Net Optics®

User Guide

iTap GigaBit Dual Port Aggregator

Models 96542iTP and 96547iTP

iTap))))
+ Wireless Freedom

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Chapter 1
Introduction

Overview

Thank you for purchasing the latest innovation in Tap technology – the iTap GigaBit Dual Port Aggregator. Net Optics' GigaBit Dual Port Aggregator Taps provide ultra-efficient access to critical GigaBit links using only one NIC on the monitoring device. Net Optics' iTap is a port aggregator Tap that gives you a quick visual reference of link performance. The iTap GigaBit Port Aggregator monitors and displays link bandwidth utilization on its front panel so you can see exactly what is happening on both sides of the network link.

Intelligent Tap™

The iTap Port Aggregator displays the link utilization level, last peak with time right on the front panel so you can see real-time utilization on both directions of the network link. The iTap Port Aggregator is accessible from remote interfaces that provide information and control from anywhere in the network. The iTap gives you the information and the passive access point you need to respond quickly to network events.

Performance Aggregation

The iTap Port Aggregator combines and regenerates both directions of a full-duplex stream, sending all aggregated traffic out one or two separate passive monitoring ports. Typically, full-duplex monitoring with a network tap requires two NICs (or a dual channel NIC)–one interface for each side of the full-duplex link. Net Optics' iTap Port Aggregator enables one or two devices to simultaneously monitor a full-duplex link using only one NIC per device.

After the traffic has been aggregated to a single flow, it is no longer possible to distinguish the utilization levels of each side of the bi-directional link. The iTap Port Aggregator tracks the utilization levels before aggregation, keeping this vital information easily accessible from its remote and command line interfaces.

Buffers Absorb Bursts

When the traffic levels exceed the capacity of the receiving NIC, the iTap Port Aggregator stores the overflow traffic in buffer memory. For high-load links, the iTap Port Aggregator has 256MB of buffer memory. The buffers clear automati-

cally when the traffic volume falls below the receiving capacity of the NIC. These buffers allow the iTap Port Aggregator to absorb traffic bursts without dropping packets.

Traffic Monitoring

The iTap Port Aggregator monitors the utilization levels of both sides of the full-duplex link. This information is displayed on the front panel and is available from the remote interfaces. The iTap Port Aggregator allows you to set a threshold for each side of the full-duplex link at which an alarm is triggered. For example, the iTap Port Aggregator can warn you when the utilization in either direction passes the 30% level. When a threshold level is exceeded, the alarm LED illuminates and the remote interfaces record the event. The iTap Port Aggregator records the level of the highest peak along with the date and time. Since the iTap Port Aggregator is monitoring the utilization levels, this information is always available regardless of the aggregation process.

Seeing is Believing

The display and alarm LEDs provide a quick visual check that the utilization levels are not exceeding the capacity of the monitoring device or a pre-determined threshold. From the display, you can view the current bandwidth utilization of each side of a full-duplex link with the size and time of the highest peak. A quick check of the display lets you know if there was an event that requires further investigation. After taking action on a utilization or peak event, you can reset the data from a recessed reset button on the front panel or from a remote interface.

Access Information Anywhere

The Web Manager and System Manager allow you to remotely set parameters, view status information, and monitor traffic statistical data. These interfaces provide security and performance information such as the number of over- and under-sized packets, packet collisions, and CRC errors. You can remotely set the alarm thresholds, clear the traffic data counters, and turn on or off a Monitor Port. This access is also available via an optional wireless link from your wireless PDA or laptop.

Web Manager

Net Optics' Web Manager is the browser-based interface that allows you to change settings, view status, and retrieve data remotely with simple-to-use controls. When you access an iTap Port Aggregator with Web Manager, all configurations, status, and traffic data are displayed on a single page. Changes to the configuration can be made with a few clicks of the mouse.

System Manager

iTap Port Aggregators can be used as a system managed via Simple Network Management Protocol (SNMP) from a single interface. Net Optics' System Manager is an SNMP management tool that offers central management of all Net Optics iTap devices in the network. You can organize iTaps into groups according to workgroup, location, or any other criteria. As with Web Manager, you can view all status, configuration, and traffic information and make changes quickly to any iTap in the system. The iTap Port Aggregator generates SNMP alarm traps for system status, threshold alarm, link status, and power status. If you are already using an SNMP management tool, iTap Port Aggregators can be fully accessed after loading Net Optics' Management Information Base (MIB) file.

Security, Visibility, and Reliability

You have the option of setting the iTap Port Aggregator so that it will not display data on the LCD and you can turn off the Management Port, thus preventing it from being accessed from the network. The Monitor Ports can also be turned off to prevent unauthorized access to the network link. The monitoring device connected to the iTap Port Aggregator sees all full-duplex traffic including Layer 1 and Layer 2 errors. Redundant power connections provide uptime protection.

Ease of Use

- Display alternately shows link utilization, highest peak, and when the highest peak occurred
- LED indicators show redundant power, link status, and utilization alarm
- IEEE 802.11b wireless communication optional
- Front-mounted connectors support easy installation and operation
- Silk-screened application diagram illustrates all connections for easy deployment
- All necessary network and monitor cables included
- Optional 19-inch rack frames hold up to two iTaps
- Tested and compatible with all major manufacturers' monitoring devices, including protocol analyzers, probes, and intrusion detection/prevention systems

Support

- Net Optics offers free technical support throughout the lifetime of your purchase. Our technical support team is available from 8 am to 5 pm Pacific Time, Monday through Friday at +1 (408) 737-7777 and via email at ts-support@netoptics.com. FAQs are also available on Net Optics' website at www.netoptics.com.

Memory

All traffic that passes through the iTap is sent to the monitoring device NIC on a first-in-first-out basis, including traffic that is temporarily stored in memory. If two packets enter at the same time then one packet is processed while the other is stored briefly in memory, preventing collisions.

When there is a burst of data, traffic in excess of the NIC's capacity is sent to the iTap's memory. Memory continues to fill until its capacity is reached, or the burst ends, whichever comes first. For controlling bursts, the iTap has 256 MB of total memory.

In both cases, the iTap applies a first-in-first-out procedure, processing stored data before new data from the link. If memory fills before the burst ends, the memory stays filled as the stored data is processed – data that leaves the buffer is immediately replaced. If the burst ends before the memory fills, memory clears until the full memory capacity is available, or until another burst in excess of the NIC's capacity requires additional memory.

The following diagrams illustrate a simple example of a 1000 Mbps NIC moving from 80% utilization to 140% utilization, then back to 80% utilization. In this example, Side A begins as 300 Mbps and Side B is at 500 Mbps, The aggregated traffic is 800 Mbps, well below the capacity of the 1000 Mbps NIC.
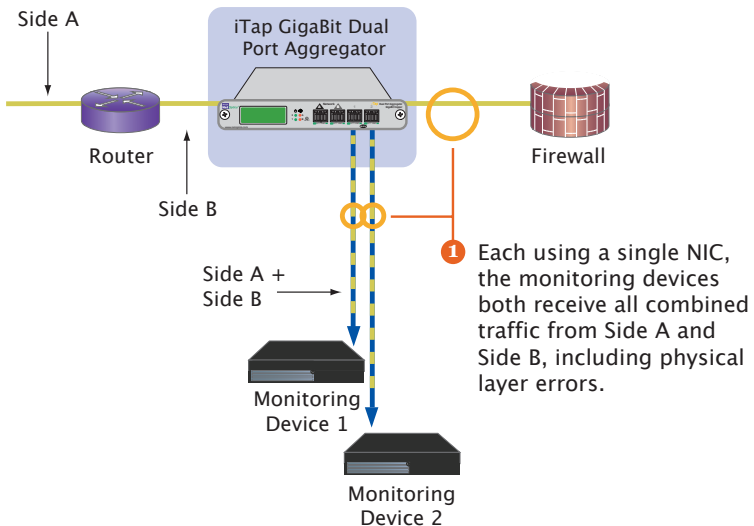

Figure 1: Side A plus Side B is less or equal to 100% of the NIC's receive capacity

The NIC receives 800 Mbps (80% utilization), so no memory is required for the monitoring device's NIC to process all full-duplex traffic.

If there is burst of traffic on Side A of 900 Mbps and Side B remains at 500 Mbps, the aggregated traffic equals 1400 Mbps, 400 Mbps over the capacity of the NIC. The excess traffic is put in memory on a first-in-first-out basis until either the buffer is full or the burst passes.
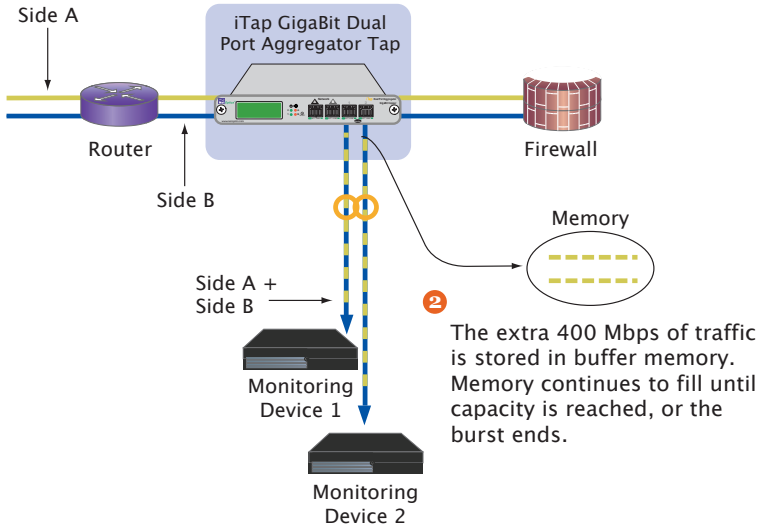

Figure 2: **Side A plus Side B becomes greater than 100% of the NIC's receive capacity**

After the burst has passed and the buffers have passed all the stored traffic, each monitoring device resumes receiving traffic directly from the link.

Note:

Utilization statistics and alarms are monitored before buffering and aggregation.

Unpacking and Inspection

Carefully unpack the iTap GigaBit Dual Port Aggregator and check for damaged or missing parts. The iTap ships with the following:

- iTap GigaBit Dual Port Aggregator (96542iTP or 96547iTP)
- Two power supplies with cords
- iTap GigaBit Dual Port Aggregator User Guide
- iTap Software CD
- Pads for surface mounting
- Network and monitor cables
- RS232 DB-9 cable for use with the Command Line Interface

You may have also ordered a one rack unit panel for rack mounting the iTap GigaBit Port Aggregator and an extended warranty. Carefully check the packing slip against parts received.

If any part is missing or damaged, contact Net Optics' Customer Service immediately.

About this Guide

This Guide provides you all the information you need to configure and operate the iTap GigaBit Copper Dual Port Aggregator and the iTap GigaBit Fiber Dual Port Aggregator. Please read the entire Guide before attempting to install or operate the iTap.

The Guide is organized into the following chapters:

- Chapter 1 Introduction
- Chapter 2 Installing the iTap
- Chapter 3 Using the Front Panel Interface
- Chapter 4 Using Web Manager
- Chapter 5 Using System Manager
- Appendix A Specifications and Models
- Appendix B Command Line Interface

This guide can be found in PDF format on the iTap CD.

Chapter 2
Installing the iTap

Overview

This chapter describes how to install and connect the iTap GigaBit Dual Port Aggregator. The procedure for installing the iTap follows these basic steps:

- Plan the installation
- Configure iTap parameters
- Mount the iTap
- Connect the Management Port
- Connect iTap to the network
- Connect iTap to the monitoring device(s)
- Apply power to the iTap
- Check the installation

After the iTap is installed, you can remotely monitor and control the iTap from Web Manager or System Manager.

iTap Physical Features

Figures 3 and 4 show the front panels of the fiber and copper versions of the iTap GigaBit Dual Port Aggregator. Figure 5 shows the rear panel of both models.
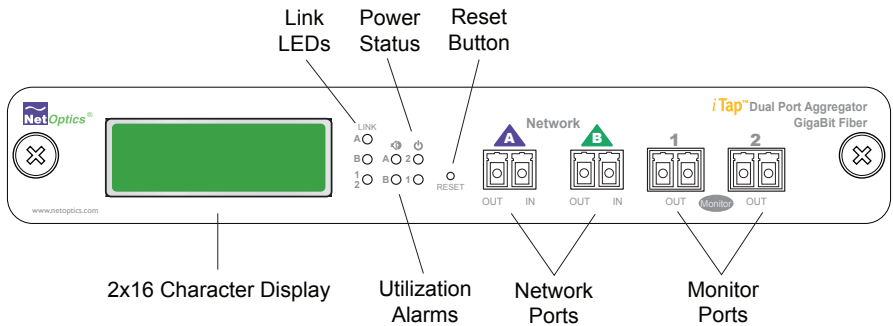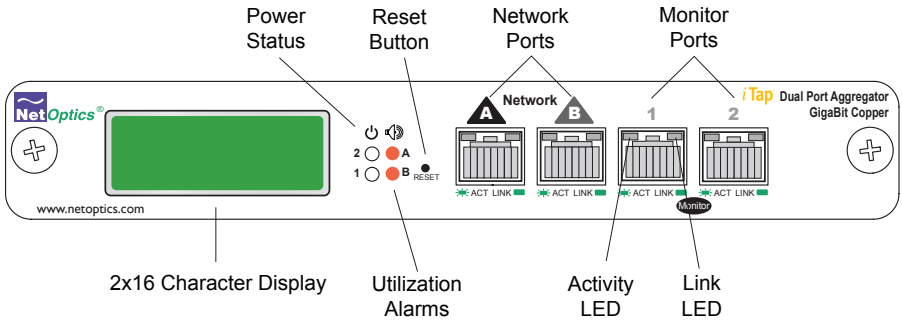

Figure 3: 96542iTP Front Panel Features

Net Optics®

Power Status

Reset Button

Network Ports

Monitor Ports

2x16 Character Display

Utilization Alarms

Activity LED

Link LED

Figure 4: **96547iTP Front Panel Features**

Management Port

RS232

Management Port for Remote Interfaces

RS232 Port for Command Line Interface
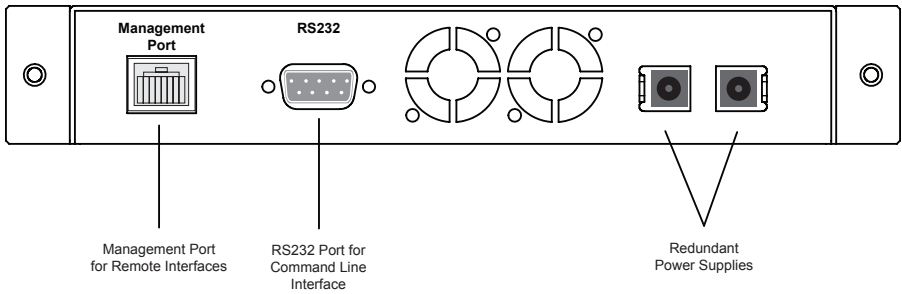
Redundant Power Supplies

Figure 5: **Rear panel features**

iTap Port Aggregator LEDs

Link Indicators: If a good link is established, the LED illuminates a steady green.

Activity Indicators: If there is current activity on this link, the LED flashes.

Utilization Alarms A and B: These LEDs illuminate red when the threshold utilization level exceeds the set threshold level. The Utilization Alarm LEDs remain illuminated until reset with the Reset button or remotely reset via Web Manager or System Manager.

PWR 1/ PWR 2: Main and Redundant Power. If the iTap is deployed with both power supplies, both LEDs illuminate when the iTap is connected to power. An off power LED indicates that the corresponding power supply is not functioning or not connected.

Planning the Installation

Before you begin the installation of your iTap, you should determine the following information:

- IP address of the iTap or, if you are deploying multiple iTaps, a range of IP addresses.
- Net Mask for the iTaps.
- IP address of the remote management console, if deployed over a WAN.
- Gateway to the remote management console, if deployed over a WAN.

Also make sure you have a suitable location to install the iTap(s). For maximum power redundancy, use two independent power sources.

Configuring the iTap

The iTap is configured with default values that allow you to install the iTap and then modify parameters from Web Manager or System Manager.

The defaults values are:

IP Address: 10.60.0.123
Netmask: 255.255.0.0
Threshold Port A: 50%
Threshold Port B: 50%
Port A: Gigabit
Port B: Gigabit
CLI username: netoptics
CLI password: netoptics

You can set all parameters, check status, and view statistics from the Command Line Interface. You can change most settings later from one of the remote interfaces (for more information on remote interfaces, see Chapters 4 and 5).

Using the Command Line Interface (CLI)

All configuration options, status, and statistics are accessible from the iTap's Command Line Interface. You must set a new username and password, IP address for the iTap, utilization threshold levels for Port A and B, and the current date and time. Other parameters are optional and dependent on your installation.

For security reasons, some parameters can only be set with the CLI.

Use these commands to:

- Set CLI username and password
- Enable or disable the remote interfaces and display
- Turn character echo to the terminal emulation software on or off

You will find a complete list of CLI commands in Appendix B.

If you wish to disable the Management Port and remote interfaces, you can do so from the CLI using the Display command.

To access the iTap CLI:

1. Make sure power to the iTap is off.

2. Connect a PC with terminal emulation software, such as HyperTerminal, to the iTap using the RS232 DB-9 cable supplied with the iTap.

3. Launch terminal emulation software and set the communication parameters to:

   > 19200 baud
   > 8 data bits
   > No parity
   > 1 stop bit
   > No flow control

3. Connect power to the iTap. The CLI banner and login prompt appears.

```
****************************************
* Net Optics Command Line Interface *
****************************************
login:  netoptics
password:
```

Figure 6: Login and Password Prompts

4. Type **netoptics** and press Enter.

5. At the password prompt, type **netoptics** and press Enter. The `NetOptics:` prompt appears.

To change the username and password:

1. Change the username by typing the following command:

   set username <username>
   where *<username>* is your new username.

2. Change the password by typing the following command:

   set password <password>
   where *<password>* is your new password.

3. Record the username and password in a secure location.

To set the iTap IP address:

1. Type **set ip <ip address>** where *<ip address>* is the IP address you are assigning to the iTap and press Enter.

   For example, typing **set ip 10.60.0.100** sets the iTap IP address to 10.60.0.100.

To set the utilization threshold levels:

1. Type **set threshold port a <level>** where *<level>* is the percentage of the available bandwidth at which the utilization alarm for Port A is triggered. Press Enter.

   For example, typing **set threshold port a 30** sets the alarm threshold level for traffic received on Port A to 30%.

2. Type **set threshold port b <level>** where *<level>* is the percentage of the available bandwidth at which the utilization alarm for Port B is triggered. Press Enter.

   For example, typing **set threshold port b 30** sets the alarm threshold level for traffic received on Port B to 30%.

Tip!

You can set the utilization threshold levels at any time from the remote interfaces. See Chapters 4 and 5 for more information.

To set the current date and time:

1. Type **set time <mm/dd/yyyy-hh:mm:ss>** where *mm* is the month, *dd* is the day of the month, *yyyy* is the year, *hh* is the hour, *mm* is minutes of the hour, and *ss* is seconds. Press Enter. Time is based on the 24-hour clock.

To display current settings:

1. Type **show set** and press Enter. The CLI displays the current setting similar to the example in Figure 7.

```
NetOptics: show set

        Model:          256M Fiber 62.5um LX Single Port Aggrega
        System Time:    01/11/2006 15:09:06
        IP Address:     10.60.0.121
        Netmask:        255.0.0.0
        Manager:        10.10.1.40
        Gateway:        200.0.0.10
        Parameter A:    0
        Parameter B:    0
        Parameter C:    0
        Parameter D:    0
        Threshold A:    30
        Threshold B:    20
```

Figure 7: Show Set Command Example

To disable the display and remote interfaces:

1. Type **show display** to view the current setting. The default value is Display: ON.

2. Type **display** and press Enter. Access to the tap from remote interfaces will be blocked and the front panel will not display link utilization or peak information.

3. Type **display** and press Enter again to restore the display and remote intefaces.

To use the Help command:

1. Type **Help** at the `NetOptics` prompt. The list of help topics is displayed.

```
NetOptics: help

        ****************************************
        * Net Optics Command Line Interface *
        ****************************************

        Usage: "help <variable>"

        <variable>:
        set     - Configure various options.
        reset   - Reset options.
        show    - Show current configurations
                    and status.
        echo    - Turn on or off echoing of
                    characters.
        display - Toggle LCD display.
        help    - This help screen.
```

Figure 8: iTap CLI Help Menu

5. To view the syntax for changing the iTap's configuration parameters, type **help set** and press Enter.

6. Repeat with the variable of interest to view the syntax for all commands available from the CLI. For more information on CLI commands, see Appendix B.

Mounting the iTap

The iTap is designed for rack mounting in a two-slot, 19-inch panel. The mounting panel occupies one rack unit.

To rack mount the iTap:

1. Attach the two-slot panel to your rack using the attached thumbscrews.

2. Slide the iTap into one of the slots and secure with the attached thumbscrews.

3. Make sure that the rack is properly grounded.

The iTap can also be placed on a surface using the pads supplied with the iTap.

Connecting the Management Port

To use the remote interfaces you must connect the Management Port to the network.

To connect the iTap Management Port:

1. Connect a CAT5 cable to the Manangement Port as shown in Figure 9.

2. Connect the other end to a network switch or hub.

To network switch or hub
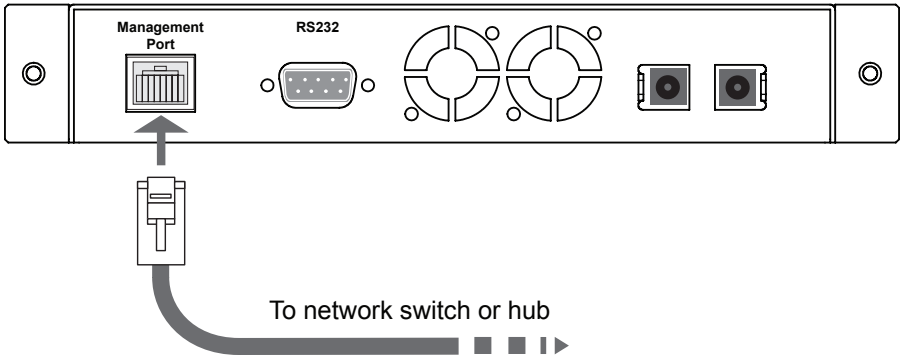
Figure 9: Connecting the Management Port

Connecting to the Network

The iTap comes with two network cables ready for iTap installation.

To connect the iTap to your network:

1. Connect Network Port A to the appropriate network device using the cables supplied with your iTap.

2. Connect Network Port B to the appropriate network device using the cables supplied with your iTap.

3. Verify that the iTap Network Ports are cabled in-line between two devices.
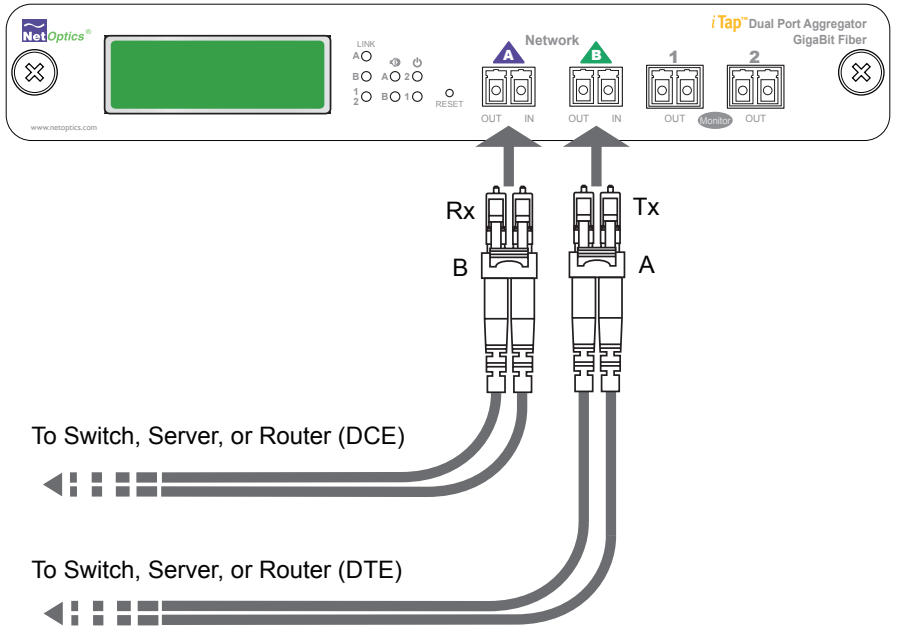
Figure 10: 96542iTP Network Connections
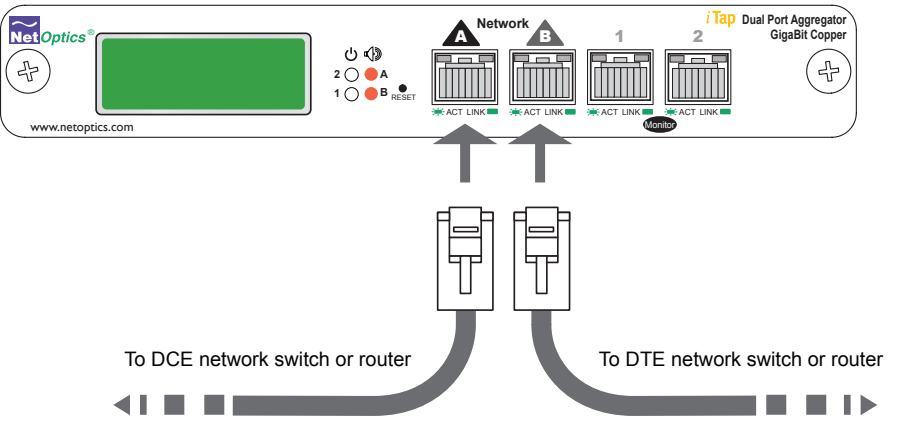
Figure 11: 96547iTP Network Connections

Connecting to the Monitoring Devices

The iTap comes with two monitor cables ready for iTap installation.

To connect the iTap to your monitoring device:

1. Connect Monitor Port 1 to the appropriate monitor using the cables supplied with your iTap.

2. Connect Monitor Port 2 to the appropriate monitor using the cables supplied with your iTap.
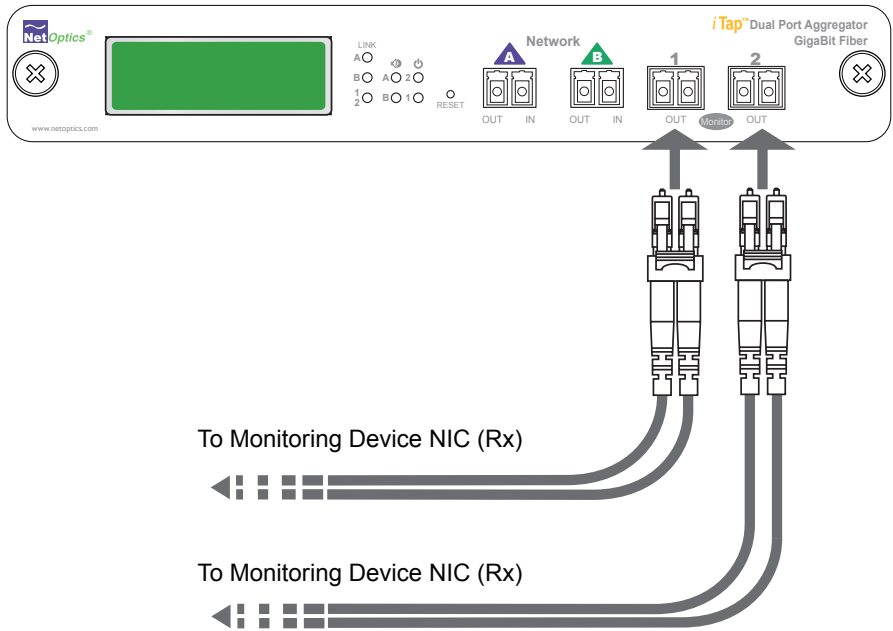
Figure 12: 96542iTP Monitor Connections
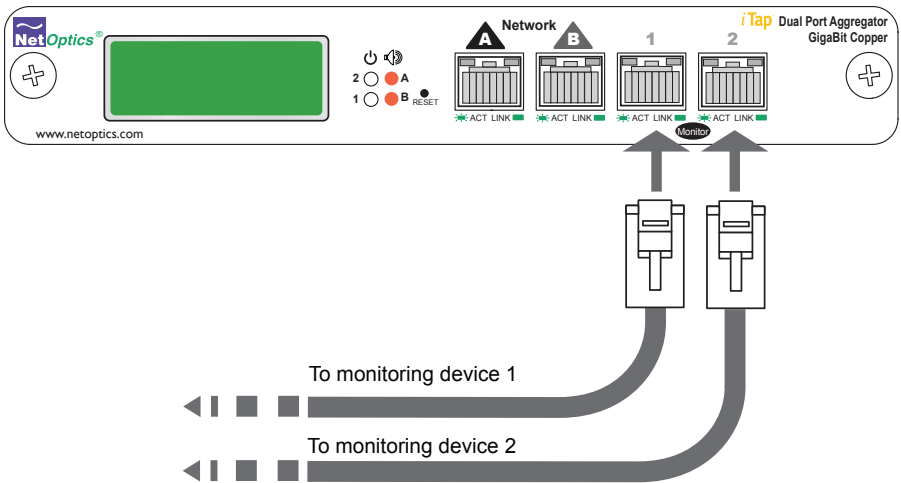
Figure 13: 96547iTP Monitor Connections

Connecting Power

For power fault protection, the iTap has redundant power supplies. The second power supply is available to support the flow of traffic to the monitoring device in the event that the first power supply becomes unavailable. If the first power supply is unavailable, the second power supply provides all power for the iTap. Even if no power is available to the passive iTap, network traffic flows uninterrupted.

If you plan to use redundant power, make sure that you connect the power supplies to two separate, independent power sources. After connecting the power supplies, verify that at least one Power LED is illuminated.
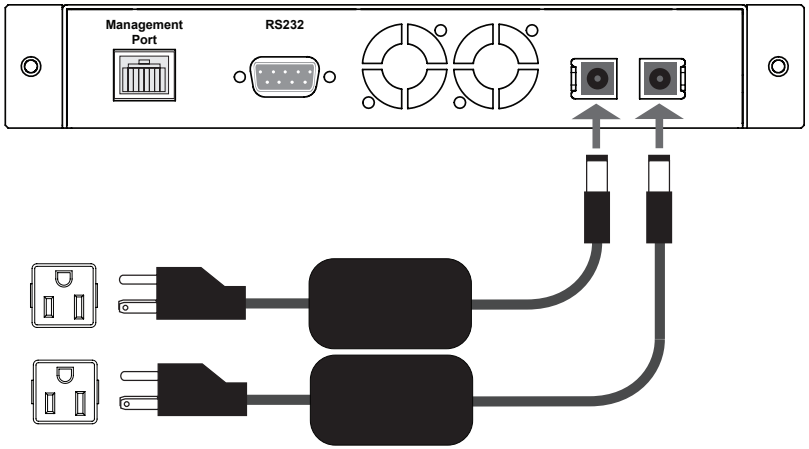
Figure 14: Connecting Power

Checking the Installation

After you have connected the iTap to the network, monitoring device and power, verify that the iTap is functioning correctly.

- Check that at least one power LED is illuminated.
- Check the link status LEDs located on the front panel to verify that traffic is passing through the iTap.
- Check the display for utilization and peak information.
- Verify that the monitoring device is receiving traffic from the iTap.
- Verify that the Management Port is functional by typing the iTap's IP address in your Web browser. Net Optics' Web Manager should appear. If it does not, check the Management Port cables and connections and verify that the Display option in the CLI is set to ON.

Chapter 3
Using the Front Panel Interface

Overview

This chapter describes how to interpret and work with the front panel features of the iTap GigaBit Dual Port Aggregator. The following topics are covered:

• Display
• LED indicators
• Reset Button

The iTap front panel provides information in two ways. The displays shows utilization and peak information and the LEDs show link status and alarm conditions. The front panel also has a recessed reset button to clear the peak data.

Display

The front panel of the iTap provides network traffic information on a 2x16 character LCD. After a bootup message, the display scrolls through the following messages, advancing every five seconds:

Display Message	Description
% Util A = XX%	Percent of Network Port A bandwidth being used by incoming traffic
% Util B = XX%	Percent of Network Port B bandwidth being used by incoming traffic
Peak A = XX%	Incoming traffic peak on Network Port A as percent of bandwidth
Peak B = XX%	Incoming traffic peak on Network Port B as percent of bandwidth
Time A = AAA, hh: mm:ss	The day and time of the highest peak on Network Port A since last reset where AAA is the day of the week and hh: mm:ss is hours, minutes, and seconds on a 24-hour clock
Time B = AAA, hh: mm:ss	The day and time of the highest peak on Network Port B since last reset where AAA is the day of the week and hh: mm:ss is hours, minutes, and seconds on a 24-hour clock

The percentage utilization data on the display is refreshed every second. Network peaks are given as a percent of utilization and reflect the highest peak recorded since the last reset. The day and time information reflects the highest peak event since reset. You can set the iTap's 24-hour clock through the CLI or remote interfaces.

For example:
If you have set the thresholds for 30% utilization on Friday and during the weekend several peaks over this level occur, the iTap provides information only on the highest peak event.

If data is not displaying as expected, check the Network Port connectors for link status and activity. Also check the status of the Display command using the CLI (see page 12).

Utilization Alarm LEDs

There are two LEDs indicating when the utilization levels have exceeded the threshold. There is one LED for incoming traffic on each Network Port. When a Utilization Alarm LED is red, it indicates that the threshold level was exceeded for that port since the last reset. The LEDs remain illuminated until reset via the reset button or remote interfaces.

Link LEDs

The RJ45 connectors have two LEDs for link status. If a good link is established, the right LED illuminates a steady green. If there is current activity on this link, the left LED flashes.

Power LEDs

If the iTap is deployed with both power supplies, both power LEDs illuminate when the iTap is connected to power. If an LED is off, the corresponding power supply is not functioning.

Reset Button

Use the Reset button to quickly reset the traffic peak and time on the display and the Utilization Alarm LEDs. To prevent accidental resets, the Reset button is recessed from the front panel. To push the Reset button, use a thin, rigid tool such as an unbent paperclip.

Chapter 4
Using Web Manager

Overview

This chapter describes how to monitor and control individual iTap GigaBit Port Aggregators using Web Manager. The following topics are covered:

• Accessing Web Manager
• Status
• Statistics
• Configuration

The iTap GigaBit Port Aggregator has built-in support for remote control from any computer with an Internet browser and access to the iTap's IP address. Web Manager is the browser-based interface that allows you to change settings, view status, and retrieve data remotely.

Note:

To access Web Manager, the Display option in the CLI must be set to ON. For more information, see Using the Command Line Interface on page 9.

Accessing Web Manager

Web Manager is a browser-based interface that provides access to an iTap that has an IP address accessible from the computer running Web Manager. Web Manager supports all common browsers.

To access Web Manager:

1. Open an Internet browser on your computer.

2. Enter the iTap's IP address in the URL box and press Enter. The default IP address is 10.60.0.123. The Web Manager page appears as shown in Figure 15.

Net Optics Web Manager

iTap System Status

iTap Status	UP	iTap Model	256M Fiber 62.5um LX S
Port A Link Status	UP	Port B Link Status	UP
Port 1 Link Status	UP	Port 2 Link Status	UP
Power Supply 1 Status	OFF	Power Supply 2 Status	ON

iTap Port A Statistics   **iTap Port B Statistics**

Port A Peak Rate (%)	21	Port B Peak Rate (%)	25
Port A Peak Date & Time	01/06/2006 16:21:52	Port B Peak Date & Time	01/09/2006 14:21:52
Port A Current Utilization Rate (%)	6	Port B Current Utilization Rate (%)	17
Port A Total Packets	734612	Port B Total Packets	734528
Port A Total Bytes	65118028	Port B Total Bytes	65130025
Port A CRC Errors	0	Port B CRC Errors	0
Port A Collision Packets	0	Port B Collision Packets	0
Port A Undersize Packets	0	Port B Undersize Packets	0
Port A Oversize Packets	0	Port B Oversize Packets	0

iTap Configuration

IP Address	10.60.0.121	Manager IP Address	10.10.1.40
Net Mask	255.0.0.0	Gateway IP Address	10.60.0.0
Port A Parameters	Gigabit	Port B Parameters	Gigabit
Port 1 Parameters	Gigabit	Port 2 Parameters	Gigabit
Port A Utilization Threshold (%)	10	Port B Utilization Threshold (%)	20
Reset Port A Peak Rate	No	Reset Port B Peak Rate	No
Reset Port A Statistics	No	Reset Port B Statistics	No
Current Date and Time	01/09/2006 17:21:52		

Submit Changes

Figure 15: Web Manager Page

The following table explains the fields in Web Manager. To save any changes to the iTap, you must click **Submit Changes**.

Viewing Statistics

Web Manager lists incoming traffic statistics for both Port A and Port B as shown in Figure 17.

iTap Port A Statistics		iTap Port B Statistics	
Port A Peak Rate (%)	21	Port B Peak Rate (%)	25
Port A Peak Date & Time	01/06/2006 16:21:52	Port B Peak Date & Time	01/09/2006 14:21:52
Port A Current Utilization Rate (%)	6	Port B Current Utilization Rate (%)	17
Port A Total Packets	734612	Port B Total Packets	734528
Port A Total Bytes	65118028	Port B Total Bytes	65130025
Port A CRC Errors	0	Port B CRC Errors	0
Port A Collision Packets	0	Port B Collision Packets	0
Port A Undersize Packets	0	Port B Undersize Packets	0
Port A Oversize Packets	0	Port B Oversize Packets	0

Figure 17: iTap Statistics

The following table explains the traffic statistics available from Web Manager. The iTap updates statistics every 15 seconds. All counters reflect counts since the last statistics reset.

Field Name	Description
Peak Rate (%)	Highest peak since last reset
Peak Date & Time	When the highest peak occurred
Current Utilization Rate (%)	Utilization level of the incoming traffic on the port
Total Packets	Total packets received
Total Bytes	Total bytes received
CRC Errors	Number of CRC errors
Collision Packets	Number of packet collisions
Undersize Packets	Number of undersize packets
Oversize Packets	Number of oversize packets

To update the statistics displayed, refresh your browser.

Field Name	Function/Value	Description
Port A Parameters	**Gigabit** Auto-negotiation 100BT Full Duplex 100BT Half Duplex 10BT Full Duplex 10BT Half Duplex **Disable**	The iTap GigaBit Port Aggregator is a single-speed device. Leave parameter at the default GigaBit setting. You have the option of disabling Port A, however all incoming traffic to Port A will be lost.
Port B Parameters	**Gigabit** Auto-negotiation 100BT Full Duplex 100BT Half Duplex 10BT Full Duplex 10BT Half Duplex **Disable**	The iTap GigaBit Port Aggregator is a single-speed device. Leave parameter at the default GigaBit setting. You have the option of disabling Port B, however all incoming traffic to Port B will be lost.
Port 1 Parameters	**Gigabit** Auto-negotiation 100BT Full Duplex 100BT Half Duplex 10BT Full Duplex 10BT Half Duplex **Disable**	The iTap GigaBit Port Aggregator is a single-speed device. Leave parameter at the default GigaBit setting. You have the option of disabling Port 1 to prevent unauthorized access to the Monitor Port.
Port 2 Parameters	**Gigabit** Auto-negotiation 100BT Full Duplex 100BT Half Duplex 10BT Full Duplex 10BT Half Duplex **Disable**	The iTap GigaBit Port Aggregator is a single-speed device. Leave parameter at the default GigaBit setting. You have the option of disabling Port 2 to prevent unauthorized access to the Monitor Port.
Port A Peak Rate Reset	No/Yes	To reset the Peak data for Port A, select Yes and click Submit Changes.
Port B Peak Rate Reset	No/Yes	To reset the Peak data for Port B, select Yes and click Submit Changes.
Port A Utilization Threshold (%)	Utilization Level Alarm	Enter the utilization level that will trigger a threshold alarm for Port A.
Port B Utilization Threshold (%)	Utilization Level Alarm	Enter the utilization level that will trigger a threshold alarm for Port B.
Reset Port A Statistics	No/Yes	To zero all counters for Port A, select Yes and click Submit Changes.
Reset Port B Statistics	No/Yes	To zero all counters for Port B, select Yes and click Submit Changes.
Current Date and Time	XX/XX/XXXX XX:XX:XX	Enter your local date and time for traffic peak timestamps.

Chapter 5
Using System Manager

Overview

This chapter describes how to install and use Net Optics' System Manager, which allows you to change settings, view status, and retrieve data remotely from multiple Net Optics iTap devices. The following topics are covered:

- Installing System Manager
- Exploring System Manager
- Creating a Group
- Adding and Deleting iTaps
- Using the Status Tab
- Using the Configuration Tab

Installing System Manager

The installation executable file for System Manager can be found on the CD included with the iTap.

To install System Manger:

1. Locate **Setup.exe** on the CD and double click it. The License Agreement dialog box appears as shown in Figure 19.
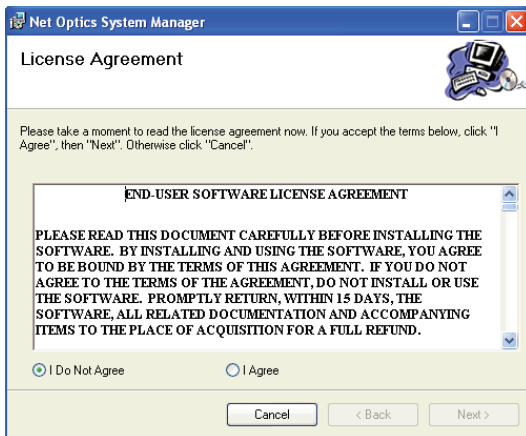

Figure 19: Net Optics System Manager License Agreement

3. After reading the agreement, select **I Agree** and click **Next** to install System Manager. The Welcome dialog box appears as shown in Figure 20.
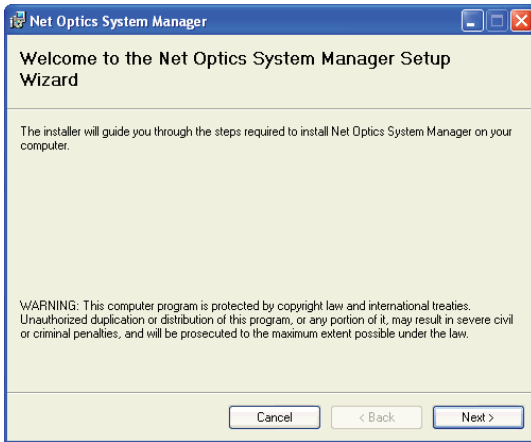
Figure 20: Welcome Dialog Box

2. Click **Next**. The Select Installation Folder dialog box shown in appears.

Figure 21: Select Installation Folder

3. To install in the default folder, make no changes to the path in the **Folder:** text box. To install in a different location, either type the path in the **Folder:** text box or click **Browse** to find another location. To check the space available for System Manager on the selected drive, click **Disk Cost**.

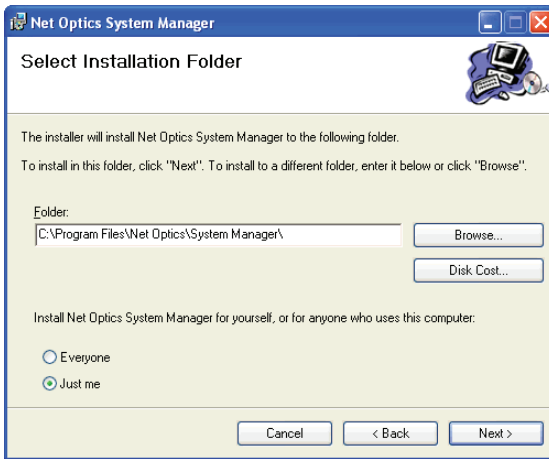4. To limit access to System Manager to the current user of the PC, select **Just Me**. To allow access to any user logged into the PC, select **Everyone**.

5. Click **Next**. The Confirm Installation dialog box shown in Figure 22 appears. To continue the installation, click **Next**. The Progress dialog box appears as shown in Figure 23.

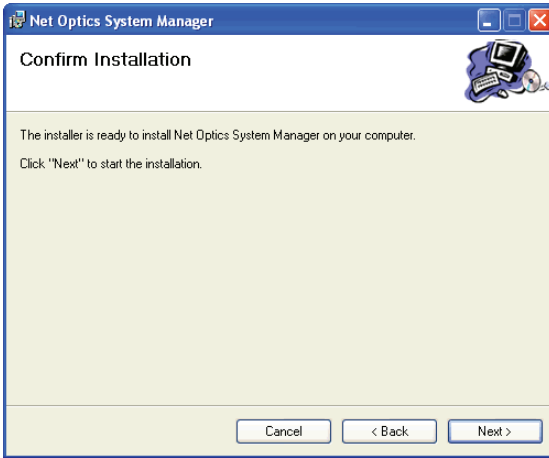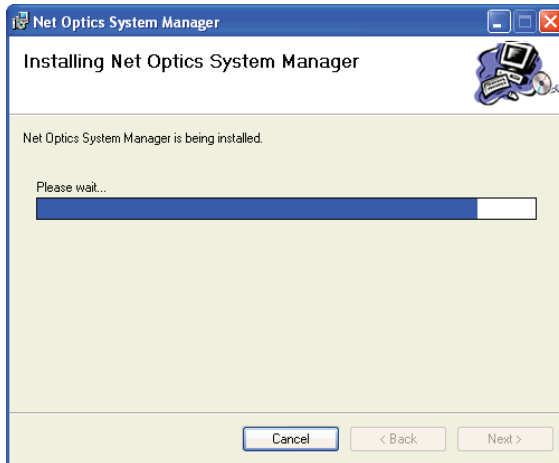**Figure 22:** Confirm Installation

Figure 23: Installation Progress

6. If you want to stop the installation, click **Cancel**. When the installation is complete, the Installation Complete dialog box appears as shown in Figure 24.
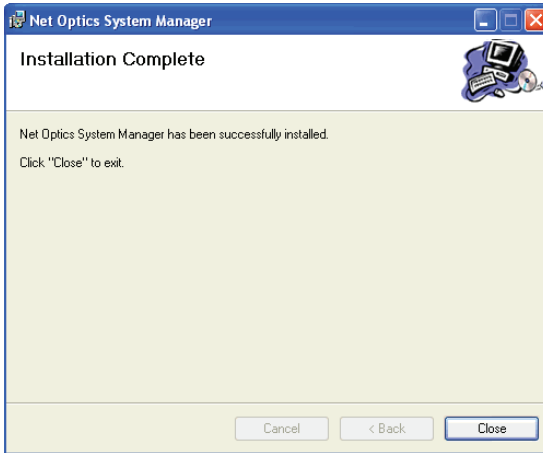

Figure 24: Installation Complete

7. Click **Close**. System Manager is now installed on your computer and there is a Net Optics shortcut icon on your desktop.

Exploring System Manager

This section explains the features and functions of System Manager. With System Manager you can:

*   Create iTap groups
*   Add and delete iTaps from the system
*   Remotely configure iTaps
*   View traffic utilization and peaks
*   View traffic statistics

NOTE _____

To access the iTap with System Manager, the Display option in the CLI must be set to ON. For more information, see Using the Command Line Interface on page 9.

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To access System Manager:

1. Double click the System Manager icon on your PC desktop. The initial window, shown in Figure 25, will not show any iTaps.
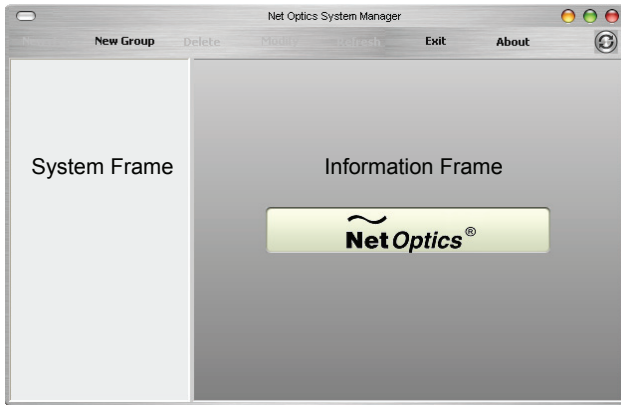

Figure 25: Initial window

The **System Frame** displays iTaps and iTap Groups as you add them to the system. The **Information Frame** displays Configuration and Status information for individual iTaps.

Tip!

To use pop-up menu shortcuts, click your right mouse button in the System Frame.

Using the Toolbar

Figure 26 shows the System Manager toolbar.

Figure 26: **Toolbar**

The table below describes the icons found on the toolbar.

Tool	Description
New iTap	Add iTaps to a group
New Group	Create an iTap group
Delete	Delete iTap from the system
Modify	Change the iTap name, IP address, model, and add notes
Refresh	Refresh the data display
Exit	Close Net Optics System Manager
About	View information about System Manager

Creating a Group

You can organize iTap devices into groups for quick access. You must create a Group before you can add iTaps to your system.

To create an iTap group:

1. Click **New Group** in the toolbar as shown in Figure 27. A new group bar appears in the System Frame as shown in Figure 28.
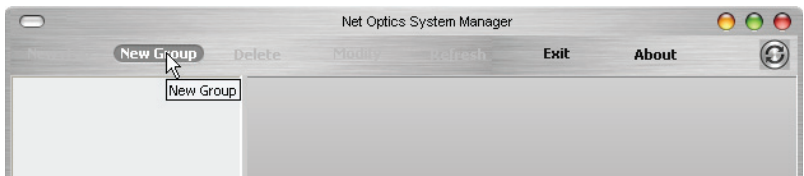

Figure 27: **New Group**
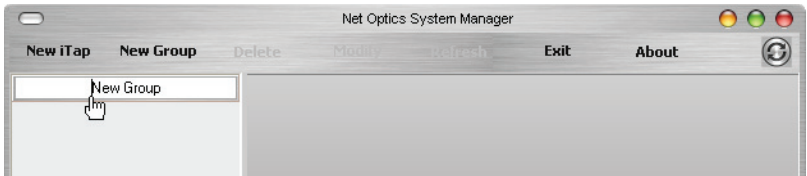
Figure 28: Group Bar

2. Type the name of the new group and press Enter.

Deleting a Group

You can delete a group however, all iTaps in that group will also be deleted.

To delete a Group:

1. Right click on the group bar of the group you want to delete.

2. Select **Delete** from the pop-up menu. The Group and all associated iTaps are deleted from the system.

Adding iTaps

To create a system in System Manager, you must add iTaps to System Manager. Once you have added an iTap, you can configure, modify, and delete it from the system.

To add an iTap to the system:

1. Select the Group to which you want to add an iTap by clicking the group bar.

2. Click **New iTap** in the toolbar as shown in Figure 29. The New iTap dialog box appears as shown in Figure 30.

Figure 29: Adding a New iTap
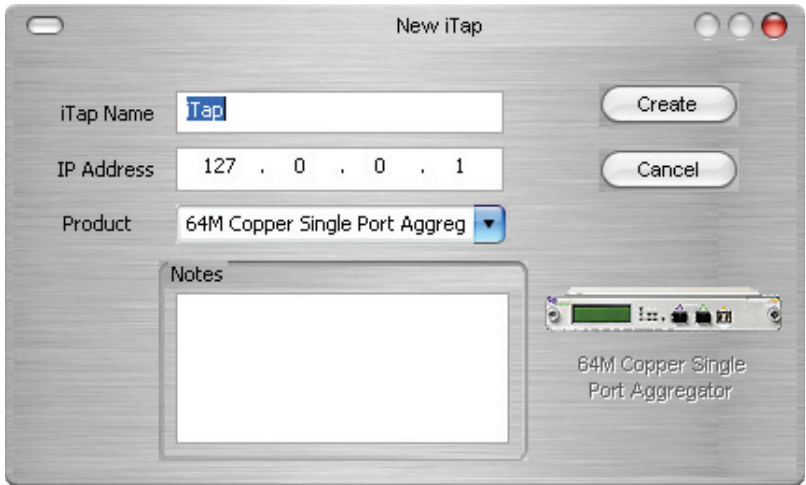
Figure 30: New iTap

2. Enter a name for the iTap you are adding in the **iTap Name** text box. Each iTap Name in the system must be unique.

3. Enter the IP address of the iTap in the **IP Address** text box. Make sure the IP address is unique on the network.

4. Select your model of the iTap from the **Product** drop-down list.

5. Enter any relevant information about the iTap in the **Notes** text box.

6. Check your settings and click **Create**. The System Manger now shows the iTap in the system similar to Figure 31.
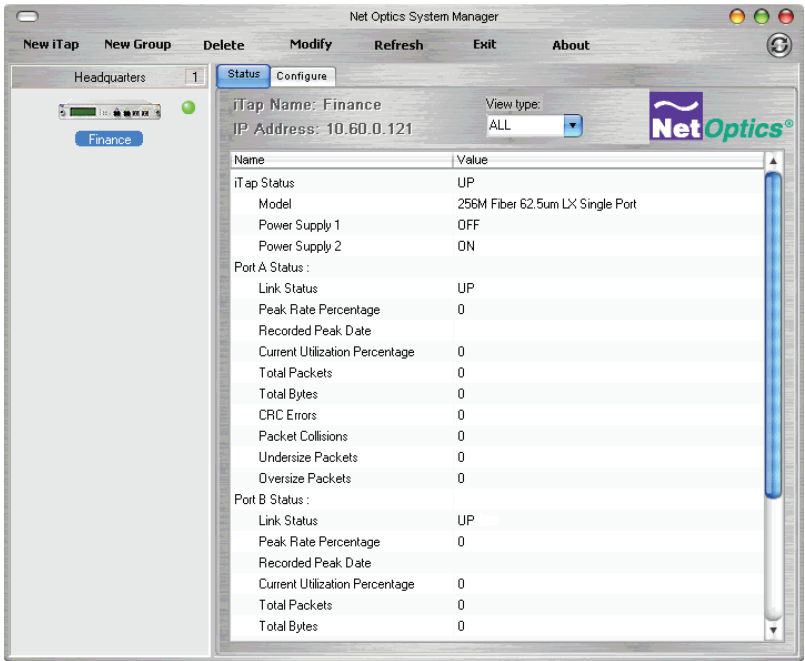
Figure 31: Net Optics System Manager with iTap

The indicator to the right of the iTap picture blinks green when System Manager is communicating with the iTap. If the indicator blinks red, check that the iTap is connected to the network and verify the configuration information.

7. Repeat Steps 1-6 for each iTap you are adding.

Tip!

To change the order in which iTaps appear in the System Frame, click and drag iTaps into the desired order.

Deleting an iTap

You can delete an iTap from System Manager when you remove an iTap from your network. If you have removed an iTap from the network, System Manager continues to poll the iTap's IP address for data until you delete the iTap from System Manager.

To delete an iTap from System Manager:

1. Select the iTap you want to delete by clicking its icon.

2. Click **Delete** in the toolbar. A confirmation dialog box appears.
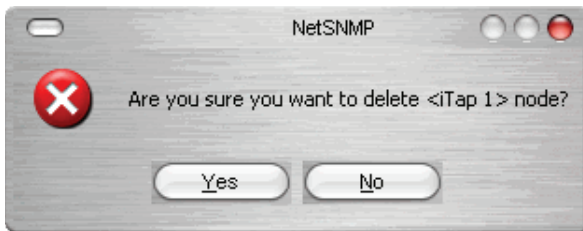
Figure 32: Delete Confirmation

3. Click **Yes** to delete the iTap from System Manager.

Configuring an iTap

You can set configuration parameters of an iTap in the system from the Configure tab.

To configure the iTap:

1. Click on the icon of the iTap you want to configure and click the **Configure** tab as shown in Figure 33.
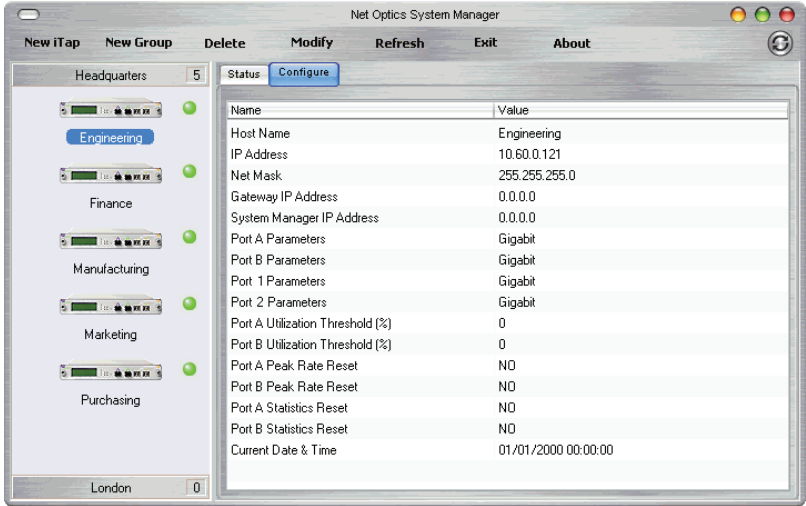
Figure 33: iTap Configure Tab

2. For the parameter you wish to configure, click on the corresponding value field.

3. Select an option from the drop-down list or enter a new value from your keyboard.

4. The new configuration parameters take effect next time System Manager polls the iTap.

Viewing iTap Information

System Manager allows you to view the status of the iTap, traffic statistics col-
lected by the iTap, and the current iTap configuration information.

To view iTap information:

1. Click the image of the iTap you want to view in the System Frame. A window
    similar to Figure 34 appears.
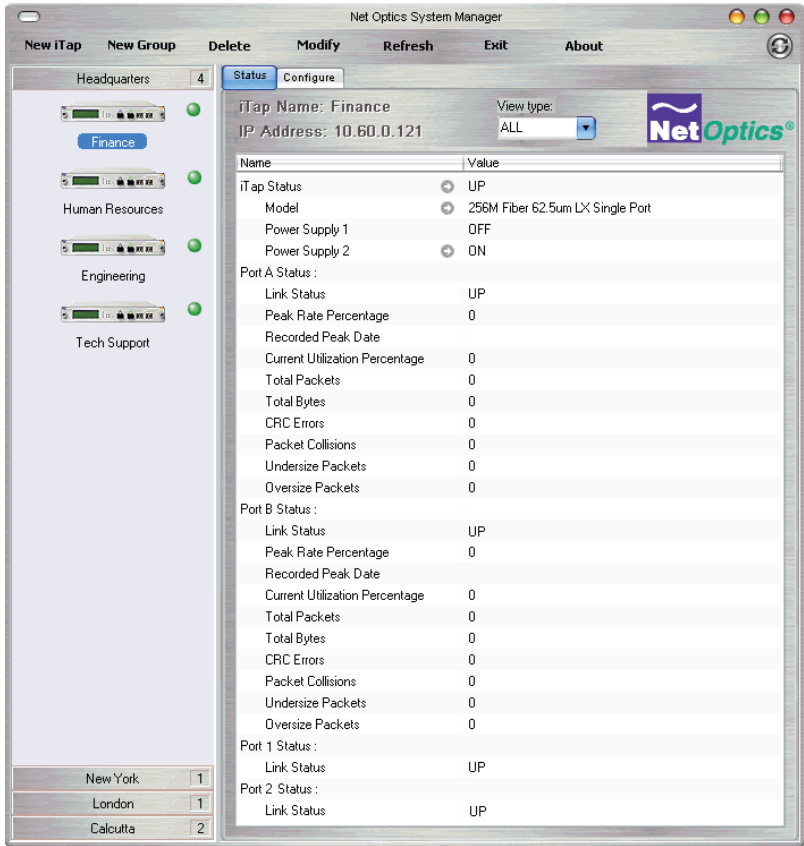
Figure 34: iTap Status Tab

The Status tab is a read-only list of information from the iTap. Use the scroll bar and arrows to view the entire list.

TIP! _____

Fields that have been updated since the last refresh appear with a circle and arrow just to the left of the value field.

_____

To shorten the list by port, click the **View type** drop-down list as shown in Figure 35 and select the port you want to view.
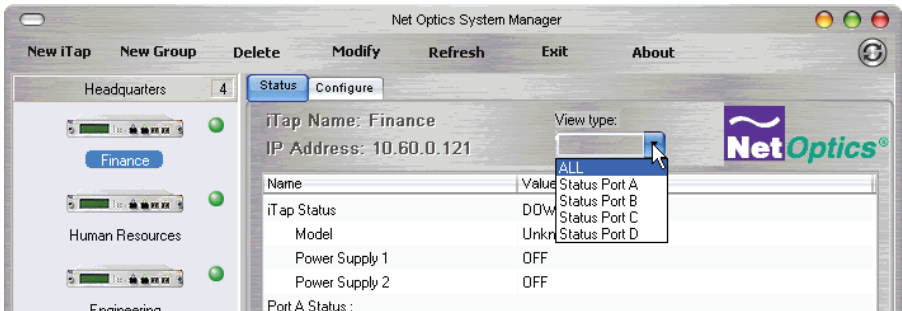
Figure 35: View Type List

Modifying an iTap

You can change the IP address and other basic iTap configuration parameters from the Modify iTap dialog box.

To modify the iTap configuration:

1. Click on the image of the iTap you want to change in the System Frame.

2. Click **Modify** in the toolbar. The Modify iTap dialog box appears as shown in Figure 36.
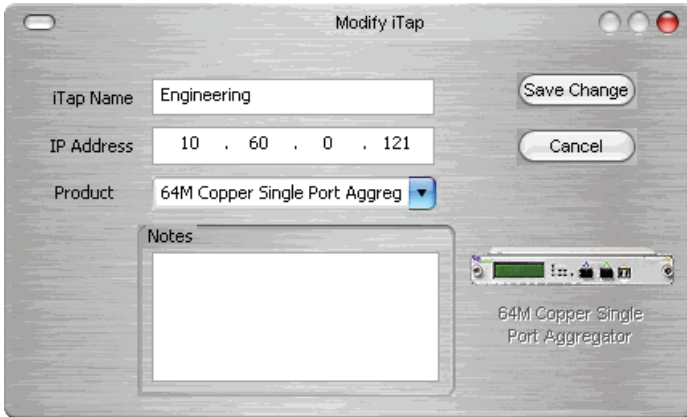
Figure 36: Modify iTap

3. Make the desired changes and click **Save Change**.

Appendix A
Specifications and Models

Specifications

Electrical

Power Supply Input
  100-240VAC, 0.5A, 47-63Hz

Power Supply Output
  12V, 1.5A

Environmental

Operating Temperature
  0˚C to 55˚C

Storage Temperature
  -10˚C to 70˚C

Relative Humidity
  10% min, 95% max, non-condensing

Mechanical

Dimensions
  1.3125" high x 12" deep x 8.75" wide

96542iTP Connectors
  (1) DB9 (RS232 configuration port)
  (1) RJ45 (management port)
  (2) LC (monitoring ports)
  (2) LC (network ports)

96547iTP Connectors
  (1) DB9 (RS232 configuration port)
  (1) RJ45 (management port)
  (2) RJ45 (monitoring ports)
  (2) RJ45 (network ports)

Indicators
  (1) 2x16 Character LCD
  (3) Link LEDs 96542iTP, (8) Link LEDs 96547iTP
  (2) Threshold Alarm LEDs
  (2) Power LEDS

Optical Interface (96542iTP)

Fiber Type

Corning Multimode 62.5/125μm, wavelength 850nm

Split Ratio	Network Port Insertion Loss	Monitor Port Insertion Loss
70/30	≤ 2.4 dB	≤ 6.3 dB
60/40	≤ 3.1 dB	≤ 5.1 dB
50/50	≤ 4.5 dB	≤ 4.5 dB

Transceiver Specifications

GigaBit SX 850nm, VCSEL, supports 62.5/125μm

Monitor Port Output Power

-9.5 dBm

Split Ratios

70/30, 60/40, and 50/50

Copper Interface (96547iTP)

Copper Cable Type:

22-24 AWG Unshielded twisted pair cable, CAT5/CAT5e

Link Distance Supported:

100 meters

Memory

256MB buffer memory

Software

iTap Command Line Interface

Any terminal emulation software

Web Manager

Any browser

Net Optics System Manager

Windows 98, Windows 2000, Windows XP

WiFi

Standard

Conforms to IEEE 802.11b, 11 Mbps

Range (typical)

Indoors: 50 feet
Outdoors: 100 feet

Available Models

Models

96542iTP iTap GigaBit Fiber Dual Port Aggregator

96547iTP iTap GigaBit Copper Dual Port Aggregator

Wireless Option

Accessories

RK-iTP2 Two slot rack-mount panel

Appendix B
Command Line Interface

Command	Sub-Command	Syntax	Description
Help	Set	help set	Displays the set command options.
	Reset	help reset	Displays the reset command options.
	Show	help show	Displays the show command options.
	Echo	help echo	Displays the echo command options.
	Display	help display	Displays the display command options.
Set	IP	set ip <address>	Where <address> is the ip address of the iTap.
	Netmask	set netmask <address>	Where <address> is the ip address netmask.
	Gateway	set gateway <address>	Where <address> is the ip address of the gateway.
	Manager	set manager <address>	Where <address> is the ip address of the remote manager.
	Parameter Port	set parameter port <port ID> <parameter>	Where <port ID> is A, B, C, or D and <parameter> is 0 = GigaBit (other variables not applicable).
	Threshold Port	set threshold <port ID> <parameter>	Where <port ID> is A or B and <parameter> is 0 to 100% of available bandwidth.
	Time	set time <date & time>	Where <date & time> is mm/dd/yyyy-hh:mm:ss.
	Username	set username <username>	Where <username> is the authorized user's name, 8 characters or less.
	Password	set password <password>	Where <password> is the authorized user's password, 8 characters or less.

Command	Sub-Command	Syntax	Description
Reset	Peak	reset peak <port ID>	Where <port ID> is A or B.
	Statistics	reset statistics port <port ID>	Where <port ID> is A or B.
	Storage	reset storage	Resets configuation to factory defaults.
Show	Set	show set	Displays currents settings.
	Status	show status	Displays iTap status.
	Statistics	show statistics <port ID>	Where <port ID> is A or B.
	Power	show power	Displays power status.
	Display	show display	Displays the display setting. Display OFF disables remote interfaces and front panel LCD.
	User	show user	Displays current user logged into the CLI.
Echo	n/a	echo <on/off>	Echo off stops typed character from being displayed on the screen.
Display	n/a	display	Toggles the front panel display and remote interface on and off.

Notes:

www.netoptics.com