic, you can use the navigational tabs that are displayed directly above the left pane of the Help window:

These tabs give you three ways to locate a topic within the Help system:

- Click **Contents** to display a table of contents organized by topic.

- Click **Index** to display a multi-level list of keywords, phrases, and terms that are associated with Help topics.

- Click **Search** and supply a specific word or phrase that you want to locate. When you click this tab, a text entry box is displayed that prompts you to supply a keyword to search the Help for.

Navigating the Help

Click the **Back** and **Forward** buttons to quickly move back and forth, respectively, between previously viewed Help topics:

Opening and Closing the Left Pane

Depending on how you like to work, you can open or close the left pane.

   Click to close the left pane and make more room for Help topics.

   Click to open the left pane where navigational tabs and a table of contents are displayed.

Printing Help Topics
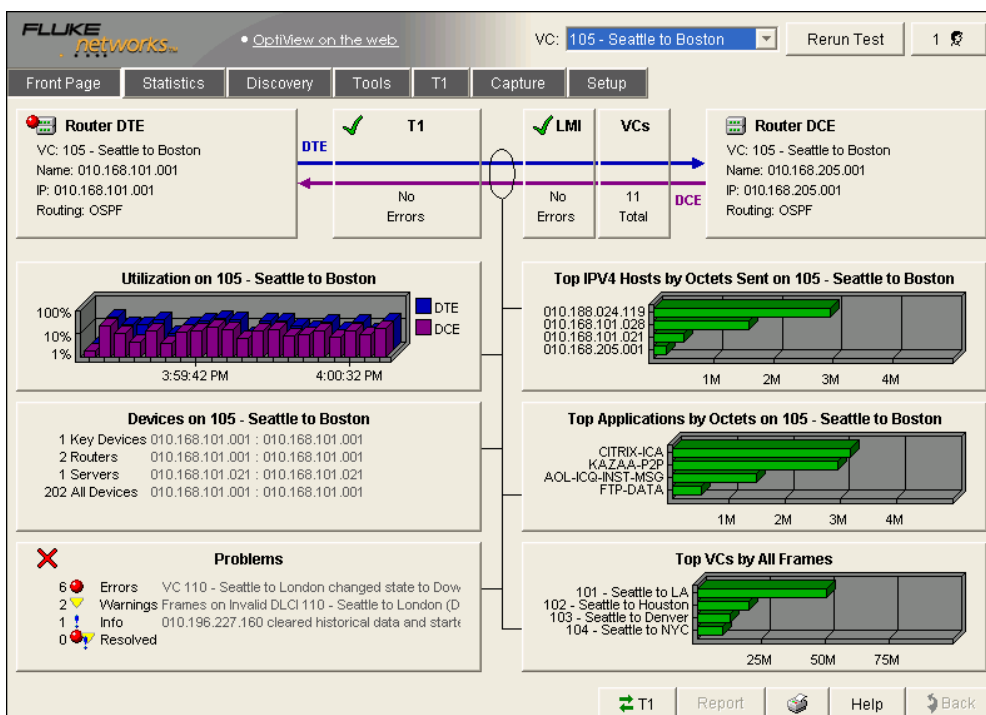
To print a Help topic, click . This button lets you print the selected topic or the selected heading and all subtopics under that heading.

The Front Page

The **Front Page** (Figure 13) is the first screen that is displayed after you connect to an analyzer.

Note

*The figure below shows the **Front Page** screen for a T1 interface. If your analyzer is configured for a different interface (for example, Serial), the appropriate **Front Page** screen is displayed. To configure the appropriate interface type, see "Specifying the WAN Interface and Physical Layer Parameters", later in this guide.*

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Figure 13. Front Page Screen
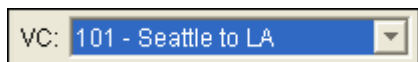
The **Front Page** provides a "macro" view of the status and health of a WAN link from the physical layer to the application layer by alerting you to problems and providing critical network utilization and performance information.

On this screen, measured parameters are analyzed, "rolled up", and summarized for you on individual status buttons. The combined information on all of the buttons gives you a quick update on a link's overall condition. To view the details behind any summary, click the desired button. **Front Page** main buttons are described in Table 2.

You can view **Front Page** statistics for all active DLCIs on the WAN link by selecting **<All>**:

VC: **<All>**
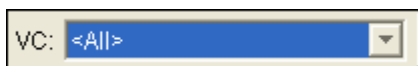
Or you can select a particular DLCI to view statistics for that DLCI only:

VC: 101 - Seattle to LA

Front Page Main Buttons

Table 2 summarizes the functions of the main buttons on the **Front Page**. For detailed information about these buttons, access the online Help within the remote user interface software.

Table 2. Front Page Main Buttons
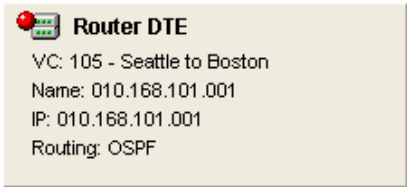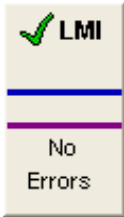
Button	Description
● 📠 **Router DTE** VC: 105 - Seattle to Boston Name: 010.168.101.001 IP: 010.168.101.001 Routing: OSPF **Router**	The two Router (DTE and DCE) buttons represent the near-end and far-end routers. Each button displays the IP address of the router and the routing protocol used. If a routing protocol runs between the two routers, both Router buttons are available and you can click either one to view detailed information about that router.
✓ **LMI** No Errors **LMI Status** **(Frame Relay only)**	Provides information for the Link Management Interface (LMI). A ✓ indicates that the LMI interface is up and that no problems are currently being detected. An ✗ alerts you that the analyzer is detecting or has detected errors. If **Current Errors** or **Previous Errors** is displayed on this button, click it to see the LMI errors that were detected.

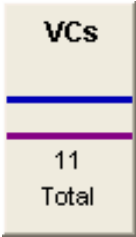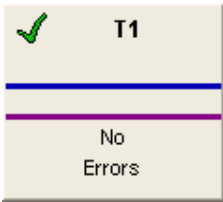**Table 2. Front Page Main Buttons (continued)**

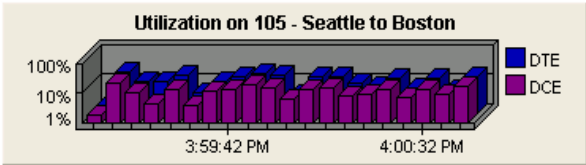| Button	Description
VCs 11 Total **VCs** **(Frame Relay only)**	Displays the total number of virtual circuits that the analyzer discovered on the WAN link. Click this button to display detailed information about each discovered VC.
T1 No Errors **Physical Layer Status**	Provides information on the status of the WAN physical layer. A ✔ indicates that the link is up and that no problems are currently being detected. An ✖ alerts you that the analyzer is currently detecting errors and/or alarms. If **Current Errors** or **Previous Errors** is displayed on this button, click it to find out what physical layer errors and alarms were detected.
Utilization on 105 - Seattle to Boston 100% / 10% / 1% ■ DTE ■ DCE 3:59:42 PM 4:00:32 PM **Utilization**	Displays bandwidth utilization statistics in both directions (DTE for the outbound direction and DCE for the inbound direction) for the entire WAN link or for a selected DLCI (Frame Relay only). Click this button to display detailed bandwidth utilization statistics.

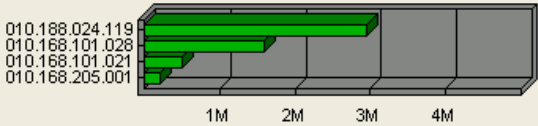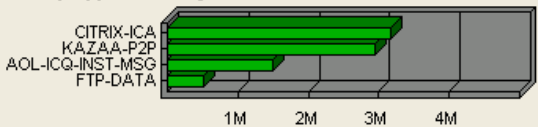**Table 2. Front Page Main Buttons (continued)**
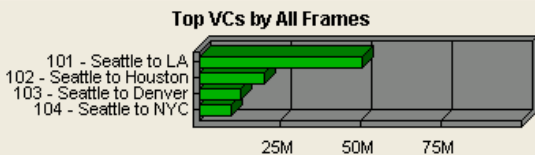
Button	Description
Top IPV4 Hosts by Octets Sent on 105 - Seattle to Boston 010.188.024.119 010.168.101.028 010.168.101.021 010.168.205.001 1M 2M 3M 4M **Top Hosts**	Displays the leading four transmitting hosts (devices) on the WAN link that the analyzer is connected to. This measurement is based on the octet count of IPv4 packets sent by all hosts using the WAN link or by a selected DLCI (Frame Relay only). Click this button to display detailed information on the leading 50 hosts.
Devices on 105 - Seattle to Boston 1 Key Devices 010.168.101.001 : 010.168.101.001 2 Routers 010.168.101.001 : 010.168.101.001 1 Servers 010.168.101.021 : 010.168.101.021 202 All Devices 010.168.101.001 : 010.168.101.001 **Devices**	Displays the number of devices by type that the analyzer discovered on the entire WAN link or on a selected DLCI (Frame Relay only). Specific address and domain names are given. Device discovery is periodically cycled and updated. Click this button to view details for each discovered device.
Top Applications by Octets on 105 - Seattle to Boston CITRIX-ICA KAZAA-P2P AOL-ICQ-INST-MSG FTP-DATA 1M 2M 3M 4M **Top Applications**	Displays the leading four TCP or UDP applications detected by the analyzer on the entire WAN link or on a selected DLCI (Frame Relay only). These four applications are generating the highest combined output of octets for both directions (DTE for the outbound direction and DCE for the inbound direction). Click this button to view detailed information on the leading 50 applications.

Table 2. Front Page Main Buttons (continued)

Button	Description
Problems ✖ **Problems** 6 🔴 Errors VC 110 - Seattle to London changed state to Dow 2 🔻 Warnings Frames on Invalid DLCI 110 - Seattle to London (D 1 ❗ Info 010.196.227.160 cleared historical data and starte 0 🔴🔻 Resolved **Problems**	The OptiView WAN Analyzer can automatically detect common WAN link problems. This button displays a summary of the number of problems detected for each level of severity. A ✔ indicates that there are currently no unresolved problems on the link while an ✖ alerts you to unresolved problems. The critical errors 🔴, warning 🔻, and information ❗ symbols are used on this button and throughout the user interface to identify devices experiencing problems. A count of all resolved problems (🔴🔻) is also displayed. Click this button to view specific events detected by the analyzer.
Top VCs by All Frames 101 - Seattle to LA 102 - Seattle to Houston 103 - Seattle to Denver 104 - Seattle to NYC 25M 50M 75M **Top VCs** **(Frame Relay only)**	Displays the leading four DLCIs (Frame Relay only) on the WAN link that the analyzer is connected to. This measurement is based on the total traffic frame counts for both directions (DTE for the outbound direction and DCE for the inbound direction). Click this button to view detailed traffic frame counts for all DLCIs (Frame Relay only).

Additional Front Page Buttons

Additional **Front Page** buttons are described in Table 3. These buttons are located in the upper and lower portions of the **Front Page** and may be available on other user interface screens. For detailed information on the functions of these buttons, access the online Help within the remote user interface software.
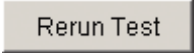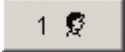
Table 3. Additional Front Page Buttons

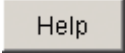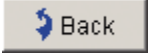| Button	Description
Rerun Test	Click this button to clear gathered statistics and discovery information. The **Front Page** is updated with the latest network information.
1	Displays the number of users (or remote control sessions on a single PC) who are currently connected to the analyzer through the OptiView remote user interface software. Click to display the **Sessions** window, which provides detailed information on each connected user.
T1 / No Signal	Indicates the status of the signal and framing format in each direction on the link: • A green arrow indicates that both a proper signal level and framing are being detected at the input. • A red arrow indicates that no signal is being detected at the input. • A yellow arrow indicates that a proper signal level is being detected, but no framing is being detected at the input. Click to view the analyzer's WAN interface and physical layer settings.

Table 3. Additional Front Page Buttons (continued)

Button	Description
🖨	Click to print the contents of the currently displayed **Front Page** screen on the default printer.
Help	Click to display OptiView WAN Analyzer Help. This button is located in the lower right corner of every screen.
⟩ Back	This button works only with buttons that contain the forward arrow 🔁. When you display a screen by clicking a button that contains a forward arrow, click this button to return to the previously displayed screen.
Report	This button is available only on certain screens. Click it to save results that are displayed on the current screen and put them into an HTML file. When prompted, use the provided file name or specify your own. Reports are saved in the **c:\Program Files\FlukeNetworks\OptiView\Reports** folder.

Configuring the Analyzer

This section shows you how to display the setup screens and provides a few basic procedures to show you how to configure the analyzer through the remote user interface. The remote user interface software must be installed on the remote controlling PC. See "Installing the Remote User Interface" for instructions.

Note

You can also configure the analyzer through the serial configuration port. See the online Help for details.

To configure the analyzer through the remote user interface, do the following:

1. Start the remote user interface on the remote controlling PC as described under "Starting the Remote User Interface".

2. Click **Setup** to display the Setup screens (Figure 14):

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Figure 14. Setup Screens

Changing the Management Port Configuration

Previously, when you set up the analyzer (under "Setting Up the Analyzer"), you statically assigned the **MANAGEMENT** port's IP address through the serial configuration port. If you want to change that configuration now or use a DHCP-assigned IP address, complete the following:

1. Click **Management Port**.

2. In the **TCP/IP Settings** section:

    *   To use a DHCP-assigned address, check the **Use DHCP to acquire settings** box.

        OR

    *   To use a static IP address, select or type IP address information in the **Source**, **Mask**, **Router**, **Primary DNS**, or (optional) **Secondary DNS** fields.

3. Click Apply to apply the changes.

    This warning is displayed: `Connection to remote OptiView analyzer may be lost. Proceed anyway?`

4. Click Yes.

    If you lose the remote connection to the analyzer because you changed the IP address, you can reconnect through the **OptiView Browser** as described under "Starting the Remote User Interface".

Specifying the WAN Interface and Physical Layer Parameters

For proper operation, you need to specify the WAN technology and configure the physical layer parameters for your analyzer.

Do the following:

1. Click **WAN**.

2. In the **General Settings** section, select an **Interface Type** and a **WAN Type** setting.

Note

The analyzer uses the setting you select to determine the appropriate remote user interface to display.

3. In the "Settings" section, configure the physical layer parameters (for example, T1 settings).

4. When you finish, click Apply to apply the changes.

   This warning is displayed: `The WAN type has been changed. This will cause the analyzer to reboot, resulting in data loss. Proceed?`

5. Click Yes.

Setting Password Controls

The OptiView WAN Analyzer is shipped with no default password. To enable password protection, you need to create a password. After a password is set, only users who know the password can view and change parameters on the **Security** screen, update the analyzer's firmware, or access the serial configuration port.

Additionally, you can password-protect any one or all of the following features:

- Packet capture
- Ability to rerun tests and clear counters
- Ability to run the remote user interface software.

A password is case sensitive and has a maximum length of 40 characters. You can use any printable ASCII character, including spaces.

To password-protect the analyzer:

1. Click **Security**.

2. In the **Password/Encryption** section, click Create Password . Supply a password in the **New password** and **Confirm password** boxes. Then, click OK to save.

3. In the **Feature Selection** section, you can password-protect additional analyzer features by doing the following:

   - Check the **Password required to capture** box to prevent other users from performing captures.

   - Check the **Password required to rerun test/clear counts** box to prevent other users from rerunning tests or clearing the analyzer's error counters.

   - Check the **Password required to run remote user interface** box to prevent other users from running a remote user interface and connecting to the analyzer.

Protecting the Privacy of Your Data

If you are concerned about the security of data that is sent to and from the analyzer, you can maximize privacy and prevent unauthorized users from detecting sensitive information by enabling encryption on the analyzer. When encryption is set on, data sent to and from a remote user interface to the analyzer is encrypted using the Advanced Encryption Standard (AES) 128-bit encryption algorithm.

Note

The following procedure shows you how to enable encryption through the remote user interface.

If you are especially concerned about the security of your data, we strongly recommend that you set encryption from a PC that is directly connected to the analyzer. Using a direct connection helps minimize potential interception of the encryption key by unauthorized users. See the online Help for assistance.

To enable encryption, do the following:

1. Click **Security**.

2. Click **Encryption Settings**.

The **Encryption Settings** box (Figure 15) is displayed:

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Figure 15. Encryption Settings Box

3. Check **ASCII** or **Hexadexadecimal** to specify the format of the encryption key.

4. In the **Encryption Key** text entry field, type a secret key.

Note

The maximum length of the key is 16 bytes (32 hexadecimal digits).

5. Click OK to save.

    Encryption is now set on the analyzer. This symbol (see Figure 12) appears next to the analyzer's name in the **OptiView Browser** to indicate that the encryption security setting is on: .

    Any user who attempts to begin a remote UI session with the analyzer is prompted to enter the encryption key.

48

Updating the Software

From time to time, improvements are made to the remote user interface software and the analyzer's firmware.

You can obtain the latest version of software by visiting our website at http://www.flukenetworks.com and downloading the update file to the PC that you use to control the analyzer. If you prefer to have newer versions supplied to you on a CD, call your nearest Fluke Networks distributor or service center to obtain the CD (see "Contacting Fluke Networks").

Note

To be notified when a new software update is available for the analyzer, go to our website and register the analyzer.

The update process has two main steps:

1. Update the remote user interface software on the PC.

2. Update the firmware on each OptiView WAN Analyzer to match the software version on the PC.

Step 1: Update the Remote User Interface Software on the PC

To update the remote user interface software:

1. Do one of the following:

   • Run the **Launch.exe** file on the supplied *OptiView Resource* CD.

     OR

   • If the file was downloaded from the website, run the downloaded executable file.

2. Follow the **InstallShield** program instructions to update the existing remote user interface software.

Step 2: Update the Analyzer's Firmware

Notes

You cannot use this procedure to update an OptiView Integrated Network Analyzer. See the documentation supplied with that analyzer for instructions.

*To determine if an analyzer's firmware needs to be updated, look at the list of analyzers in the **OptiView Browser**. If this Version Issue symbol is displayed next to the firmware revision for an analyzer, you must update its firmware: ●.*

For each analyzer that you want to update, complete the following:

1. Start the remote user interface software on the remote controlling PC.

2. In the **OptiView Browser**, do one of the following:

    - If the analyzer that you want to update is in the list of analyzers, select it. Then, click the Update Firmware button (see Figure 12) and follow the on-screen instructions to start the update process.

      OR

    - If the analyzer is not in the list of analyzers, type its address in the IP address list. Press **Enter**. Then, follow the on-screen instructions to start the update process.

    After the new firmware is installed on the analyzer, the **Transfer Complete** box is displayed.

3. Click OK .

Optional Accessories

Table 4 lists optional software and accessories that you can purchase for any model of the OptiView WAN Analyzer. To order accessories or software, contact Fluke Networks Customer Service (see "Contacting Fluke Networks" for details).

Table 4. Optional Accessories for OptiView WAN Analyzers

Item	Description	Model Number
OptiView Protocol Expert	The Fluke Networks Windows-based protocol analyzer for network engineers, LAN administrators, and network technicians who maintain LANs and WANs. The application allows you to monitor and decode captured packets on your local network. The application decodes OptiView WAN Analyzer packet capture files.	OPV-PE/PRO
OptiView Console	The Fluke Networks OptiView Console application is a Windows software tool for network engineers, LAN administrators, and network technicians who maintain LANs and WANs. The application allows you to monitor, document, and troubleshoot LAN segments and WAN links.	Call a Fluke Networks sales representative

Table 4. Optional Accessories for OptiView WAN Analyzers (continued)

Item	Description	Model Number
19" Rackmount Kit	Rackmount kit for mounting one or two OptiView WAN or Workgroup analyzers, or an OptiView WAN Analyzer and one fiber or copper tap. This kit includes panels for mounting WAN taps.	OPV-RMK
Transit case	Ruggedized transit case for shipping analyzers to remote sites	OPV-TCASE
T1/E1 Tap	Single-port copper tap for T1/E1 WAN circuits	TAP-T1E1
DS3/E3 Tap	Single-port copper tap for DS3/E3 WAN circuits	TAP-DS3E3
HSSI Y-Cable	HSSI Y-Cable for tapping DS3/E3 WAN circuits	TAP-HSSI-Y
Bantam-to-RJ48 Adapter Cable	Male RJ-48C to twin male Bantam cable adapter for connecting a DSX patch panel to T1/E1 interfaces	NT805

Table 4. Optional Accessories for OptiView WAN Analyzers (continued)

Item	Description	Model Number
Serial Extension Cable	Male-to-female Serial extension cable (required for use with any Serial Y-Cable listed later in this table)	NS101
Serial Y-Cables	X.21 Y-Cable for tapping T1/E1 circuits	NS102
	V.35 Y-Cable for tapping T1/E1 circuits	NS103
	French V.35 Y-Cable for tapping T1/E1 circuits	NS104
	RS-449/V.36 Y-Cable for tapping T1/E1 circuits	NS105
	EIA-530 Y-Cable for tapping T1/E1 circuits	NS106
	RS-232/V.24 Y-Cable for tapping T1/E1 circuits	NS107
Coax Patch Cables	Two male-to-male BNC coaxial cables for connection to a DS3/E3 in-line tap	NT806
RS-232 Console Cable	Female-to-female DB-9 null modem RS-232 cable for connection to the serial configuration port	NT803
CAT5 Patch Cable	Patch cable for connecting the **MANAGEMENT** port to a 10/100 Ethernet interface or for T1/E1 connections to the WAN link	NT804
Gold SuperVision Support	OptiView WAN Analyzer Gold SuperVision Support package	Call a Fluke Networks sales representative

OptiView WAN Analyzer Specifications

Table 5 lists the electrical and mechanical specifications for the OptiView T1/E1 and DS3/E3 WAN Analyzers.

Table 5. Electrical and Mechanical Specifications

Weight: 1.7 kilograms (3.8 lbs.)
Size: (H x W x D): approximately 4.1 cm x 21.1 cm x 32.8 cm (1.6 inches x 8.3 inches x 12.9 inches)
AC input: 85 to 265 VAC; 47/63 Hz; 25 watts. Blue power LED indicator.
Test Access: • T1/E1: In-line through connection using internal passive tap or an external in-line tap • Serial: Custom Fluke Networks Y-Cable • DS3/E3: External DS3/E3 passive tap • HSSI: Standard external Y-Cable
Network Analysis Interfaces: T1/E1 (dual IN/OUT RJ48 connectors), DS3/E3 (dual BNC connectors), HSSI (standard 50-pin HSSI connector), and Serial (proprietary 36-pin D sub connector for accessory Y-Cables).
Layer 2 Support: Frame Relay, PPP, and Cisco HDLC
Network Analysis LEDs: Signal Status (DTE and DCE)
Capture Memory: 256 MB
Serial Configuration Port: Serial RS-232 (9-pin male)
Management Port: 10/100 Ethernet (RJ45)

Table 5. Electrical and Mechanical Specifications (continued)

MANAGEMENT Port LEDs: Link/TX (solid green for link and flashing green for activity)
Vibration: Meets requirements of MIL-PRF-28800F for Class 3 equipment
Operating Temperature: • 10º C to 30º C (50º F to 86º F) with up to 95 % relative humidity • 10º C to 40º C (50º F to 104º F) with up to 75 % relative humidity **Non-Operating Temperature**: -20º C to +60º C (-4º F to +140º F)
Connection to public telephone network: Do *not* connect the analyzer's network interfaces to public telephone systems.
Safety: ℠ₓ Complies with CAN/CSA C22.2 No. 1010, UL61010B, and EN61010 2ⁿᵈ edition (CE Mark).
EMC: Ⅽ Ⅽ Complies with EN61326 Class A, Criteria C.
RFC Compliance: 2819 RMON MIB, 2021 RMON2 MIB, 2895 RMON Protocol Identifier Reference, SMIv2 [2011 IP, 2012 TCP, 2013 UDP], 2233 IF-MIB, RFC 2495 DS1/E1 MIB, RFC 2496 DS3/E3 MIB, 2954 Frame Relay Service MIB, 2115 Frame Relay DTE MIB.